SCHOOL PRODUCTION UNIT FOR EXPERIENTIAL LEARNING IN AGRICULTURE SECTOR: A CASE STUDY OF TWO TVET INSTITUTIONS IN NEPAL

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A Thesis

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AN ABSTRACT

of the thesis of *Harish Singh Thapa* for the degree of *Doctor of Philosophy in Education* presented on 26 November 2024, entitled *School Production Unit for Experiential Learning in Agricultural Sector: A Case Study of two TVET institution in Nepal.*

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The study of the role of the school production units in promoting students' experience in the agricultural sector in Technical Education and Vocation Training. School production units are the institutional setup for enhancing the work-based and experiential learning of the students. Experiential learning in TVET institutions, especially in agriculture, promotes the learners' competencies to understand the agricultural value chain.
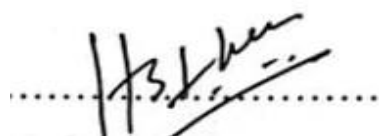
The present study employs a qualitative case study approach to investigate the subsequent research questions: a) How do students, instructors, and administrators describe experiential learning approaches through school production units in TVET institutions? b) How do students experience industry-related skills in the school production unit? c) How do school production units cope with challenges to ensure institutional work-based learning?

I used a qualitative case study approach. The study included 20 participants, including the principal, coordinator, instructor, and students of the TVET institution who are involved in the production unit. I used face-to-face semi-structured interviews with administrators, instructors, and students, as well as direct observations of agricultural farms, veterinary hospitals, animal farms, and archival data of the TVET institutes. I analyzed the data by following criteria such as coding, categorizing, and making themes of the information and field notes.

By applying constructivism as a theoretical approach, this study's findings show three primary work-based learning approaches to the school production units - learning by doing, student-centered learning, and learning by collaboration in the school production unit. Likewise, this study also indicates that students improve their skills by developing subject-specific technical and interpersonal skills such as communication, problem-solving, time management, teamwork, cooperation, collaboration, personal skills, and entrepreneurial skills through experiential learning in the production unit.

It also reveals that to achieve the desired outcomes from the school production unit, stakeholders and the education system face the following challenges during experiential learning activities: managing resources, more holidays in the academic calendar, and proper marketing techniques are major challenges during the production units; Likewise, technology integration, sustainability, diversification in production, and flexible learning are the major future aspirations of the experiential learning in the school production units. Despite the challenges of school production units, such as irregular academic calendars or yearly plans, regulatory compliance, curriculum demands, poor governance, and the marketing and promotion institution, work-based experiential learning has been promoted.

The study concludes that strengthening production units in TVET institutions helps increase students' experiential learning, aligns students' career aspirations with prospective employers' goals, and adequately satisfies their skill demands by integrating learning approaches and skills. This study indicates the pathways for TVET institutions, governments, and policymakers to restructure work-based learning to improve existing practices and enhance their dedication to the development of the TVET sector.

26 November 2024

Harish Singh Thapa
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सोध सार

विकास शिक्षाको विद्यावारिधिको लागि हरिश सिँह थापाको सोध प्रबन्धको शिर्षक " कृषि क्षेत्रमा अनुभवात्मक शिक्षाको लागि शिक्षालय उत्पादन इकाइ: नेपालका दुई टीभीईटी संस्थाहरूको केश अध्ययन" ११ मङ्सिर २०८१ मा प्रस्तुत गरिएको थियो ।

प्रा. , जय राज अवस्थी, पिएचडी
शोध निर्देशक

उपप्राध्यापक, सुरेश गौतम, पिएचडी
शोध निर्देशक

यस अध्ययनले प्राविधिक शिक्षा र व्यवसायिक तालिम (टीभीईटी) अन्तर्गत कृषि बिज्ञान क्षेत्रमा विद्यार्थीहरूको अनुभवात्मक शिक्षालाई प्रवर्द्धन गर्न शिक्षालय उत्पादन इकाइको भूमिकाबारे खोज गर्ने उद्देश्य राखेको छ। शिक्षालय उत्पादन इकाइहरू विद्यार्थीहरूको कार्य आधारित र अनुभवात्मक शिक्षाको स्तर बढाउने संस्थागत संरचना हुन्। टीभीईटी संस्थाहरूमा विशेषगरी कृषि बिज्ञान क्षेत्रमा अनुभवात्मक शिक्षाले विद्यार्थीहरूलाई समग्र कृषि मूल्य शृंखलालाई बुझ्ने दक्षता प्रदान गर्दछ।
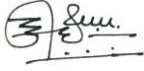
यस अध्ययनले निम्न अनुसन्धान प्रश्नहरूको जवाफ पत्ता लगाउन गुणात्मक केस अध्ययनको बिधिलाई प्रयोग गरेको छ: अनुसन्धान प्रश्नहरू, क) टीभीईटी संस्थाहरूमा विद्यार्थी, प्रशिक्षक, र व्यवस्थापकहरूले शिक्षालय उत्पादन इकाइहरूको माध्यमबाट अनुभवात्मक शिक्षाका दृष्टिकोणलाई कसरी वर्णन गर्छन्? ख) विद्यार्थीहरूले शिक्षालय उत्पादन इकाइमा उद्योग-सम्बन्धित सीपहरूको अनुभव कसरी प्राप्त गर्छन्? ग) शिक्षालय उत्पादन इकाइहरूले संस्थागत कार्य-आधारित शिक्षालाई सुनिश्चित गर्न चुनौतीहरूको सामना कसरी गर्छन्?

मैले गुणात्मक केस अध्ययन बिधि अपनाएको छु। यस अध्ययनमा टीभीईटी संस्थाहरूका शिक्षालय, कार्यक्रम संयोजक, प्रशिक्षक, र उत्पादन इकाइसँग संलग्न विद्यार्थीहरू गरी २० जना सहभागी समेटिएका छन्। मैले प्रशासक, प्रशिक्षक, र विद्यार्थीहरूसँग प्रत्क्ष अर्ध-संरचित अन्तर्वार्ता, कृषि फार्म, पशु अस्पताल, पशु फार्मको प्रत्यक्ष अवलोकन, र टीभीईटी संस्थाका अभिलेखीय तथ्यांकहरू प्रयोग गरेको छु। मैले तथ्यांकहरुलाई कोडिङ, वर्गीकरण, र फिल्ड नोट्सको आधारमा मुख्य बिषयवस्तुहरु बर्गिकरण निर्धारण गरि विश्लेषण गरेको छु।

यस अध्ययनको परिणामहरू, निर्माणवादलाई सैद्धान्तिक दृष्टिकोणको रूपमा प्रयोग गर्दै, विद्यालय उत्पादन इकाइमा तीन प्रमुख बिषयवस्तुहरू, कार्य गर्दै सिक्ने, विद्यार्थी केन्द्रित सिकाई र सहकार्यमा सिक्ने कार्य-आधारित शिक्षण दृष्टिकोणहरु प्रस्तुत गरेको छ । यसैगरी, अध्ययनले उत्पादन इकाइमा अनुभवात्मक शिक्षामार्फत विद्यार्थीहरूले विषय-विशिष्ट प्राविधिक र अन्तरवैयक्तिक सीपहरू जस्तै सञ्चार, समस्या समाधान, समय व्यवस्थापन, समुहमा काम गर्ने, सहकार्य र उद्यमशीलताका सीपहरू विकास गर्ने तथ्य उजागर गरेको छ। यो अध्ययन अनुसार शिक्षालय उत्पादन इकाइबाट वाञ्छित नतिजा हासिल गर्न बिभिन्न चुनौती हरु रहेको र सो चुनौती हरु, स्रोतहरूको व्यवस्थापन, शैक्षिक क्यालेन्डरमा धेरै बिदाहरू, र उत्पादन इकाइहरूको लागि उपयुक्त

बजार व्यवस्थापन रहेको पाइयो। यसका साथै यस अध्ययनले, प्रविधिको एकीकरण, उत्पादनमा विविधीकरण, र लचिलो अनुभवात्मक शिक्षणहरु माथि उल्लेखित चुनोतिहरुको सामना गर्ने प्रमुख रणनीतिहरु रहेको परिणाम निकालेको छ।

यस अध्ययनको निष्कर्ष अनुसार टीभीईटी संस्थाहरूमा उत्पादन इकाइहरूलाई सुदृढ बनाउँदा विद्यार्थीहरूको अनुभवात्मक शिक्षामा वृद्धि हुने, विद्यार्थीहरूको रोजगारीको आकांक्षालाई संभावित रोजगारदाताको लक्ष्यसँग मेल खाने बनाउन र आवश्यक सीपहरूको माग पूरा गर्न मद्दत पुग्छ। यस अध्ययनले टीभीईटी संस्थाहरू, सरकारहरू, र नीतिनिर्माताहरूलाई कार्य-आधारित शिक्षालाई पुनःसंरचना गर्न, वर्तमान अभ्यासलाई सुधार गर्न, र टीभीईटी क्षेत्रको विकासप्रति थप समर्पण गर्ने मार्ग प्रस्तुत गर्दछ।

११ मङ्सिर २०८१
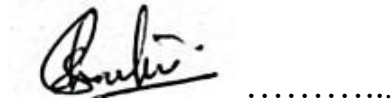
हरिश सिंह थापा
उपाधि उम्मेदवार

This thesis entitled: *School Production Unit for Experiential Learning in Agricultural Sector: A Case Study of Two TVET Institutions in Nepal* presented by *Harish Singh Thapa* on 26 November 2024.

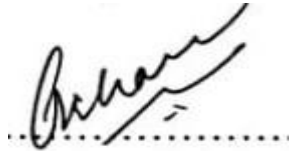<div align="center">APPROVED BY</div>

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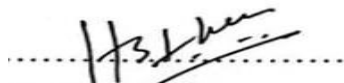External Examiner

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

26

November 2024
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<div align="center">DECLARATION</div>

       I hereby declare that this thesis has not been submitted or published as part of any other degree candidacy.

26 November 2024

Harish Singh Thapa
Degree Candidate

DEDICATION

This thesis is dedicated to the memory of the late Bhim Singh Thapa, my father. Regardless of my actions, I am grateful for your unwavering love and support. You have consistently emphasized the need for perseverance and resilience in my endeavors.

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ABBREVIATIONS

BDPI	Bhimdatta Polytechnic Institute
CTEVT	Council for Technical Education and Vocational Training
EL	Experiential Learning
GoN	Government of Nepal
KUSOED	Kathmandu University School of Education
MoEST	Ministry of Education, Science and Technology
NSTB	National Skill Testing Board
NVQF	National Vocational Qualifications Framework
RPI	Ramechhap Polytechnic Institute
SLC	School Leaving Certificate
SPU	School Production Unit
STS	Seti Technical School
TPI	Tikapur Polytechnic Institute
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
WBL	Work-Based Learning

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CHAPTER I

INTRODUCTION

Technical and vocational education and training (TVET) institutions are essential in meeting workforce development requirements. Students, instructors, and parents can perform various activities in TVET institutions through a production unit that can function concurrently with learning programs. A school production unit refers to a designated section within a school laboratory or practical area that encompasses material and human resources that can be combined to produce products or services to promote experiential learning (Chukwu & Omeje, 2018). The present study begins with an introduction section, then a comprehensive evaluation of pertinent literature and an elaborate presentation of the selected research methodology. This study utilizes a theoretical framework and methodological roadmap to study experiential learning from a school production unit in a TVET institution in Nepal. It aims to explore the learning approaches, employability skills, challenges, and future aspirations of diploma students in the school production unit. The research concludes by presenting its findings, drawing certain inferences, and discussing the potential consequences of the research. This chapter discusses various aspects of the introduction. This study consists of various essential elements, including the background, problem statement, and research objectives that align with the research questions. It also encompasses the study itself and its significance.

Background of the Study

TVET is an integral facet of the educational system, encompassing conventional general education and the development of hands-on abilities, mindsets, cognition, and knowledge by individuals engaged in diverse social, cultural, and economic domains (Galguera, 2018). The TVET sector seeks to meet the need for fresh human skills and capabilities that emerge due to the transition from the industrial age to the information age. (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2021). TVET mainly emphasizes equipping students with the necessary skills and knowledge to secure employment in an industry crucial to a country's socio-economic development and overall well-being. It serves as a job-oriented educational pathway that effectively enhances the employability of young individuals while also providing opportunities for lifelong learning. In the era

of globalization, ensuring individuals possess the necessary competencies to perform their professional duties effectively and remain competitive within the global labor market is of paramount significance.

Theoretical knowledge gained in the classroom can only augment the theoretical dimensions of TVET, demonstrating skills gaps and mismatches (Naw, 2022). Students may have underdeveloped skills necessary to succeed in their future endeavors if they are not given chances to apply their expertise in circumstances beyond traditional curricula norms. Class-based learning in TVET limits the real-world application of theoretical knowledge, potentiates passive learning through lectures, gives fewer opportunities for skill development, enhances dependence on memorization instead of promoting critical thinking, and restricts the utilization of technology for interactive education.

While classroom-based learning has its place, these limitations highlight the need to explore diverse teaching approaches to create more effective and adaptable educational experiences. The predominant form of learning within a classroom setting primarily focuses on acquiring abstract knowledge detached from real-world applications (El-Ashmawi, 2017). However, they contend that effective learning should be within meaningful activities, specific contexts, and cultural settings. Due to the nature of this setting, it is essential to anticipate experiential learning in TVET to integrate class-based theoretical knowledge with work.

The Council for Technical Education and Vocational Training (CTEVT) is the highest governing organization in Nepal and is responsible for overseeing the country's TVET system. CTEVT is implementing diverse forms of Experiential Learning (EL) that combine theoretical instruction with hands-on work experience. Experiential learning enables students to learn practical skills, hands-on experience, and information in a real work environment. It facilitates the transition from theoretical to job-oriented education, encompassing more than just literacy and numeracy. In Nepal, experiential learning encompasses a range of modalities, including internships, apprenticeships, on-the-job training, and school production. Educational institutions commonly provide these programs in partnership with corporations, industries, or organizations (Council for Technical Education and Vocational Training [CTEVT], 2021). They aim to give students practical experience in a professional setting relevant to their study area.

Experiential learning is an experience of learning through practice. The effectiveness of this thought process is determined by the learners' willingness to engage and participate in the learning experience. Experiential learning is a way for students to gain practical experience applying concepts learned in the classroom to real-world situations. Focusing on the learner's internal cognitive process, the Experiential Learning Theory is an appropriate theory for studies in education. It can be used to evaluate the fit between students and learning opportunities (Kolb, 1984). This theory is relevant to this study on instructors' and students' experiences and perceptions of practice in school production units as it relates to learning through experience.

Experiential learning can include internships, volunteering, cooperative education, performance pieces, and industry-recognized projects. Experiential learning in a real or simulated workplace is often called work-based learning. Holzer and Lerman (2014) identified elevated persistence and completion rates in students participating in work-based learning programs, partially attributing this phenomenon to contextualized learning, which aligns with Kolb's (1984) experiential learning cycle. Implementing a WBL occurs in a workplace setting, providing authentic experiences that facilitate the connection between abstract knowledge and real-world implementation (Naw, 2022).

In EL, instructors play a significant role in developing learners' soft skills, also called generic skills. This facilitation enables learners to acquire hard skills, such as professional and academic competencies, by engaging in real-world work environments (Holzer & Lerman, 2014). The acquisition of these skills and knowledge has become imperative for students to adequately equip themselves for the dynamic job market, which is undergoing rapid transformations driven by innovation, technology, and societal changes.

Similarly, students are given opportunities to gain practical experience in authentic work settings and engage in entrepreneurial endeavors within these professional contexts (Hoffman et al., 2016). According to Vaughan (2017), experiential learning is a highly effective platform for cultivating the growth of students' self-awareness capacities. Furthermore, it has been noted that developing decision-making abilities, awareness of opportunities, and acquiring transitional learning should be prioritized. Experiential learning is a comprehensive term that incorporates various educational activities. These activities include field trips,

cooperative work, industrial apprenticeships, internships, collaborative learning, and school production units (Haruna & Kamin, 2019). These categories of experiential learning play a crucial role in integrating classroom-based learning with real-world work experiences, enhancing students' career aspirations.

School Production Unit

School Production Units (SPU) are an essential category of work and learning that refers to specific branches or departments within TVET institutions. These units serve as practical areas or fields, akin to laboratories, where students manufacture occupation-related products or provide services to the community. These actions follow the students' specific subjects and are conducted under the tutelage and oversight of their skilled instructors (Chukwu et al., 2019). The SPU represents a novel instance of an experiential learning initiative that aims to enhance learners' engagement in TVET. This program supports improving employability and upgrading skills, fostering decent and sustainable employment opportunities. The designated production unit must adhere to standard specifications to equip learners with the requisite professional competencies and prepare them to meet industrial demands before completing their degree. This unit should include manufacturing and production facilities and service-provider premises.

The SPU has emerged as a prominent and transformative approach in TVET (Thapa, 2021). This modality is particularly noteworthy due to its learner-centered nature, wherein a qualified educator guides and assists learners in their educational pursuits. Reducing instructor controls is anticipated to increase learner autonomy in the SPU and promote experiential learning.

Experiential Learning in Nepali TVET Institutions

The Council for Technical Education and Vocational Training (CTEVT) is a leading institution in Nepal's TVET sector. The foundation of CTVET was the pivotal step for increasing the TVET sector in the country, with a greater emphasis on skills and employability (Gautam et al., 2018). The CTEVT is entrusted with the responsibility of equipping and enhancing the proficiency of technical personnel at various levels, ranging from foundational to advanced, to foster economic progress and ensure long-term sustainability (CTEVT, 2021). The primary role of the CTEVT is to engage in various activities related to TVET. These activities encompass the process of policy formation, the establishment of quality assurance measures, the formulation of curriculum, the management of instructional deployment and tracking,

and the undertaking of research endeavors. EL is a significant educational mechanism encompassing various programs such as field trips, school production units, job training, collaborative learning in-plant training, industrial apprenticeships, and job shadowing (CTEVT, 2020).

The CTEVT is the apex body that runs a diploma-level TVET program in Nepal that supports the school production unit (CTEVT, 2020). It aims to enhance the educational relevance of constituent, affiliated, and partner schools by integrating theoretical information obtained within an academic setting with practical experience acquired in a professional work environment. This is achieved through the establishment of a school-based production unit, where students engage in the manufacturing and production of various products. The unit operates with a well-designed production plan emphasizing creativity and motivation while providing efficient services within the school premises. In 2019, the CTEVT issued a directive about establishing and operating a school production unit within TVET institutions. The main aim of this directive is to offer learners hands-on experience in authentic work situations, thereby fostering the development of a competent and proficient labor force through TVET institutions in Nepal. CTEVT aims to provide a production unit for their partner, constituent, and community schools based on the subjects relevant to their curricula (CTEVT, 2020). The presence of SPU permits students to participate in workplace learning within the confines of the school premises while also affording them the ability to generate income. The integration of earning and learning facilitates the acquisition of TVET opportunities for individuals.

Implementing a school production unit within a TVET institution ensures that learners gain skills and knowledge that are highly sought after in the labor market. Additionally, this strategy ensures that the development of practical skills complements theoretical learning. Moreover, this educational program aims to cater to the market's demands and instill in its beneficiaries the essential qualities of an entrepreneurial spirit and inventive and imaginative abilities crucial for achieving independence (Ananda & Mukhadis, 2016). According to Aw (2019), TVET institutions are responsible for providing learners with the necessary skills to become adaptable employees who can adequately fulfill the labor market requirements. Additionally, these institutions aim to empower learners by transitioning them from relying on external sources of money to achieving self-sufficiency and becoming productive earners.

The construction and running of a school production unit within a TVET institution is anticipated to offer hands-on training opportunities for students and equip them with business skills to support the school's daily operations. Additionally, the production unit aims to assist students in achieving the fundamental principles of learning, earning, and paying as outlined by the CTEVT (CTEVT, 2020). The development of production units is driven by enhancing learners' attention in EL. This is supported by recognizing that such training is instrumental in improving employability skills and updating competencies to market demands (Yuliana & Hidayat, 2019).

Statement of the Problem

The debate of industry-based and school-based work experiential learning in TVET is ongoing. Both approaches have limitations and strengths (Rienties et al., 2023). The school production unit is one of the important categories of school-based experiential learning in TVET institutions. Moreover, research conducted on school production units indicates that the efficacy of such units, which target young individuals in nations like Malaysia, Indonesia, Zambia, and Nigeria, can be ascribed to the endorsement from the community and the active engagement of employers. The effectiveness of school production units in these nations is notably attributed to enhanced experiential learning and implementing the learn, earn, and pay concepts. (Agustina, 2019; Chukwu et al., 2019; Ganefri & Hidayata, 2015; Pratama & Triyono, 2018; Shagira et. al., 2021; Simaambo et al., 2022) .

The challenge is that it is also unknown how SPU is effective for experiential learning in enhancing learners' skills and to what extent positive learning outcomes can be deduced. Conventional learning approaches sometimes involve passive and lecture-orientated methods, restricting students' chances to apply their information meaningfully (Xu & Shi, 2018). These obsolete methods no longer empower young individuals with the fundamental skills they will require to thrive in a fast-evolving environment; therefore, there is a need for experiential learning by using school resources optimally. This study helps explore the effectiveness of experiential learning in production units over traditional learning methods in Nepal.

According to Pouratashi and Zamani (2019), employers hold the belief that three specific areas of focus can be utilized to enhance the readiness of students for work opportunities after completing their diploma education; these are the career clusters that ought to priorities the foundational courses, technical skills, and

experiential learning and integrate the growth of skills into each course as deemed suitable. The experiential learning structure in TVET institutions' production unit aligns with these essential classes. This study additionally examines the efficacy of these components. A more holistic perspective on student performance entails evaluating the entirety of the student, encompassing technical proficiencies, their knowledge, attributes, work ethics, and abilities essential for securing employment in the future workforce.

Students must have the opportunity to pursue alternative career paths that will aid them in their transition to maturity (Green, 2005). The school production unit would allow students to make, invent, and learn by establishing and running their production and entrepreneurial activities. Addressing this issue is crucial as it enables students to cultivate skills necessary for achieving their maximum potential in future pursuits. This is another reason to explore this issue through stakeholder experience because these abilities are of the utmost significance to the industries for which students will eventually work and are essential to the student's potential careers.

The Nepal government is adopting a strategy emphasizing opportunities, quality, and technical and vocational education diversification. However, there is still a lot of worry about whether the education system can give students the necessary abilities to thrive in the employment market (CTEVT, 2019; Selingo, 2013). On the other hand, TVET schools are less likely to manage either institutional-based work learning or industrial-based work learning because of school facilities and workshop equipment, as evidenced by the disappearance of many hand tools and the failure to replace broken equipment and relationship to industry (CTEVT, 2014). Therefore, CTEVT introduces a school production unit to encourage experiential learning by utilizing the school's practical field, workshop, and laboratories. To help make decisions, it's important to figure out how well experiential learning in production units at TVET institutions is working. There is a necessity for exploring the operational process of experiential learning opportunities in SPU that are available to TVET students with the skills and experiences sought by employers of recent college graduates. This research investigates the preliminary phases, obstacles, and prospective goals of experiential learning inside school production courses, as perceived by all stakeholders, focusing on the TVET Diploma in agricultural students in Nepal.

Purpose of the Study

This study aims to explore the experience of students, instructors, and administrators (principal and coordinator) with experiential learning facilitated by the SPU program designed for TVET diploma students. It also attempts to find the students' experiential learning approaches, skills, and challenges faced in SPU of TVET institutions of Nepal

Research Question

The research questions of this study are:

1. How do students, instructors, and administrators describe experiential learning approaches through school production units in TVET institutions?
2. How do students experience industry-related skills in the school production unit?
3. How do school production units cope with challenges to ensure institutional work-based learning?

Significance of the Study

This research is significant because there is limited research on the consequences of experiential learning through school production units and its applications to students' competencies in the field of TVET in Nepal. This research holds significance for employers interested in collaborating with educators to offer demand experiential learning experiences for young individuals. Furthermore, the findings of this study can be utilized by educators and policymakers to deliver educational prospects for students, specifically those enrolled in TVET. This is in line with the efforts of educators and policymakers to offer diverse pathways for students and to advance the effectiveness of experiential learning implementation.

Likewise, the insights gained from this study hold significant value since they have the potential to shape future initiatives targeting TVET students joined in skilled trades programs. This research offers a comprehensive comprehension of school-based production programs by implementing a qualitative case study. This study's results can attract funding and generate interest among policymakers in school-based enterprises to improve students' learning experiences in TVET.

This study determines whether a production unit approach has improved students' skills. This study ensures that TVET providers remain relevant in producing students with the attributes employers require. The outcomes of this research add to what has already been identified regarding experiential learning in school production

units, especially PBL in TVET institution settings. The results are also expected to help make experiential learning via a school production unit in the courses more effective. This study may provide policymakers, legislators, and college and school administrators with information regarding the potential outcomes of experiential learning and school production units.

<div align="center">**Assumptions and Delimitations**</div>

Assumptions

Researchers may need to formulate assumptions, or propositions believed to be true while lacking empirical proof (Yin, 2018). Assumptions should be limited to beliefs essential for research (Wolgemuth et al., 2017). This section enumerates the assumptions made for the data gathered for the study. The study included the following assumptions. It was presumed that instructors own unique experiences and perceptions of experiential learning and are inclined to share that knowledge with others. Participants were expected to respond truthfully to interview questions and engage honestly in focus group discussions. Participants were guaranteed the researcher's confidentiality during interviews and to verify their responses.

Delimitations

As scholars engage in research, they must establish their study's boundaries, or delimitations, and consciously include and exclude specific elements. Delimitations originate from scholars' specific choices regarding their study. The following delimitations were present in the study:

The study targeted administrators, principals, and teachers from two TVET institutions in the far western province, with participants selected based on specific informant criteria and eligibility requirements. The target population corresponded with the objective of this study. Participants in other provinces may have varying experiences with experiential learning. Excluding participants from other provinces may result in omitting their experiences and perceptions E in this study.

The research methodology employed was qualitative, utilizing a case study design. Utilizing an alternative approach and research design may yield varying outcomes when examining students' experiences. The research study will collect qualitative data, some information could be missing if quantitative data is not collected.

Experiential Learning Theory (ELT) constituted the theoretical framework for the investigation. While alternative theories, such as constructivism, could have been examined in connection with the study, the ELT is most suitable.

Definition of Terms

Active learning

It is an educational approach that facilitates knowledge acquisition through active engagement and participation by students. In this context, students are expected to proactively devise solutions to challenges while drawing upon their prior knowledge for support (Bell & Bell, 2020). Active learning involves students becoming engaged participants in their learning (Santos & Serpa, 2020).

Case Study

It is a qualitative research approach where the researcher comprehensively examines an environment, problem, process, program, individual, or group (Creswell & Creswell, 2018).

Constructivist learning

It is an active learning process; it works best when the students and the teacher are involved. Constructivist learning creates a learner-centered setting that lets people build their knowledge and understanding (Xu & Shi, 2018). Students can understand and build on what they already know through cooperative and conversational learning in an environment that encourages initiative, excitement, and a desire to be the first to learn (Xu & Shi, 2018).

Employability Skills

Employability skills refer to the essential qualities necessary for achieving success in the professional environment and effectively collaborating with colleagues. These skills encompass a combination of knowledge, abilities, and personal characteristics that students acquire along their educational journey, equipping them to enter the workforce and navigate its demands (Bridgstock, 2019).

Employability

Employability is essential for individuals to have the ability to identify, create, and sustain employment and educational prospects throughout their lengthy professional lives and in a variety of professional settings (Jackson, 2015).

Experiential learning

This educational methodology entails the practical implementation of skills or knowledge acquisition through active engagement in practical tasks (Kolb & Kolb, 2017).

School production units

These units are a division within TVET institutions encompassing laboratory, field, and practical areas. In these units, students engage in the production of products related to their trade or subject and the provision of services that align with their respective subjects. These activities are conducted under the direction of qualified instructors. The primary objective is to meet market demands or cater to the needs of communities (Chukwu et al., 2019).

Soft skills

These skills are associated with an individual's personality, attitude, aptitude, and willingness to effectively engage with others (Martin, 2019). Soft skills encompass a range of essential generic abilities vital for students to navigate and contribute effectively within professional environments.

Technical skills

These skills are abilities specific to a certain occupation or field (Stone III & Lewis, 2012) as evidence of a student's proficiency in their curricula.

Work-Based Learning (WBL)

WBL integrates traditional lecture-based teaching and practical work-based experiences, enhancing student involvement and equipping them with the necessary skills for future employment (Hamilton & Hamilton, 1997). WBL encompasses various methodologies and tactics wherein individuals engage in educational pursuits while immersed in a professional setting. This dualistic approach allows for the achievement of knowledge and competencies (Knepler & Zapata-Gietl, 2019).

Organization of the Study

This study consists of eight chapters. Chapter I contains the background of the study, highlighting the problem statement, purposes, and research questions. Chapter II presents the literature review on various topics related to experiential learning, WBL, school production units, constructivism, and employability skills in the literature review field. In Chapter III, includes methodology adopted in the study consisting of the philosophical foundation, research design, data and information collection, researchers' role, and ethical considerations. In addition, it highlights the significance of qualitative case studies

. Chapter IV discusses the findings related to experiential learning approaches, which explore various learning approaches that can be acquired through school production units. Chapter V discusses the presentation of qualitative data related to the skills acquired in the SPU. Chapter VI presents the major challenges and future aspirations of the SPU. In Chapter VII, the findings are discussed in seven significant themes. Lastly, chapter VIII provides the summary of the study and draws insightful conclusions based on research findings.

Chapter Summary

This chapter begins with the study's background and rationale, describing the introduction of school production units and institute-based experiential learning in detail. Subsequently, a chapter presents the problem statement, the study's purpose, its significance, its assumptions, delimitations, and term definitions, before outlining the study's organization.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter provides a comprehensive analysis of the existing literature that pertains to the specific field of study addressed in my case study related to experiential learning in the school production unit. This qualitative case study aims to investigate and describe the strategies employed by production units in facilitating WBL inside TVET institutions at the diploma level. This chapter encompasses six distinct sections dedicated to reviewing the relevant literature.

The introductory segment of the review focuses on the importance of experiential learning in the context of TVET in Nepal. The subsequent part explores the production unit and its application in the learning process, offering further elucidation on the multifaceted features and complexities inherent in the learning process. In the ensuing phases, additional assessments were carried out on work-based learning (WBL), utilizing both the production-based learning strategy and the experiential learning approach applied through a school production unit within the framework of Nepalese TVET institutions. The next part delves into the constructivist approach and its theories on learning. Subsequently, a segment focusing on constructivism and experiential learning within the production unit is presented, emphasizing its distinctive attributes. Finally, the chapter finishes by examining the acquisition of employment skills through experiential learning inside TEVT institutions.

The literature review encompassed diverse scholarly resources, such as research journals, books, conference proceedings, thesis and dissertations, and online resources. The search queries encompassed concepts related to inspiration, participation, transformation, instruction, self-determination, individualized instruction, technological adaptation, adaptable instructional settings, constructivism, school production unit, EL, employability skills, and constructivism. The principles were explored by employing Boolean operators, including "and," "or," and "not," to enhance the understanding of linkages and interconnections.

Experiential Learning

The experiential learning theory is "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 41). Experiential learning,

in essence, involves acquiring knowledge and understanding through practical engagement. Alternatively, individuals can describe it as constructing meaning and knowledge based on real-life experiences (Yardley et al., 2012). Billett (2001) found that experiential learning activities significantly impact individuals' learning processes, cognitive abilities, and behavior. Experiential learning offers a structure for comprehending the influence of work activities on learning and growth.

The educational approach in the experiential learning process at SPU is fundamentally based on experiential learning (EL). Experiential learning is "an ongoing investigation of the essence of experience and the mechanism of acquiring knowledge from it" (Kolb, 2014, p. xviii). Experiential learning assumes that students can achieve real learning, establish personal relevance, and derive meaning from their educational experiences through hands-on practice. According to Amod and Brysiewicz (2019), it is crucial to prioritize active engagement in the learning process when planning and implementing workplace learning. Students can engage in various procedural tasks and develop complex cognitive abilities in experiential learning at SPU. Applying these skills in the workplace leads to an improvement in experiential learning (Phipps et al., 2012)

The philosophy of experiential education emphasizes the significance of learning through actual, real-world experiences (Dewey, 1938; Kolb, 2014). The school production unit associates this philosophy with its educational methodology. Experiential learning in the production unit highlights learners' capacity to analyze, formulate hypotheses, reflect on their cognition, and understand others.

John Dewey's contributions and legacy offer comprehensive insights and applications of experiential learning. Dewey (1938) was the inaugural researcher who introduced experiential education to the forefront. He contended that education should be grounded in experience and asserted that attaining educated citizenship relies on such experience. Dewey also indicated that students can gain deeper insights into themselves by contemplating an experience rather than merely participating. Dewey proposed that while experience is essential to education, not all experiences hold equal value for the learner. Years later, Kolb (1984) elaborated on Dewey's (1938) foundational contributions. Kolb's experiential learning theory (1984) has profoundly impacted 21st-century pedagogy and is frequently used in modern conferences and lectures. He defined learning as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38). His four-stage learning cycle

comprised "concrete experience, reflective observation, abstract conceptualization, and active experimentation" (Kolb, 1984, p. 40). Several forms of experiential learning are employed in agricultural higher education, such as teaching farms, internships, and laboratories (Monaghan et al., 2017; Stirling et al., 2017). These forms of experiential learning influence students' success post-graduation by equipping them with essential skills and experiences.

Implementing experiential learning in agricultural education allows students to acquire simple and complex skills by actively engaging in the school production unit, enabling them to learn through hands-on experience (Farooq, 2013). The experiential learning theory of Kolb (2014) explains the cyclical nature of information processing and learning, which commences with students engaging in immersive and stimulating experiences in the agricultural field of the school's production unit. The next reflective observation stage happens when learners carefully observe and contemplate their tangible experience in producing agricultural products. Learners develop logical hypotheses during abstract conceptualization by incorporating observation in vegetables and other agricultural production. During the active experimentation phase, students utilize these newly acquired ideas in decision-making and problem-solving tasks to collect and market the produced product. Effective learning occurs when learners complete all four stages of the cycle (Chan, 2012; Stocker et al., 2014).

The experiential learning process involves building upon past learning experiences to facilitate the experiential learning process. EL is an educational initiative that enhances conventional classroom teaching by providing students with practical experiences within authentic, real-world environments (Jackson, 2015; Smith & Worsfold, 2014). It offers students a multitude of opportunities to acquire a diverse set of skills that enhance their academic performance and professional prospects. Amadi (2013) observed that the WBL arrangement for experiential learning allows students to develop diverse skills while concurrently engaging in rigorous academic pursuits. Knowledge creation is widely recognized in the context of the workplace. An essential element of EL entails fostering the practitioner's capacity to effectively tackle real-world challenges within their professional setting (Jamalludin et al., 2022) by engaging in learning activities grounded in authentic practice (Gautam, 2022) .

EL is a pedagogical approach based on educational experiences focused on genuine, real-world applications. According to Zhang et al. (2012), students were

involved in genuine job-related activities and interactions that evaluated their educational requirements and offered a suitable environment for learning. The course placed significant emphasis on developing a curriculum that prioritized workplace-based learning. Work environments offered genuine job responsibilities and interactions for students to actively participate in, evaluating their educational requirements and delivering contextualized and experiential learning opportunities. Two distinct learning settings offer divergent experiences that are mutually advantageous and exhibit synergy (Baartman & Debruijn., 2011; Schaap et al., 2011).

Kolb (1984) formulated the experiential learning theory, a more holistic framework that aligns closely to prepare students for real-world applications (Baker et al., 2012). Six assumptions regarding learning define experiential training; these six assumptions are: 1) Learning is regarded as a process rather than an outcome. 2) All learning constitutes a process of relearning. 3) Learning necessitates the reconciliation of conflicts between dialectically opposing modes of adaptation to the environment. 4) Learning is a comprehensive process of adaptation. 5) Learning arises via synergistic interactions between the individual and the environment 6) Learning constitutes the process of knowledge creation (Kolb, 1984).

The Experiential Learning Theory is based on constructivist principles, wherein learners actively engage in their education to comprehend the world and their surroundings through inquiry. The experiential learning process complements Kolb's experiential learning theory, which aligns with constructivism's idea that learning occurs through connecting experiences to prior knowledge (Baker et al., 2012). The learning process involves pupils constructing new information onto existing knowledge. Learning derives from experiences; novel encounters broaden our perspectives and facilitate the assimilation of new information (Passarelli & Kolb, 2020). Kolb and Kolb (2017) delineate the diverse functions of educators, encompassing the facilitator, subject expert, standard setter/evaluator, and coach. Each possesses a distinct role and function within pedagogy.

Meena et al. (2020) concentrated on contemporary students by interviewing individuals enrolled in agricultural colleges. The study revealed that students perceived EL as beneficial to their acquired skills. Monaghan et al. (2017) identified that graduates' perceptions of their experiential learning experiences warrant additional investigation, as experiential learning is crucial for equipping them with

essential skills for their future professions. Research has identified categories of experiential learning and assessed its effectiveness through quantitative studies. Common experiential learning modalities in agricultural education encompass teaching farms, internships, research experiences, and part-time employment (Coker et al., 2017; Monaghan et al., 2017; Stirling et al., 2017).

Experiential Learning Practices in TVET

TVET aims to provide individuals with the necessary knowledge, behavior, and skills to secure and retain employment effectively. TVET focuses on acquiring the knowledge and skills necessary for employment, providing individuals with essential cognitive and practical abilities to enter the job market (Haruna & Kamin, 2019). EL is an institutional structure where learners are simultaneously exposed to work and learning environments. It provides learners with many opportunities to acquire diverse skills, ensuring a mutually beneficial relationship between the educational institution and the professional sector (Okoye & Chijioke, 2013). Integrating TVET with experiential learning allows learners to gain various skills through challenging academic activities and practical career development experiences (Odo et al., 2012).

TVET schools frequently offer various experiential learning programs to support learners in their professional endeavors within the workplace. These programs encompass learning opportunities such as internships, in-plant training, school production units or business ventures, field excursions, work shadowing, apprenticeships, and cooperative learning initiatives (Coker et al., 2017; Monaghan et al., 2017; Stirling et al., 2017). EL programs are available in various formats to offer students practical experience in the professional realm and facilitate a seamless transition into the workforce upon completion of their studies. Experiential learning experiences can vary significantly, with some lasting only a few hours while others span several days or weeks. A concise elucidation of each aspect is provided below to facilitate a comprehensive understanding of these regimens.

Field excursions can provide young students with valuable career knowledge. According to Haruna and Kamin (2019), the organization of field trips to industries and businesses allows students to investigate diverse work settings. The job exploration component of EL provides students with exposure to diverse work situations, facilitating their decision-making process regarding career options (Schrenko, 2010).

Cooperative learning is how students acquire knowledge or are considerate by engaging in group activities under instructional guidance to collectively accomplish a common objective by promoting EL. Due to these distinctive features of cooperative learning, numerous educational sectors over the globe persist in promoting the utilization of cooperative learning methodologies to cultivate creative, innovative, and proficient learners. (Li et al., 2021). Cooperative learning is a very effective instructional approach promoting active student engagement and achievement (Mokmin et al., 2023; Hamdan et al., 2022).

The apprenticeship is an educational initiative that facilitates the integration of academic and vocational experiences for students. Furthermore, it is noteworthy that the curriculum implemented within the school setting follows a structured framework, encompassing academic and occupational pursuits. In addition, the workplace component provides students with the chance to acquire valuable practical experience, which is financially supported. A crucial aspect of vocational education is the necessity for training to occur exclusively within the workplace (Amadi et al., 2007).

Internships are temporary placements within a student's academic program, typically occurring once and for a short duration. This design ensures meticulous oversight of interns' work (Schrenko, 2010). As part of their educational experience, students can produce and sell goods and services within the school environment. Students engage in conceptualizing, implementing, and assessing business and marketing endeavors.

An intern observes and learns by closely following a seasoned professional within a designated time frame to acquire valuable knowledge and understanding in a particular domain. According to Johnson et al. (2004), this facilitates students to elucidate their professional goals, choose a specialization for their further education, and engage in advanced experiential learning opportunities.

The school production unit has emerged as a prominent and transformative approach in TVET. This modality is particularly noteworthy due to its learner-centered nature, wherein a skilled educator guides and assists learners in their educational endeavors. Reducing instructor controls is anticipated to increase learner autonomy in the school production unit, fostering experiential learning through practical areas in school.

Experiential Learning Practices in Nepalese TVET Institutions

The experiential learning techniques implemented in TVET institutions in Nepal aim to offer students practical and experiential learning opportunities, closing the divide between theoretical classroom education and actual employment in the real world (CTEVT, 2019). No single definition of EL exists beyond two characteristics: work-based learning and practice-based learning. In Nepal, we can broadly categorize it as industry-based experiential learning and institute-based experiential learning.

Industry-based Experiential Learning

Internships and apprenticeships are common forms of experiential learning in Nepali TVET institutions. Companies, workshops, or industries assign students to participate in work and learning activities under the guidance of experienced professionals. This enables individuals to acquire practical expertise, comprehend the dynamics of the professional environment, and implement academic concepts in actual situations. Currently, seven curricula are available for the dual apprenticeship program in engineering, hospitality, and education (Paudel & Eberhardt, 2023). The nursing, general medicine, lab technology, and radiology curricula for health sector courses are designed for internships in hospital settings (CTEVT, 2019). On-the-job training is experiential learning in which students dedicate a substantial amount of their study time to gaining practical experience in an actual work setting. Work-based learning in the OJT is a compulsory component of most TVET programs in Nepal. Its purpose is to guarantee that students acquire practical experience directly applicable to their field.

The major challenge of industry-based EL is that many industries in Nepal are not fully prepared to take on trainees due to limited resources or expertise. There is often a lack of awareness among employers about the benefits of experiential learning L, leading to limited support. Most of the time, students must pay additional fees for their industrial placement. The industry does not provide adequate coverage for students studying plant and veterinary science in agriculture.

Institute-based Experiential Learning

TVET institutes offer a type of work and learning known as institute-based experiential learning. This involves providing on-site workshops, labs, and school production units where students can gain practical experience through hands-on work. Students gain practical skills by participating in university laboratories, workshops, kitchens, restaurants, junior or professional businesses, simulations, and real-world

business or industry projects. According to Jackson et al. (2017) and Perusso & Wagenaar (2021), students acquire practical skills through active participation in university laboratories, workshops, kitchens, restaurants, junior or professional businesses, simulations, and real-world business/industry projects. Their programs include practice-oriented training in various industries, including agriculture and hospitality. Students participate in authentic projects and applied tasks under the guidance of lecturers, gaining valuable experiential learning.

The production unit of the TVET School in Nepal facilitates comprehensive on-campus experiential learning programs in various fields such as organic farming, livestock management, and agro-business. The institution possesses on-site farms, greenhouses, and livestock facilities, which serve as educational platforms for students to acquire knowledge and skills in contemporary agricultural techniques, farm management, and sustainable practices through hands-on involvement (CTEVT, 2019). The main problems in institute-based experiential learning are a shortage of necessary facilities such as workshops, labs, simulation centers, and equipment, inadequate funding, and delays in integrating the curriculum with experiential learning.

EL through the School Production Unit

School production units refer to specific divisions or departments within TVET institutions. These units are dedicated to practical applications and are akin to laboratories or fields of study. Within these units, students produce goods that align with market demands or provide services to communities. These activities align with the specific academic disciplines or trades pursued by the students while being overseen and instructed by professional faculty members (Chukwu et al., 2019). The school production unit represents a novel instance of an experiential learning initiative to enhance learners' engagement in TVET. This program supports enhancing employability and advancing skills necessary for securing stable and fulfilling employment opportunities. The designated region must possess production facilities related to their trade and appropriate service-provider area, along with sufficient auxiliary facilities that adhere to standard specifications. This is necessary to ensure that learners acquire sufficient work skills and become proficient in the demands of the industry before completing their degree.

A school production unit refers to a designated space within a school, such as a laboratory or practice area, where individuals and resources collaborate to create

products or offer services. A production unit can be conceptualized as an industrial sector wherein students produce products and/or services under the guidance and supervision of qualified instructors. The CTEVT actively promotes the school production unit within its affiliated, partner, and constituent schools in Nepal (CTEVT, 2020). According to Chukwu and Omeje (2018), this approach is founded upon the notion that the program effectively integrates theoretical information acquired in the classroom with the application of practical knowledge inside the production unit. This is achieved by utilizing creative and innovative manufacturing and service.

A TVET institution equipped with production units possesses the capacity to assist students in gaining market-oriented skills that surpass the minimum requirements. Additionally, such institutions reinforce theoretical knowledge with practical skills, align the curriculum with market demands, and instill in learners the essential qualities of entrepreneurship, innovation, and creativity, which are crucial for self-sufficiency. TVET imparts the essential competencies to students and the theoretical understanding required to become skilled and capable workers who can effectively meet employment requirements (Ananda & Mukhadis, 2016). The overarching objective is to enable students to progress from relying on others for financial support to attaining economic independence (Aw, 2019).

Establishing a production unit within an institution facilitates the production or provision of services and the sale of products and services. Its primary objective is to ensure that students acquire practical skills and sufficient knowledge, ultimately certifying their preparedness to enter the workforce upon graduation (Ogumbe, 2015). Establishing a production or service unit is instrumental in generating revenue and ensuring the long-term sustainability of TVET institutions. The production unit within institutions extends beyond mere laboratories or workshops. Their establishment facilitates the ongoing application of knowledge acquired in the classroom by actively involving students in real-life scenarios within the world of work. This engagement allows students to interact with customers and skilled practitioners, enhancing their learning experience. The objective mentioned above is achieved by strategically placing students within an educational setting that facilitates their engagement with customers and experts proficient in the skills imparted (Chukwu & Omeje, 2018).

In addition to collaborative efforts, educational excursions, professional placements, and youth apprenticeships, the school production unit constitutes a

fundamental element of experiential learning (Haruna & Kamin, 2019)). According to Harmer (2015), the learning approach employed in this context also involved the implementation of student-centered learning, wherein the instructor assumes the role of a tutor who facilitates the student's learning process by helping whenever necessary. It is hypothesized that students will assume a higher level of accountability for their educational progress when teachers exert less authority over the classroom setting. Production-based learning prioritizes the students' role as learners and focuses on addressing authentic and current problems. This approach requires students to draw upon their existing knowledge and gather information from various sources to solve these problems. The efficacy of the production-based learning model is contingent upon students' ability to engage in efficient collaboration within small groups, thereby optimizing their educational outcomes. Production-based learning involves identifying and articulating the production problems that necessitate resolution. Subsequently, the students and the instructor engage in discussions to align their perspectives on the issues and establish objectives and milestones that must be achieved. Subsequently, students engage in a quest for materials about planning and production, gathering information from various sources, including the library and the internet, as well as from observation and interviews (Agustina, 2019).

Students can participate in work-related experiences as an essential element of the school production unit. The primary aim is to facilitate the application of theoretical knowledge into practical contexts within the school environment. Production units are interconnected with their professional technical trade and form an integral part of the core curriculum at the diploma level. Specifically, these units allocate resources to provide facilities and equipment and conduct training programs for faculty and staff members. Moreover, these units are interconnected with translating theoretical knowledge into practical applications, converting raw materials into final products, and incorporating educational and production principles into relevant trade subjects.

The production unit is affiliated with the esteemed technical and vocational subjects offered in these TVET institutions. The implementation and functioning of production units within TVET institutions are anticipated to provide students with practical training opportunities while generating revenue to support the institution's ongoing operations. Furthermore, this initiative will support students in comprehending and implementing the principles of acquiring knowledge, generating

income, and meeting financial obligations, all while contributing to the ongoing operational needs of the educational institution (CTEVT, 2020). Production units are implemented to ensure that students develop practical skills, acquire appropriate knowledge and attitudes related to their specialization, and assess their preparedness for the workforce before graduation. These units are responsible for the production and sale of various products. Furthermore, these units guarantee that students fulfill the necessary criteria for graduation according to predefined specifications.

School Production Unit in the Nepali TVET Institution

The CTEVT is a leading institution in Nepal's TVET sector. It is entrusted with the responsibility of equipping and enhancing the skill sets of individuals at various levels of technical expertise, ranging from foundational to intermediate and advanced levels. This objective aims to foster economic progress and ensure long-term sustainability (CTEVT, 2021). The primary role of the CTEVT is to engage in various activities related to TVET. These activities include policy formulation, ensuring quality assurance, developing curricula, managing instructional deployment, and tracking and conducting research. Experiential learning is a significant educational mechanism encompassing various programs such as field trips, school production units or businesses, internships, on-the-job training, project work, job shadowing, cooperative learning, and apprenticeships (CTEVT, 2020).

The CTEVT supports the School Production Unit (SPU) program for promoting experiential learning and promoting learning, earning, and paying strategies for their students. It aims to enhance the educational relevance of constituent, affiliated, and partner schools by integrating theoretical knowledge with practical experience in a workplace setting. This is achieved through the establishment of a school production unit, where students engage in the manufacturing and production of various products. The unit operates with a well-designed production plan emphasizing creativity and motivation while providing efficient services within the school premises. CTEVT issued a directive in 2019 regarding establishing and operating a production facility within its constituent schools in Nepal. The primary objective of this directive is to provide learners with real-world practical exposure, thereby facilitating the development of a competent and proficient workforce through TVET institutions in the country. CTEVT endeavors to establish a production entity for community, affiliated, and constituent schools based on the subjects relevant to their curriculum (CTEVT, 2020).

A production unit within the school setting allows students to be involved in experiential learning while providing them the potential to earn income. The process of earning while learning facilitates the acquisition of sustainable TVET opportunities for individuals.

Implementing a school production unit within a TVET institution ensures that students obtain the necessary knowledge and skills that are in demand for employment. This approach also ensures that theoretical learning is complemented by practical application. Moreover, this educational program aims to cater to the market's demands and instill in its beneficiaries the essential qualities of an enterprising spirit and inventive and imaginative abilities crucial for achieving independence (Ananda & Mukhadis, 2016). According to Aw (2019), TVET institutions are responsible for providing learners with the necessary knowledge and skills to become adaptable employees who can effectively fulfill the labor market requirements. These institutions also aim to empower learners to transition from dependency on others for financial support to becoming self-reliant and productive earners.

The operation of the production facilities in TVET institutions is intended to offer students practical skills and entrepreneurial activities to run the school's daily operations. Additionally, it aims to support students in upholding the (CTEVT, 2020) principles of learning, earning, and paying. Experiential learning is facilitated by establishing production units within the school, enabling learners to develop employment-oriented skills, gain practical workplace experience, and enhance their entrepreneurial abilities (Becker, 2013). The expansion of school production units is primarily motivated by fostering learners' engagement and enthusiasm towards specialized and professional training. The understanding that such training can enhance employability skills and update competencies in line with market demands motivates this (Yuliana & Hidayat, 2019).

Employability Skills through EL in the School Production Unit

Enhancing graduate employability constitutes a primary objective for both students and TVET institutions. Employability refers to an individual's capability to secure and continue employment, encompassing a range of requisite conditions (Yorke, 2010). Employability skills are the abilities that companies deem essential for freshly hired students to work well in the modern professional environment (Geel, 2015). Employability skills encompass various essential abilities that individuals must cultivate to foster a productive and skilled workforce. These skills are essential for

improving the learner's knowledge, capabilities, aptitudes, and entrepreneurial enthusiasm. The acquisition of these skills enhances graduates' preparedness for securing employment and effectively performing in their chosen professions (Yorke & Knight, 2007). These skills are the fundamental abilities required for finding and maintaining gainful employment and perfecting that position (Kuh, 2006; Robinson, 2000).

EL provides students with a valuable opportunity to acquire and refine practical information and skills that are not readily attainable through traditional classroom instruction in technical and vocational training institutes. Acquiring this specific information and acquiring these abilities is vital for individuals to succeed in their respective vocations (Cunningham et al., 2004). EL can support students in making well-informed career choices, forging relationships with potential employers, and cultivating job-specific skills relevant to future job prospects. According to Holzer and Lerman (2014), work-based learning entails students gaining academic knowledge and technical expertise while developing employability skills by actively participating in authentic work settings.

To put it another way, the ability of graduates to effectively enter the job market depends on skills, a portion of which ought to be gained through the pursuit of higher education. The gap between the job skills graduates possesses and the skills demanded in the labor market is the primary obstacle preventing graduates from successfully entering the world of work. Graduates receive work-ready skills (manual skills) through work learning, which increases their likelihood of finding employment and improves their quality of life.

Employability skills are the fundamental abilities required for finding and maintaining gainful employment and excelling in one's current position (Robinson, 2000). Experiential learning has the potential to offer students valuable opportunities to get practical job experience and enhance their level of involvement (Sobiechowska & Maisch, 2007). It assists instructors in developing students' communication, personal, problem-solving, social, and creative skills. Students benefit from being immersed in authentic work settings because it helps them enhance their intellectual, technical, and employability skills (Holzer & Lerman, 2014).

Employability skills encompass a collection of competencies deemed essential for all students since they contribute to developing a highly efficient labor force. These skills are essential for improving the learner's knowledge, skills, abilities, and

entrepreneurial passion. These abilities enhance the learner's knowledge, expertise, proficiency, and entrepreneurial passion. Most of the current ideas on employability view it as a collection of three skills (Asonitou, 2012; Shahbazi & Ali, 2006); technical subject-related skills (for example, health, engineering, hospitality, agriculture, etc.); generic skills (for example, communication, organizational, and teamwork) and personal skills (for example, resilience, self-confidence, and discipline). Details of these three types of employability skills are:

Technical Skills

Technical skills are subject-specific or trade-specific skills that refer to the information collection and competencies necessary to execute a certain activity. Technical skills are the acquired knowledge and skills that enable individuals to perform specialist tasks efficiently using technical equipment and tools relevant to a certain subject area. (Zaharim, 2009). The term "subject-specific skill" denotes the knowledge and abilities unique to the performance of a specific job (i.e., doctor, pharmacist, engineer, etc.). Many technical jobs require in-depth knowledge in each sector, and companies continue to place a premium on this kind of specialized expertise. Although knowledge is essential, companies do not base their selection judgments solely on the candidate's trade-related expertise (Bridgstock, 2019). Students begin their practical job experience in their chosen field within the school production unit, where they actively participate in real-world duties. This practice develops the technical competencies of learners following their respective professions, ultimately resulting in the development of employability skills through experiential learning inside the school production unit.

Soft Skills

Soft skills are another important employability skill encompassing attributes and proficiencies, also known as core competencies and generic skills. These abilities encompass the characteristics that are essential for achieving success in professional contexts. Several titles commonly refer to soft skills, including key, core, basic, and essential (Laker & Powell, 2011). Students begin their practical job experience in their chosen field within the school production unit, where they actively participate in real-world duties (Sharma, 2018). Students begin their practical job experience in their chosen field within the school production unit, where they actively participate in real-world responsibilities. Experiential learning enhances individuals' capacity for work-related critical thinking and is a valuable career guidance instrument. It enables

the exploration of several occupational alternatives and educational and training options that can effectively enhance one's chosen profession (Musset & Kurekova, 2018). The school production unit's facilities provide a suitable environment for students to acquire soft skills applicable in many spheres.

Personal Skills

Personal qualities are an individual's positive attitudes and traits utilized in obtaining, retaining, and achieving success in employment (Zaharim, 2009). Employability refers to a student's propensity to discover, acquire, adapt, and consistently increase the skills, knowledge, and individual characteristics that enhance their ability to attain and generate financial and personal success-rewarding employment opportunities (Oliver 2019).

Constructivism

This study examined the constructivist approach to education and learning, along with the experiential learning technique, through the school production unit. According to constructivism theory, Individuals can attribute importance to the information offered, creating their knowledge base through individual introspection and experience (Powell & Kalina, 2009). The constructivist learning theory elucidates how individuals gain skills and knowledge by integrating or expanding prior learning experiences. In this situation, students must actively create knowledge rather than passively being mere receptacles of information from various sources like resources, the environment, and people in their immediate vicinity (McLeod, 2019).

Constructivism is an educational philosophy that encourages student accountability in the learning process and empowers instructors to assume the role of facilitators rather than mere information disseminators (Lambert et al., 2002), as opposed to traditional teacher-directed learning experiences (Lee & Hannafin, 2016). The philosophical school of thought known as constructivism holds that different people derive their knowledge and sense of meaning from their specific experiences. Armstrong's (2019) main point was that Jean Piaget (1896–1980) was the first person to use epistemology in human development. Armstrong (2019) argues that constructivism has been changed to fit the current state of human knowledge and development. According to Piaget, knowledge acquisition is a dynamic and progressive process characterized by distinct stages of cognitive adaptation to the external world. Throughout these developmental phases, individuals engage in a proactive process of constructing knowledge by formulating and evaluating their

concepts and hypotheses about the surrounding environment. All cognitive development aims to reach more stable and complex levels of organization.

Constructivism is a learning theory that clarifies how people gain knowledge and learn. By utilizing students' existing knowledge, constructivist learning theory facilitates the construction of new knowledge (Aravind & Bhuvaneswari, 2023; Plummer et al., 2021). Experiential learning through the school production unit allows students to acquire knowledge through practical experience and develop their understanding. This approach is consistent with the application of constructivism, which emphasizes the active involvement of students in constructing their knowledge (Siregar et al., 2024). Constructivism asserts that the presentation environment of ideas and the student's beliefs and attitudes shape the learning process. This statement also aligns with EL, which encourages students to engage actively in solving problems and helps develop their critical thinking skills. Consequently, instructors and students may create a learning environment that is highly efficient and engaging, facilitating the growth of students' critical, creative, and productive thinking skills. Vygotsky's constructivist learning theory highlights the significance of social interaction and guidance in learning (Mishra, 2023).

Creating and applying school production units are several contemporary versions of constructivist approaches to experiential learning. Experiential learning at SPU is a constructivist pedagogical technique in which learners engage collaboratively and combine their prior knowledge and beliefs within a supportive environment equipped with tools and resources to foster the creation of new information and the development of skills. Additionally, such constructivist techniques promote many views, and learning styles are crucial in facilitating cooperation, reflection, and self-directed learning (Tseng et al., 2023).

Experiential learning is rooted in the constructivist and experiential teaching and learning theories that Piaget, Dewey, and Vygotsky fostered, nourished, and advocated (Grant & Branch, 2005). Due to the prospects for cognitive and social studies, constructivism is widely regarded as one of the most fruitful theoretical frameworks for educational practices (Powell & Kalina, 2009). Students construct understanding and knowledge within a constructivist learning environment by establishing meaningful links between concepts and integrating their unique views and experiences (McLeod, 2019).

This approach enables students to enhance their knowledge through questioning and collaborative discussions. This facilitates the development of their knowledge. Constructivism is an educational theory that prioritizes students' interests, fostering an environment where collaborative learning is encouraged. Students actively engage with their preferred topics, thereby enhancing their understanding and knowledge in those areas.

Hedin (2010) posits that constructivist learning has several key traits. First, these students actively participate in learning rather than passively receiving knowledge. Second, earlier learning experiences grow into current knowledge and understanding. Thirdly, interactions between learners and their environment and others enhance learning and comprehension. The above traits are aligned with experiential learning in the school production unit. In TVET, utilizing school production units is a very efficacious strategy for integrating experiential learning with the constructivist educational approach. The constructivist framework emphasizes learners' active participation in constructing and acquiring information and skills. It posits that reality is derived from the personal experiences of students (Lee & Hannafin, 2016).

Constructivism is a learning process in which students construct their knowledge by utilizing prior knowledge and experiences. Instructors facilitate the process of knowledge acquisition by offering students relevant learning experiences, allowing them to reconstruct information (Umayrah et al., 2024). The constructivist approach lays the groundwork for promoting innovative thinking by arguing for an educational setting that gives priority to the learner and stresses qualities such as curiosity, exploration, and the integration of diverse perspectives (Turakhia et al., 2023) and by actively participating, effectively conveying information, arranging tasks, working together, and maintaining their acquired knowledge (Vijayakumar Bharathi & Pande, 2024). These traits are also considered crucial in experiential learning within school production units.

Under experiential learning, students at SPU use constructivist ideas to help them develop educational beliefs and dispositions. One notable component of this engagement is empowering students to actively construct their learning by amalgamating their reflections on prior experiences with novel concepts encountered in the instructional material and observation with practical works. (Vygotsky, 1980). Indeed, experiential learning programs often incorporate genuine activities and

procedures to facilitate knowledge acquisition using constructivist approaches inside subject-specific classrooms. Students can engage in authentic work situations and enhance their problem-solving abilities through hands-on experiences, such as creating tangible goods and on-site assignments, commonly incorporated in most experiential learning programs. This opens the door for personal reflection, modifying, and creating knowledge (Fosnot, 2005).

Identification of the Gap

As mentioned, the understanding of experiential learning in the SPU mostly comes from empirical research conducted at TVET institutions. Scholars specializing in TVET have conducted thorough investigations on school production units (Simaambo et al., 2022). The utilization of school laboratories and practice areas as school production units faced challenges, notwithstanding the overall success of TVET schools in this regard. The empirical studies on the SPU, a mirrored practice of experiential learning, are still a topic of discussion in Nepal.

Simaambo et al. (2022) viewed SPU as a key value for school improvement in Zambia. Hidayt (2017) highlighted production-based learning as an accepted professional learning initiative in Indonesia. However, it is not currently used as a regular practice to address experiential learning in TVET schools in Nepal. In their study, Marniati et al. (2018) revealed that engaging in practice-based activities inside school production units yielded more effectiveness than similar activities in smaller companies. Herry & Hendro (2016) proposed the creation of production unit managers who could strategize, execute, lead, oversee, and evaluate the actions and responsibilities of teachers and students.

According to Chuku (2018), the production unit improves schools by combining classroom learning with creative and innovative approaches to producing goods and providing services. Similarly, in various studies of the production-based learning approach, learners are expected to actively engage in the learning process by posing significant inquiries related to the goods they are creating (Ganefri et al., 2013; Ganefri and Hidayat, 2015; Kusumaningrum et al., 2015). Hidayat (2017) argues that production-based learning encourages students to engage in collaborative learning and teaching activities within small groups and can serve as an alternative approach to learning in vocational school. I was unable to find any studies about school production units in Nepal.

Likewise, Amanda and Mukhandis (2016) contended that the primary objective of a school production unit is to provide firsthand experience in the business, foster an entrepreneurial mindset, encourage creativity and innovation, and offer practical training to address societal needs, then endeavors that strive. These studies will have to validate and strengthen these perspectives by emphasizing the need to boost the production unit in the context of Nepal because SPU is also an encouraged program in Nepali TVET institutions.   To address this gap, there is a need to study how TVET schools use school production as an experiential learning practice in Nepal. This study sought new knowledge of the SPU of TVET Schools from the narrative realities of school principals, instructors, and students involved in SPU.

Research evidence drawn from Shagira et. al., (2021) & Simaambo et al. (2022) also provided a need to offer a deeper exploration of school production units because the administrators, principals, and instructors at TVET schools have a limited comprehension of how to effectively utilize school production to improve teaching and learning methodologies and competencies. The subject has been addressed in the background study, and problem description in Chapter I. Stakeholders frequently inquire about the most efficient methods for implementing and sustaining the school production unit as a valuable instructional and organizational practice.

As stated earlier in the issue description, the perception of administrators, principals, and instructors regarding the effectiveness of the production unit as an experiential learning method to enhance teaching and learning at polytechnic schools was unknown despite the research on the production unit learning implementation in many countries and its ability to create systemic improvements across TVET school further investigation was needed in the context of Nepal, less is known about SPU through experiential learning in the context of TVET.

Subsequently, the existing body of research highlighted the necessity to comprehend the diverse perspectives of educators and their execution of experiential learning within the context of utilizing SPU as a program endorsed by the CTEVT. The research has demonstrated a need to explore the school production unit among stakeholders within polytechnic institutions (CTEVT, 2020). Therefore, it was necessary to examine the perceptions of administrators, instructors, and students on experiential learning in the context of a school production unit.

Furthermore, this work made a valuable contribution to the expanding field of research by examining the theoretical aspects of school production units through experiential learning and constructivism theories. Bridging the relationship between theory, practice, and research added to the body of research advancing scientific knowledge to confirm the empirical value of experiential learning in school production of TVET institutions. This study considered a collection of theories from other empirical and research studies.

Conceptual Framework

The research gap has been identified as a conceptual framework for further exploration of the phenomenon of experiential learning in SPU. Furthermore, the case studies were specifically crafted to align with the underlying paradigm. Employ a diverse range of methodologies that bolster the conceptual frameworks driving the research objectives of the study (Yin, 2018) insights from constructivism. I have delineated the conceptual framework, as depicted in Figure 1, which governs the whole execution of this research endeavor. This research focused on case studies of the school production units and their effect on TVET educational contextual settings to enhance professional learning and skills. The theory of experiential learning theory guides the overall case and draws upon the first vertical rectangular shape, which represents the school production unit on the outer rectangle's left side. This Production unit is part of the school. It promotes experiential learning and has been established as an industry-like setup in TVET institutions (shown in two horizontal blocks) under an experiential learning and constructivist framework.

Figure 1

Conceptual Framework
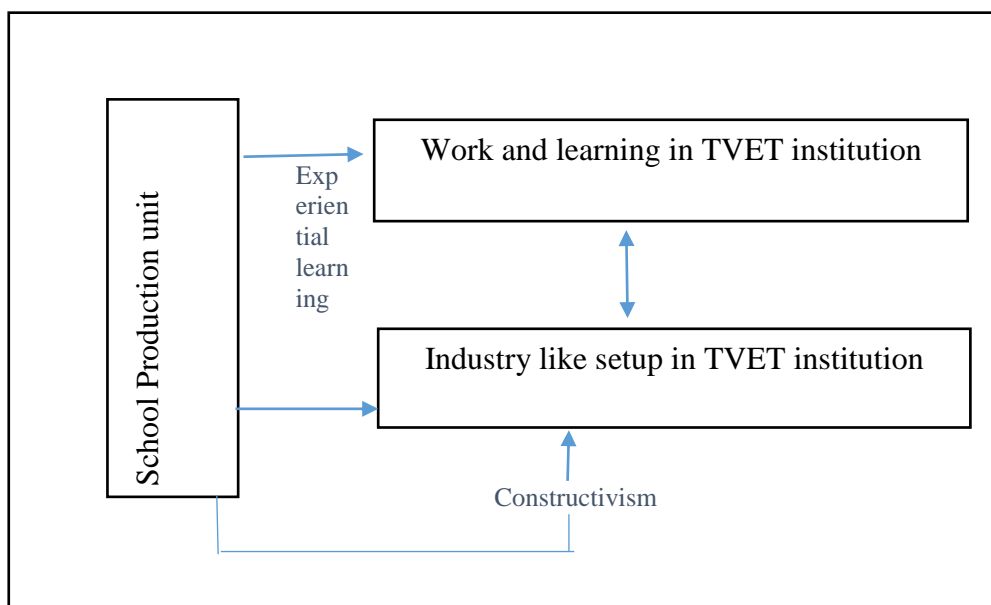
Evans et al. (2012) argue that "a theoretical framework represents the collection of interrelated constructs to guide research, implementation, and evaluation" (p. 155), which is the study of a particular phenomenon. In this view, the school production unit was initially designed to connect theory and practice. It also provided a chance to explore the constructivism and experiential learning model as a deliberate and understandable method for overall improvement. As part of my research, I employed these two theoretical frameworks to examine how administrators, instructors, and students experience the consequences of SPU in TVET institutions. The study utilized face-to-face/phone semi-structured interviews, direct observations of the manufacturing unit, field notes, and archive data as several sources of data to authenticate the study's theoretical framework.

Summary

In this chapter, I reviewed the literature, the background of experiential learning, and the theoretical foundations of the topic. The initial section of the review focuses on the significance of experiential learning in the framework of TVET. The second section delves into the production unit, which provides additional insights into the various aspects and intricacies of the learning process. More evaluations were done on experiential learning using the production-based learning strategy, and the WBL approach was implemented in various stages through a school production unit in Nepali TVET institutions. The subsequent section explores the constructivist approach and its theories of learning. This is followed by a section on applying constructivism and experiential learning in the production unit, highlighting its unique characteristics. Lastly, the text discusses acquiring employment skills through experiential learning in TVET institutions.

CHAPTER III

METHODOLOGY

In this chapter, I discuss my philosophical standpoint and describe my methodological considerations for the study. I used a qualitative case study on experiential learning through the school production unit of TVET institutions and how stakeholders perceive it. I found that qualitative case studies are the best technique to analyze this issue; they are suitable research methodologies to examine phenomena of complex nature in a particular environment, with an emphasis on answering 'why' and 'how' questions (Stake, 2005; Merriam, 2009; Yin, 2018; Creswell, 2013) of experiential learning through school production units. This chapter is divided into multiple components: (a) Philosophical Assumptions, (b) Interpretive Position, (c) The Deciding Case for the Study, (d) Data Collection Units, (e) Data Collection, (f) Data Analysis, (g) My Role as a Researcher, (h) Trustworthiness in Research and (i) Ethical Considerations.

Philosophical Assumptions

I conducted this study to enhance comprehension of students' worldviews and unique perceptions of the world. The reason behind my desire to see the world through the eyes of various people and engage with their diverse perspectives is a huge motivator for me. Constructivism is the conceptual framework used in my qualitative research study, with the constructivist theoretical framework (Creswell, 2013) serving as the main guiding principle for my study's interpretation. It was crucial to gain a deeper understanding of the nuanced perspectives held by each of the participants because the situation in which they functioned, the facilities to which they had access, and the political, cultural, and economic environments in which they were immersed would all influence their points of view.

In qualitative research, the constructivist framework is helpful because it recognizes that interpretations and findings depend on the setting in which they are made. According to Stake (2000), a significant proportion of current qualitative researchers hold the conviction that "knowledge is constructed rather than discovered" and that the contemporary environment in which we reside has been constructed by human beings (p. 99). This dissertation explores the interactions between the school principal, instructor, and students in school production units as

part of experiential learning. Participants' realities were grounded on personal and shared experiences. Their interactions with students and conclusions based on their behaviors and responses embody constructivist epistemology. To this worldview, I used a constructivist paradigm to examine students, instructors, and administrators' perceptions and experiences with reducing learning barriers in their buildings. I use open-ended questions (Crotty, 1998) and examine people's lived experiences (Jones et al., 2006; Gubrium & Holstein, 1997) to understand and reconstruct their understanding of the phenomenon under investigation (Jones et al., 2006).

Ontological Premises

My study followed the relativism ontological approach because a qualitative case study assumes relativist ontology. The field of ontology pertains to examining how individuals perceive and interpret the social world; it is the philosophy of reality and the investigation of the nature of reality. My ontological stance is that reality is experienced through involvement in experiential learning through the school production program since each participant shares a unique reality shaped by their viewpoints, worldviews, experiences, and surroundings. As a result, it is crucial to realize that reality is subjective when perceived from several different views when researching persons. As a researcher, my purpose should be to characterize the varied perspectives of participants in the study as they are presented to me.

In contrast, according to Schraw and Olafson (2008), relativists consider the possibility that things can exist in a dynamic, ever-changing way, as seen in my current study of experiential learning in a school production unit. They say that no one can ever know for sure whether something exists. For instance, relativists believe that there is no such thing as an absolute truth in scientific research.

Epistemological Premises

My epistemological stand is the constructivist epistemological position because it fits with the idea that students and instructors (stakeholders in this study) comprehend the educational and professional learning experiences via the lens of their distinct viewpoints and experiences in the relevant environments. My epistemological perspective demanded that I do this study in the surroundings of all stakeholders to acquire comprehensive knowledge of experiential learning through the school production unit and how situations and experiences of the stockholders' involvement influenced the events. I could comprehend their knowledge assertions by interviewing and listening to the respondents' responses in a free environment.

The epistemological positions underpinning the constructivist approach imply that the world can be known only through the perceiver's communication and the occurrences they experience. As a researcher, I actively produce knowledge from my work, allowing me to be a subjective observer. I have a personal stake in this matter, and the purpose of this chapter is to provide a detailed account of the research process in a manner that allows the reader to evaluate the study's rigorous and analytical approach. This will help establish confidence in the reliability of the resulting information.

Axiology

Axiology relates to ethics and morality (Mertens & Wilson, 2012). Researchers are individuals shaped by their values and principles, which form their identities and are consciously or subconsciously incorporated into their research activities. Compliance with ethical norms in research and professional practices, including the education of TVET students, is a vital component of one's identity as a scholar and professional. This commitment illustrates the scholars' devotion to their principles and foundational beliefs.

The axiological assumption investigates the nature of values (Collis & Hussey, 2014). The objective of this research is to elucidate how SPU facilitates the development of learning methodologies and competencies in TVET institutions. The study was interpreted through the social constructivist or interpretivist paradigm (Creswell 2013). From this perspective, I endeavored to collaboratively develop the meaning of the world inhabited and engaged by the participants. Considering the diverse factors that affect apprenticeship success, it was essential to elucidate the intricate perspectives of each participant, as their opinions were shaped by their work context, available resources, and the cultural, economic, and political environments surrounding them. My interactions with participants enabled me to investigate and articulate the function of apprenticeships in improving college and career preparation abilities while addressing employer skill requirements.

Consequently, the knowledge I acquired and my conclusions were collaboratively developed with my participants. Given the value-laden nature of research, I recognize that my history and values may affect the interpretations I render during the study. Consequently, to establish credibility and trustworthiness in my research, I will address my values, function as a researcher, and the factors that impacted my interest in this topic in the subsequent subsection.

Qualitative research is inherently value-laden, as researchers impose their beliefs and prejudices on the study and its interpretations (Creswell 2013). As a researcher, my obligation necessitated an open disposition, allowing me to engage with my subject matter and attentively listen and comprehend the information presented to me without any bias. It was essential for me to suspend my ideas and remain receptive to learning from participants, refraining from presuming their prior knowledge or understanding. During my comprehensive analysis and experiences with the school production unit, I had to consistently scrutinize my preconceptions and biases, distinguishing them from the data provided by my participants.

Interpretive Position

My worldview and viewpoint on acquiring world knowledge are compatible with an interactional approach with my participants in producing meaning for the many realities they have encountered in the workplace (Denzin & Lincoln, 2011). Therefore, a qualitative case study research methodology is used in this study, in which things are seen through the eyes of the people who experience them and then interpreted by me, the researcher, based on my experiences. The most effective strategy for gathering the data required to address the key research question was a qualitative case study technique. According to Merriam (2009), "qualitative researchers are interested in how people understand their experiences, how they construct their worlds, and what meaning they attach to their experiences" (p. 5), and in qualitative research, the researcher can "make sense of or understand a phenomenon in terms of the meanings the individuals bring to it" (Denzin & Lincoln, 2011, p. 3).

The qualitative case study technique was employed to comprehend the participants' experiences within the school production unit. This choice was motivated by the qualitative researchers' inclination to explore individuals' sense-making processes and the construction of their realities. The researchers are intrigued by individuals' cognitive processes in interpreting their experiences and the subsequent impact of these experiences on their perceptual development. Furthermore, Marshall and Rossman (1999) stated that documentation and description of a concept at the study location would demonstrate this phenomenon's most significant tasks, opinions, behaviors, and economic and social frameworks. Utilizing a qualitative methodology enables me to comprehend the significance and intention behind the actions (Guba &

Lincoln, 2000) that participants contribute to the school production unit by investigating intangible factors and situating the participants' experiences within a broader context.

Also, qualitative research allows me to learn about a problem or event that is hard to measure (Creswell, 2013; Merriam, 2009) through the school production unit. Because of these considerations, a qualitative case study methodology is best for studying the experiential learning phenomenon in the school production unit context. A case study was conducted within a school production unit in TVET institutions, and the interaction between teachers, school administration, and students was examined. This approach facilitated a comprehensive understanding of the participants' experiences. It also allowed me to learn more about the phenomenon's subtleties and complexities and investigate how policy, knowledge, and practice related to experiential learning in the production unit programs.

The Deciding Case for the Study

The main methodology for this study was qualitative case study research. This part examines the selection of case study research methodology for the present study, evaluates the significance of employing case study methodology, explores the distinctive attributes of case study approaches, and deliberates on the case study research designs that emerge from the practice of case study research. When conducting research on a contemporary, tangible occurrence constrained by its temporal or spatial dimensions, employing case studies is a crucial research methodology (Creswell, 2013; Yin, 2014). In this study, experiential learning through the production unit is a modern, real-life event in TVET institutions. The identification and delimitation of the case constitute crucial components in the design of the case study. My case study design also involved determining the appropriate case study type from a pool of four potential Yinian perspectives and selecting cases to be examined to collect and analyze case study evidence. Furthermore, I needed to exercise caution to prevent confusion between the units used for data collection and those used for data analysis.

Stake (2005) and Yin (2014) reported on a broad list of programs, persons, groups, or policies in the case study. The school production unit is a significant data collection unit in this study. In addition, Merriam (2009) considered the case to be a single thing or unit surrounded by boundaries. The choice to employ the qualitative case study approach was based on the need to conduct an in-depth investigation and

gain comprehensive knowledge of the production unit's experiential learning. Yin (2018) outlined various benefits of employing the case-study approach, specifically highlighting its flexibility and thorough research design.

The school production unit of a TVET institution is the case for this study, reflecting real-world phenomena, and experiential learning is the context of this study. According to Yin (2014), a case reflects a real-world phenomenon when the distinction between the phenomenon and its context is unclear. Further, he connected case studies to empirical inquiry, which would be used to answer questions like "how" or "why" about a phenomenon. Hence, the main unit of analysis utilized in this research is the school production unit. However, it is worth noting that an additional layer of analysis exists in micro cases proposed by Stake (2005) and subunits, as Yin (2018) discussed. Plant and veterinary science are two subunits of analysis within the agricultural sector. Moreover, the individuals who implement experiential learning through production units encompass school administrators, instructors, and students. These individuals collectively serve as the data collection unit.

The primary unit of analysis is the school production unit itself, serving as the principal case. Nonetheless, there exists an additional tier of analysis as subunits (Yin, 2018) or "minicases" (Stake, 2006, p. 4). The several participant levels (Principal, Instructor, and Students) constitute the level2 unit of analysis. This is an instrumental instance (Stake, 2006) as the school production unit aims to utilize it for examining bigger educational, social, or economic ideas, such as the incorporation of practical skills into formal education. The school production unit exemplifies a realistic case for examining broader challenges. Examining a school production unit as an instrumental case allows researchers to derive insights into the wider educational, social, and economic advantages of these efforts. This study's use of an instrumental case study corresponds with the definition: "the instrumental case study employs a specific case (some of which may be superior to others) to attain a more comprehensive understanding of an issue or phenomenon" (Crowe et al., 2011, p. 2).

Data Collection Units

The study focused on three different units of analysis for data collection. Within each of these units, twenty individuals were carefully chosen. Below, we comprehensively describe the units and people involved in the study.

Unit 1: The top-level management and administration team of a polytechnic institution. The participants selected were the principal, vice principal, and coordinator of the TVET School.

Unit 2: Instructor participants from TVET schools involved in school production units were selected.

Unit 3: The students involved in experiential learning in the production unit program. Five participants from each TVET school were selected for this unit.

The study included a total of twenty participants (Table 1). The consent of the study participants was obtained with the understanding that their identities would be protected. Therefore, pseudonyms were allocated to each participant to ensure the confidentiality of the information. The instructors were talked to in their departments, and students were talked to in the school's production unit for data collection. The participant's answers to the interview questions gave us an idea of the problems and opportunities of the school's production experiential learning unit.

Table 1

Details of Participants

	Instructors	Students	Principal /coordinator	Total
School A	3	5	2	10
	AI1	AS1	AA1	
	AI2	AS2	AA2	
	AI3	AS3		
		AS4		
		AS5		
School B	3	5	2	10
	BI1	BS1	BA1	
	BI2	BS2	BA2	
	BI3	BS3		
		BS4		
		BS5		
Total	6	10	4	20

Interviews with school principals and other participants occurred in the principal's office. The interview questions focused on how the school production unit program was started, their experiences, problems, and ideas for setting up and running the program, and overall goals.

I described the objectives of the research and the interview to the participants, reaffirmed the duration of the interviews, and emphasized their privileges. The

average time limit for each interview was one hour. According to Creswell (2013), researchers utilize "generic, focused, and open-ended questions that are meant to help explain the main idea of a study" (p. 163). Therefore, I often used open-ended interview questions to elicit in-depth responses from respondents. In addition, questions and statements that probe for more information, such as, "Could you describe more?" "or "You had told me that..." The questions "Can you elaborate on that?" and "Tell me more" were used to elicit additional information from the participants and clarify their perspectives. Each response was recorded, transcribed, and stored password-protected on my laptop and mobile devices. Multiple data sources were used in this study to increase its validity and precision (Creswell, 2013).

Data Collection

In the present study, a set of focused strategies was developed by utilizing the knowledge and insights gained in the early part of the study. The tasks encompassed in this process involved the formulation of timetables, the establishment of effective communication channels with study participants and case investigators, the acquisition of necessary permissions to access study locating and engaging with participants, the management of essential resources, and the anticipation of any unforeseen obstacles that may arise during the fieldwork.

After formulating the focused strategies, I pursued multiple paths of investigation and exploration, which ultimately converged to provide evidence triangulated, enabling me to address the research questions. The best way to answer the study questions and fill in the gaps, difficulties, and needs in the current body of research was found to be through a chain of evidence that included semi-structured face-to-face interviews, field notes, direct observations, and archival records (Allen et al., 2015).

As Yin (2018) posits, case study researchers must abide by four basic principles in the data collection procedure. These principles involve using multiple sources, creating a complete database of case studies, preserving a transparent chain of evidence, and exercising caution when combining material received via social media platforms. This study implemented three data-gathering principles, as suggested by Yin (2018). Initially, data was collected using multiple primary sources, including face-to-face interviews with participants at two TVET polytechnic institutes for all participant groups and viewing documents relevant to the school production unit at these institutions. Using multiple sources for data collection enabled data

triangulation, which, as stated by Merriam and Tisdell (2016), enhanced the construct validity of the gathered evidence and bolstered the study's credibility.

Yin (2018) also suggested numerous benefits of utilizing multiple data sources. This approach facilitates the convergence of different lines of inquiry, ultimately enabling the desired triangulation of distinct data points to e explore the phenomenon under investigation effectively. Furthermore, I utilized a personal laptop to establish folders within Microsoft Word, serving as a comprehensive case-study database to organize and document the gathered data efficiently. I curated and managed a systematic collection of all the data acquired from in-person interviews and document assessments, written narratives, and documents, which I then included in my written report. Establishing this structured database facilitated the preservation of data in a format that can be easily accessed, hence enhancing the dependability of the data. Ultimately, I have created a clear and coherent chain of evidence that enables an external observer to go through various sections and processes systematically. This chain links the research questions to the evidence gathered, the data analysis, and, ultimately, to the case report.

In case study research, Yin (2018) identified six primary data sources that are frequently encountered. The sources include interviews, documentation, archival documents, direct observations, participant observation, and observable artifacts. This study encompassed two unique categories of data: primary and secondary sources of information. The main data sources for this study included in-person, semi-structured interviews, direct field observations, and field notes. The secondary data comprised logbooks and archival documentation. The study utilized primary and secondary data sources to investigate school production unit characteristics and gain deeper insights into the perspectives of a particular cohort of principals, teachers, and students.

I followed the recommended interview methodology Rubin and Rubin (2011) outlined. I preferred to use a guided approach during the interview process instead of relying solely on pre-determined questions. To streamline the process of gathering data, I established communication with the study participants and coordinated a meeting at a mutually agreeable time and place. Instead of depending on external support for the interview coordination and scheduling, I took the initiative to manage the assignment autonomously (Seidman, 2013). Additionally, I promptly reached the designated location. I diligently conducted interviews whenever feasible and contingent upon the consent of my participants. When research participants declined

to participate, or it became apparent that recording could elicit discomfort, I was compelled to rely exclusively on notetaking as a means of data collection. I transcribed my handwritten notes and subsequently digitized them under the given circumstances. Notetaking involved many methodologies, including time series, descriptive recording, and occasional reflections. Time series involved documenting occurrences chronologically, while descriptive recording entailed providing detailed descriptions of the events. Additionally, reflections were incorporated at times.

Despite my attempts to structure the interview as a guided dialogue, there were instances where this approach was not feasible. Certain research participants were constrained to offer concise responses and could not provide detailed explanations of their viewpoints. In instances of this nature, I conducted thorough investigations by posing further inquiries. The duration and frequency of interviews were primarily contingent upon the circumstances of the participants, necessitating significant compromises in this regard. Typically, the interviews lasted approximately one hour. In addition to conducting interviews, I also used Merriam's (2009) suggested direct observation methods.

I employed observational methodologies to comprehend the operational protocols in the school production unit and to know the characteristics of the learning method in the production unit. These observations corroborated the evidence gathered from additional sources, including interviews and secondary sources. Based on the preliminary findings from my fieldwork, a further approach for investigating individuals' acquisition of knowledge and skills was to make regular visits to the workplace in TVET institutions. Despite the potential challenges associated with conducting a planned interview, a targeted visit to the workplace to perform the interview can provide a significant quantity of valuable information.

I collected supplementary material by watching the students work at their respective jobs while I was there. Observational data typically consisted of activities, actions, and behaviors, whereas document-based data encompassed a broader range of sources such as records, communications, official logbooks, and artifacts. The focus is on activities, actions, and behaviors that distinguish observational data from document-based data (Patton, 2002). Throughout that period, I watched the participants go about their normal lives and took notes on their activities, behaviors, and other observable occurrences. In addition, training manuals, student handbooks,

and other publications were analyzed so that additional insights could be gleaned to enhance the data gathered from interviews.

In addition, I used notebooks and field notes to document helpful thoughts and feelings that assisted me in comprehending and interpreting my findings. I maintained a flexible and adaptable attitude throughout the process, remaining open to potential modifications due to the nature of the qualitative study. Sales and Folkman (2000) state that it is crucial to exhibit flexibility and tolerance throughout the planning stage. When researchers adhere strictly to a certain design, impeding the development of an ethical and scientifically sound strategy, it might manifest unethical practices.

Data Analysis

Thematic analysis was employed with an inductive approach to analyze the data. This analysis was undertaken after organizing research participants' responses into specific themes based on the collected information. The case study employed the mode of inductive investigation focusing on subjective findings. According to Thomas (2003), inductive analysis is characterized by its reliance on data-driven methods and its lack of adherence to preexisting classifications when interpreting and organizing data. Percy et al. (2015) concur with the above proposition by proposing the concept of inherent bias that can emerge from a concentration on empirical research. My thematic analysis encompasses the process of collecting data, followed by coding and the establishment of reliable and meaningful patterns. The integration of themes with the research questions was then undertaken to facilitate the process of interpretation.

Inductive analysis is a method that involves the transformation of unprocessed textual data into a concise and condensed format. The data collected from the papers was analyzed and evaluated to derive insights into applying constructivist pedagogical techniques in experiential learning and the impact of these approaches on students' learning experiences in a school production unit. The study focused on developing, analyzing, and discussing major topics and categories within the framework of constructivist educational techniques in TVET. The text data from the face-to-face interview was methodically processed, structured, examined, and presented using MAXQDA, a qualitative research software tool.

According to Braun and Clarke (2022), the overall six-step procedure involves the utilization of "codes" as fundamental units for analysis, with themes being derived from these initial codes. During the initial phase, I familiarized myself with the

dataset. Using appropriate code labels, I meticulously generated preliminary codes during the study's second phase and assigned them to significant, interesting, or relevant text segments. I constructed initial themes from the codes generated in the second step, "exploring clustered patterning across your datasets" (p. 78). I refined and evaluated preliminary themes during the fourth phase while ensuring "enough meaningful data to evidence the theme" (p. 99). Similarly, during the fifth stage, I refined the identified themes further and afterward assigned names to them while considering how these individual themes contribute to the broader study. During the concluding phase, reports summarizing the findings from the data analysis conducted in the ultimate chapter were prepared.

My Role as a Researcher

My interest in this research originated from my experiences as a production manager in a pharmaceutical company, where I oversaw manufacturing different pharmaceutical dosage forms. I had to reflect on my personal experiences to illustrate how I initially developed an interest in this topic and to critically analyze how my unique perspective has influenced the research conducted on this topic. Likewise, being a dedicated principal of a TVET school, I have a strong connection to the school production unit program. I worked as a TVET instructor at a CTEVT constituent school for five years before shifting to the position of TVET School principal. My previous experience in the TVET educational system has greatly influenced my perspective and convictions on the functioning of experiential learning and its integration into the comprehensive education system.

The active participation of researchers in processing qualitative research data differentiates it from quantitative research in this regard. I am the primary instrument for data collection and analysis in case study research. As researchers progress in conducting research, they must acknowledge that they are the main research tool, acting as both the primary and human instruments. Therefore, researchers must evaluate their biases, limits, and perspectives throughout the phases of the research process that involve collecting, analyzing, interpreting, and reporting the findings. Qualitative research operates under the presumption that the researcher's biases and values impact the results of any study (Merriam, 2009). Peshkin (1998), on the other hand, proposed that "one's subjectivities could be seen as good because bias is the way researchers make a unique contribution," which he defined as "one that comes from the unique combination of the data they have collected and their personal

qualities" (p. 18). For the audience of a qualitative study to assess the accuracy of the conclusions derived from the data, researchers should mitigate or suspend their biases by explicitly acknowledging them within the study (Altheide & Johnson, 1994).

Trustworthiness in Research

Integrating considerations of quality into the design of a case study and ensuring their preservation throughout various stages poses a formidable task for researchers engaged in case study investigations. Credibility distinguishes a high-quality study, making it a reliable source of information for those looking to use its findings (Merriam & Grenier, 2019). The issue of ensuring quality in qualitative research is a topic that generates diverse viewpoints. Denzin & Lincoln (2011) put up a comprehensive framework for assessing quality, which includes the examination of credibility, transferability, dependability, and conformity. Here are four: Credibility and transferability in qualitative research address validity, whereas dependability and conformity address reliability (Starcher et al., 2018; Yin, 2018).

This section delineates the measures implemented to enhance the credibility, dependability, transferability, and conformity of the qualitative case study that examines experiential learning in the production unit, and participants' responses are used to assess their credibility. In qualitative research, the participants must believe that the results truly reflect what they went through (Merriam & Grenier, 2019). Yin (2018) emphasized the importance of coherence and descriptiveness in field situations to establish credibility.

This study employed narrative responses from semi-structured interviews, active engagement of informants, researcher memos recording interviews, contextual descriptions collected from different TVET institutions, and explicit information from primary and secondary data sources to ensure internal validity. I used triangulation in the analysis of data to increase the credibility of this research by utilizing three distinct information sources is one way to demonstrate the credibility or validity of a case study design; therefore, I used multiple sources of information like document analysis, face-to-face interviews, and field observation during the data collection of the study to contribute to the study's credibility.

Member checking is another strategy that can be employed to enhance the credibility of qualitative research (Merriam & Grenier, 2019). According to Stake (2005), it refers to requesting a data source to verify that the researcher's report is accurate. The present investigation also utilized this strategy to ensure the research's

reliability and validity. Data was acquired from the participants through face-to-face interviews. The interviews were recorded using audio technology and then transcribed into textual form. The transcript was disseminated to the attendees through email. All participants verified that the transcript provided accurately reflected their contributions and viewpoints expressed during the interviews.

Switching on to transferability, Yin (2018) argues that external validity necessitates demonstrating how findings from previous research can be generalized beyond the specific methodologies employed and, more specifically, how they can be applied to other contextual settings or populations that exhibit the same phenomenon. This concept concerns the applicability of the findings obtained from a particular case study in different contexts. Considering Yin's proposal to uphold construct validity, I have thoroughly examined, studied, and employed experiential learning theories alongside contemporary constructivist learning theories. According to Shenton (2004), the analysis of previous studies should establish connections with other relevant research studies, their findings, and techniques, thereby providing valuable insights for a connected study. This study demonstrated transferability by employing the same data collecting and analysis processes as previous studies that utilized a similar case study methodology and design to investigate experiential learning in a school production unit.

Another quality criterion is dependability, which is the ability to research in natural settings in the same way every time. It asks if the same results would be found if someone else did the research (Treharne & Riggs, 2015). In qualitative research, it's important to check the reliability of the information collected (Merriam & Grenier, 2019). People often compare the reliability of qualitative research to that of quantitative research (Denzin & Lincoln, 2011; Morrow, 2005). A case study research protocol and methodological log were utilized for this study. This made it possible for people not involved in the study to review all decisions made throughout the research process. While studying, I made detailed notes and kept a paper trail (Rubin & Rubin, 2011). I recorded all the interview data.

The following criterion for maintaining trustworthiness is confirmability. In qualitative research, confirmability comprises a researcher's neutrality or objectivity (Denzin & Lincoln, 2011). I used multiple data sources, connected evidence within and between cases, and got key informants to review the research and findings. These all ensure an accurate case study analysis (Yin, 2014). Confirmability is the absence

of researcher bias (Amankwaa, 2016). To ensure the production of satisfactory findings from the data, a reader needs to understand how a researcher has established a connection between data collection, analysis, and the resulting conclusions (Cope, 2014).

Similarly, the dissemination of the research results, encompassing the exchange of insights and ideas, was carried out through several channels. Participation in workshops and seminars, regular interactions with supervisors, and weekly PhD meetings were among these. I derived valuable insights from each writing exercise, enhancing the quality of my subsequent presentations. The present study draws upon a range of scholarly literature to inform the development of a study report and deliver its findings (Bloomberg & Volpe, 2019). Throughout the study endeavor, spanning from the first stages to the last phase of compiling and disseminating the findings, I made a concerted effort to uphold the standards of rigor and excellence in the research process.

I diligently adhered to the specified quality criteria throughout the research process, which encompassed formulating research inquiries and formulating the case study procedure. The subsequent section details the approach taken to navigate ethical quandaries.

Ethical Considerations

Various ethical considerations demand clarity and attentiveness in the context of participatory evaluation studies. The comprehensive disclosure of information, effective exchange of ideas, explicit guidelines for research procedures, and voluntary involvement necessitated ongoing ethical deliberations for all those participating. In the following section, I discuss the measures taken to maintain ethical consideration of my research. After identifying the case, I contacted the institutions' decision-makers to elucidate the study's objectives and secure access to the prospective participants. I prepared a consent form for those participating in the research so that I could get approval to start the research work. The form provided a detailed description of the study's objectives, the potential benefits for participants, the anticipated duration of data collection, and the intended utilization of the research findings. Furthermore, the participants were duly apprised of their entitlement to discontinue their involvement in the research project at any given point. Additionally, they were made aware of the preventive measures that would be implemented to

ensure the preservation of their anonymity and the confidentiality of the information they provided.

Furthermore, the participants were duly apprised of their prerogative to discontinue their involvement in the research at any given moment, alongside the measures that would be implemented to ensure the preservation of their anonymity and the privacy of their answers (Denzin & Lincoln, 2011). Conducting extensive interviews and observations with participants in the field was crucial for gaining a comprehensive understanding of school production units, including their structures, organizations, and the lived experiences of those affected by the phenomenon. I was obligated to show consideration for the participants' time and work around their schedules whenever possible to avoid interfering with their day-to-day activities. Maintaining a presence for an extended duration in the respective field was necessary to gain the participants' trust and comprehend the complexities of the phenomenon being studied. In addition to that, it assisted me in recognizing problems that were important to the study.

According to Yin (2018), it is recommended that researchers employ multiple data collection methods, like interviews, observations, document records, and other evidence, wherever these alternatives are available. A researcher is obligated to adhere to an ethical principle referred to as triangulation. This process elucidates a particular theme or viewpoint while guaranteeing the study's rigor and validity (Creswell, 2013). Interactions with my participants allowed me to gain an objective viewpoint and identify any limitations in my reasoning through inquiries concerning my conclusions and assumptions. Due to the solitary nature of the dissertation procedure, I need to have these sessions. To achieve this goal, I set up appointments with my fellow advisors so that I could update them on my progress and solicit their input at the same time.

The information gathered was saved on a laptop with password protection. Also, to protect the interviewees' privacy, I made sure that the information I got from them was not shared with anyone else without their permission. Due to the nature of my questions and the types of people who took part, this kind of research did not pose a big risk to participants. However, it became apparent that inherent risks are associated with every research study; therefore, it was critical to exercise utmost respect towards the research sites. The participants' time was also accommodated to ensure stakeholders were not disrupted.

Confidentiality

It was important to stick to ethical practices to ensure that the people who took part in the study by ensuring equitable treatment of research participants and adherence to ethical principles were key considerations in this study. Before, during, and after the study, the researcher ensured the participants' privacy was respected. According to Greener (2011), the researcher must safeguard the confidentiality of the research data and its sources and devise a storage strategy that ensures the data remains private. Using fake names for the people whose information was collected for this research study kept their information private. Within one to two hours of the interviews, the data were put into a program, MAXQDA, which stores qualitative data.

The interviews were recorded and typed up, and then the data from the recorder was erased. Personal information about the people who took part was kept safe by shredding the paper documents. Privacy is an important part of research studies to protect the people who participate (Merriam & Tisdell, 2016). Yin (2014) said that a research report might be able to identify people or groups based on their traits without internal confidentiality.

Avoiding Bias

The idea of researcher bias was taken out of the study at every step, from gathering data to analyzing it. The research was done without any bias from me to make sure it was valid and unrestricted of problems (Greener, 2011). So, there would not be any bias; the information the participants gave was included in the study, but it was not transcribed into my words. The study did not occur at the school where I worked or with people who worked with me inside or outside school.

Informed Consent

The first step in minimizing risk was informed consent. Based on Yin (2018), obtaining informed consent involves several components, such as providing an invitation and explaining the (a) potential dangers, (b) entitlements, (c) potential advantages, (d) confidentiality measures, (e) distribution of study findings, and (f) information about the researcher.

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Summary

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In this chapter, I restated the background, research questions, philosophical foundation, research design, data and information collection, my role as a researcher, ethical considerations, and a summary.

The research question was carefully crafted to investigate the experiences of stockholders of TVET institutions regarding experiential learning through school production units. The aim was to understand how these experiences shape their career aspirations in their respective majors, thereby contributing to the existing body of knowledge. The research aimed to examine stakeholders' perspectives regarding the effectiveness of school production units to their career aspirations in their respective fields. After carefully evaluating both qualitative and quantitative approaches, I determined that the most suitable approach for the study is qualitative. The study design employed a qualitative-descriptive approach. In addition to case studies, there are various other design options available. The data collected was stored in the appropriate storage protocol. I provided a comprehensive overview of the expected constraints and boundaries of the study. In Chapter 4, I elucidated the findings of the research.

CHAPTER IV

LEARNING FROM SCHOOL PRODUCTION UNITS

Overview of the Chapter

This chapter deals with the learning approaches of diploma students in the production units in their polytechnic institutes. This chapter addresses the first research question: how do instructors and students experience the learning approaches in the school production units? This research question aims to generate the meaning of learning in school production units and the engagement of instructors and students. In addition, the question uncovered that production units promote learning, helping students promote experiential learning. While addressing these research questions, I found three major learning approaches they experienced from the production units: a) learning by doing, b) student-centered learning, and c) learning by collaboration themes were generated from integrating documents and the face-to-face semi-structured interview.

Functionality of Production Units

This section deals with the infrastructure and human resource management in the selected two polytechnic institutions in the far western region of Nepal.

School A

My study began with the Model Polytechnic Institute of Far Western Province for observation and information collection in the agriculture department. It runs programs like a Diploma in Agriculture (plant science), a Diploma in Agriculture (Animal Science), a Diploma in Forestry, and a Diploma in Civil Engineering and offers short-term vocational training in agriculture, livestock, Mason, assistant beautician, and tailoring occupation.

The institute's mission is to produce a competent and confident middle-level agriculture workforce required for the modernization and development of agriculture in Nepal. This model polytechnic institute aims to conduct quality enhancement of the agriculture sector through a wide variety of technical education and vocational training in the far western region of Nepal to produce a competent and confident middle-level agriculture workforce required for the modernization and development of agriculture in Nepal. This polytechnic institute has a production unit facility for practicing experiential learning.

This production unit of this school aims to enhance skill development, income generation, and competency-based learning. During my visit to the institution, I found the students involved in the production process in the school production units. At the school, students practiced in practical rooms/areas that implement production mechanisms to create a work atmosphere like in industries. Training must deliver products that meet industry standards and are worth selling. According to the principal of this school, the school production unit could increase competencies like production skills, marketing skills, business organization skills, and financial management skills.

This school has an approximate twenty-hectare land area and another laboratory facility for agriculture to conduct experiential learning through the school production unit. Major production under the Department of Agriculture was off-season vegetable farming, herbal plant production, zinger and turmeric farming, mushroom farming, bee farming, poultry farming, and seed production for the local market. their production is consumed in the local market, and the rest is consumed by the polytechnic institute staff, hostel students, and others. Their vegetable production fulfilled the local people's demand and stopped imports from neighboring countries.

All these activities were done by students under the supervision of a qualified instructor. The school production unit was responsible for preparing individual students for the world of work by gaining skills, knowledge, and attitudes to serve the community as well as improve his/her socioeconomic condition. Practical knowledge and experiential learning are important for an individual to gain employment through the school production unit of a modal polytechnic institute. Experiential learning in the school production unit aligns with vocational education. It is a process of expertise or technical and vocational skills designed and implemented based on standard working procedures and real jobs to produce goods or services that suit the demands of markets or customers in a model polytechnic institute.

School B

The second school selected for this study was the oldest polytechnic institute in the far western province. It is one of the most popular TVET Schools in this province due to the employment status of graduates of this institute and the veterinary hospital services provided by this institution to the community. It was established in 1990 A.D. to provide opportunities to the people of far western development regions to train them in technical education and vocational education to improve their

standard of living and contribute to regional development. To ensure easy accessibility for people from remote areas, the school has allocated some quotas for the hill districts of the region. Since its establishment, the school has offered TEVT agriculture, health, and civil engineering. The school has been offering the TEVT Diploma in Agriculture (Veterinary Science), a Diploma in Agriculture (Plant Science), a Pre-diploma in, a Pre-diploma in plant science, a diploma Pre-diploma in Civil Engineering (Civil Sub-Overseer) and a Diploma in Pharmacy program. This polytechnic institute also offers short-term vocational training in agriculture, livestock, plumbing, building electrician, mason, and tailoring occupations.

During my PhD fieldwork, I observed that student enrollment in the given subjects was fulfilled according to their allocated seats, i.e., 300. Applicants for these 300 seats were more than 1000 from different parts of the far western province and neighboring provinces. Enrollment quotas from each remote district and socially disadvantaged students enhance the inclusiveness in student enrollment. Production in veterinary science is well established in this institution, with various veterinary activities and a well-established veterinary teaching hospital that enhances the quality of experiential learning for students and benefits the local community.

Students receive training and real experiences through direct involvement in the production process as a medium of technical education. Students are involved in the production process in the school production units. At the school, students practice in practical rooms/areas that implement production mechanisms to create a work atmosphere like in industries. Training must deliver products that meet industry standards and are worth selling. Activities under experiential learning through the school production unit in this TVET institution are done in two ways. The first method is through production. In production, they are engaged in poultry, fish, goat, and cow farming and different types of grass production. The way to do this is to provide veterinary hospital services through their veterinary teaching hospital. Each activity has a separate production area, like a poultry house, fishpond, cow shed, or grass cultivation field. Most cow milk is consumed by the hostel, canteen, and staff at a reasonable rate.

According to the principal, the production unit in school improves experiential learning, which is currently developed in the CTEVT constituent school and can improve students' skills and help them foster their interest in entrepreneurship. Students understand what happens in the actual workplace outside

the theory classes and how things work outside the classroom in real practice. They are taking the opportunity to apply theoretical knowledge in real situations. They are becoming aware of the reality of work. The school production unit is helping students to go deeper into the profession due to more practice in the field.

According to the Head of the Production unit, students can learn in a team with input from diverse disciplines, which implies respecting and valuing different opinions. Students are developing professional skills, attitudes, and "soft" and generic (non-disciplinary) professional skills. Other skills they can develop during this learning are interpersonal relations, self-confidence, decision-making, and problem-solving skills. Students can also develop responsibility, commitment, concentration, organization, and punctuality through the school production unit.

From my observation, this polytechnic institute could lead in addressing the skills gap challenge in the job market by working with instructors to get more diploma students interested in the field through a school-production unit. The school production unit provides expansive and authentic learning experiences for the students to develop market-relevant soft and technical skills with the help of the instructor through effective collaboration and communication. In this polytechnic institute, students enhance their capability through the school production unit by conducting practical hands-on activities; the students make academic content more relatable and relevant as they apply their knowledge to real-world content.

Findings

The school production unit program is structured to the broad-ranging technical aspects of production and the social aspect of working in such an environment. In the Production unit, students can learn in a team with input from diverse disciplines, which implies respecting and valuing different opinions. Students are developing professional skills, attitudes, and soft and generic (non-disciplinary) professional skills, and finally, learners can achieve broader vocational streams through the school production unit. I found three major learning approaches they experienced from the production units: a) Learning by doing, b) Student-centered learning, and c) learning through collaboration. Themes were generated from the integration of documents and the face-to-face semi-structured interview.

Learning by Doing

Usually, the ideas of learning associated with hands-on activities establish the slogan of constructivist learning, which is learning by doing. Learning by doing is

something associated with transforming experience into new knowledge as part of the process by which new knowledge is created (Kolb, 2015, p. 49). This education method is "learning by doing" because it emphasizes acquiring knowledge and abilities through practical application. This approach to education places a premium on gaining knowledge through direct experience and thoughtful introspection. Learning by doing is acquiring mental and physical skills via direct experience. Learning by doing is significant for scientific education, particularly when considering real-world simulations. Traditional methods of education, such as reading theory and attending lectures, can be used to obtain knowledge about a domain, but for domains that require concepts to be developed as skills, practice is essential, which is attained through school production unit; this not only assists in building skills and teach topics efficiently but also controls student involvement. Real-world experience, professional development, workplace planning, and confidence building are subthemes under learning by doing generated from participants' experience, field observation, and document analysis.

In my observation of the production units of both schools, I found that these units gave students a set of skills that could assist them in transitioning from the classroom to the workforce. They further gave the students the necessary experience to determine which career path they would like to pursue. The first subtheme under learning by doing is real-world experience. Participants reached a consensus that the "real-world experience" gained through experiential learning opportunities in school production units assisted students in determining the direction they wished to take in their professional lives.

Real World Experience

The real-world learning method has been used to explain experiential and applied learning over the long term (Sharma et al., 2018; Rau et al., 2019). In higher education, real-world learning is an emerging educational paradigm due to the significance of having experience in the real world. Students are better prepared for their professional lives if they are given opportunities to get experience in the real world while they are in school. In this context, "real-world experience" means the knowledge and abilities a person acquires via direct participation in a particular industry, activity, or subject of study. It is the process of applying theoretical knowledge to solving issues and making decisions in situations that occur in real life. It is necessary to engage in realistic activities, such as working in groups and utilizing

the work of others. Students are provided with the resources necessary to investigate how their knowledge applies in a real-world setting through real-world learning. Students can investigate the concept of real-world learning and examine the advantages of incorporating it into educational settings in TVET. They include its impact on one's ability to think critically, make decisions, and have life skills. Students get experience that may be used to various possibilities if they explore these talents early. Students determine what they enjoy and do not enjoy because of this.

Similarly, the production unit allowed students to connect the theories and concepts learned in the classroom and real-world applications of those learnings in society. In the school production unit, the instructors dedicated much of their instruction to real-world examples to reinforce the subject matter and engross the students in the learning. My observation in both schools showed that students were getting real-world experience in the school production unit. From the participant interview, 18 out of 20 agreed that experiential learning in the production unit provided them with real-world experience while engaging them in the production.

Students and instructors described the real-world experience of learners in production units as valuable for developing careers in fields such as agriculture. By working in a production unit, learners could gain hands-on experience in the processes and technologies involved in producing goods or services. In an interview, a student, AS4, focused on the practical knowledge of working in the field and starting off-season vegetables and other agricultural products of school A. He also shared that his experience in the production unit helped him to learn to operate and perform basic maintenance of different agricultural tools and equipment like agriculture mini power tiller, cultivator, composter, seed spreader, and basic tools; according to him,

> *"I got the opportunity to operate all basic equipment used in our school production unit, like Teller and other tools that are used to produce agricultural products in our school production unit; this experience also made me perfect at the basic maintenance of these tools."*

School production units provided real-world practice platforms for students to apply their theoretical learning in the workplace. They engaged in all practical activities and used all technologies in that area. Similarly, another participant, BI2 of school B of the veterinary science department, working for five years, stated that the school production unit provided students with the opportunity to use basic veterinary medical equipment like digital x-ray imaging machines, IV pumps, suction tools,

cages and crates*,* respiratory therapy from the veterinary hospital as well as any other equipment like lighting, temperature regulator, chicken/fish/goat and processing machines used in their poultry form, fish pound, goat farming, and cow shed, according to him.

> *"School production units provide students with real-world connections, encouraging them to use the latest technology, tools, and equipment used in veterinary hospitals and other production areas. They also get knowledge of basic maintenance from practice in the field".*

An instructor of school A employed a similar approach in that students working on a work-based project knew they were dealing with real circumstances, with real people, and with a real workplace that would be genuinely used in the same manner. Thus, practicing in the school production unit helps to learn about new technology and the latest equipment used in production. According to participant AI1, this excited students to learn more and made them pay more attention to details and the process than they would if they were working with some of the more traditional methods like classroom lectures. He added,

> *"It is helpful overall because that provides us with a component that is based in real life; students were really practicing in the field, and they can all operate the latest machines and tools used in producing products."*

In my observation, students from all schools could use the latest technology, tools, and equipment. School A was the model institute of this area and had more facilities in terms of equipment and infrastructure. Students at this school had a wide range of production facilities and were getting more experiential learning opportunities.

The agricultural farming of the school production unit provided real-world experience. Students make numerous decisions regularly to guarantee optimal productivity and profitability. Among the most influential aspects of decision-making and problem-solving in teamwork, agricultural activities included crop selection, which depended on multiple variables, including soil type, climate, market demand, and profitability. Input choice, including seeds, fertilizers, and insecticides; planting and harvesting; irrigation and water management; pest and disease management; and financial management, including budgeting, pricing, and marketing, were the key work activities in actual life experience in agriculture production units. According to instructor participant AI3 of School A,

"Students are involved in making decisions from initial steps of production activities, discussing crop selection and maintenance, optimum management of pesticides and insecticide, and selecting proper equipment and tools for optimum production."

Furthermore, precision farming tools and remote sensing can give farmers valuable data and information to help them make decisions. Ultimately, making good decisions in agriculture requires a mix of experience, knowledge, and the ability to change with the times. Effective agricultural farming decision-making involves a combination of experience, knowledge, and the capacity to adapt to changing conditions.

A similar experience can come from School B, the school production unit of their goat farming and poultry framing. Students could learn that careful planning, management, and attention made goat/ poultry farms successful and managed46 them effectively to solve problems in school production units. According to participant BS1,

"Feed management, different types of disease management like bird flu, predators, market volatility and production are commonly reoccurring problems which have to address during the production of goats and birds."

Similarly, from my observation in both schools, students could gain networking opportunities in real-world experience. Developing and expanding their professional network could be an effective strategy for promoting their career. There were many opportunities to network in the real world, and it could be a good way to meet new people, share information, and learn about new opportunities. Students could boost their chances of success and open new prospects for growth and progress by actively seeking networking opportunities and building strong relationships with those working in their expertise. In school A, I observed students enhance their networking by attending events to keep their school product stalls in public exhibitions, providing information about their products, and rating information through local FM media once a year. They also organized their school exhibitions.

Similarly, school B enhanced its networking by doing free animal health awareness programs such as castrating male goats and performing vasectomy and tubal ligation surgery on stray dogs in the local community, participating in the event. Attending these events allowed students to meet people in their professional fields, learn about the latest trends and technologies, and expand their knowledge. Additionally, School

A students were enhancing their networking by providing their products in public places free of cost and giving their advertisements on social media by making official Facebook.

Overall, gaining real-world experience in production units could be a valuable learning experience for individuals pursuing careers in production and manufacturing. It could provide learners with practical knowledge, exposure to new technologies, on-the-job learning, networking opportunities, and improved job prospects.

Students in the school production area engaged in experiential learning practices in a real workplace, which proved more effective than just listening to lectures or reading about the topic. It was the area where students got the chance to work. In this workplace, they used the theoretical knowledge they learned in the classroom to practice.

All study participants from both schools confirmed that instructors used real-world applications throughout their experiential learning in school production, which enhanced their engagement and increased their interest in learning. They all agreed that having these experiences outside of the classroom expanded the scope of their education beyond the classroom premises. It was education applicable to real life. It involved applying their knowledge to a new context and gaining a fresh perspective.

TVET programs aim to provide learners with the necessary skills and knowledge to succeed in the workforce. However, learning in real-world situations in TVET programs could pose several challenges, such as a lack of access to equipment and resources in the school production unit of TVET School, especially when newly established programs did not have access to the latest equipment and resources needed for learners to gain practical experience. This could limit the program's effectiveness and hinder learners' ability to acquire the necessary skills in the newly established TVET School. Another challenge students face in real-world experience is rapidly evolving technology: TVET programs have difficulty keeping up with the most recent technological breakthroughs because technology is constantly changing. This can result in students being trained on obsolete tools and procedures and adapting to new technology and practices that are more challenging when they become available.

The other challenge students faced in the school production unit was limited industry connections. Certain TVET programs do not have links with the local industry, which makes it difficult for students to obtain experience in the real world and network with possible employers. Similarly, sufficient funding is required to

produce products of quality and quantity. Adequate funding may be another restriction; fewer resources may be available for students to gain practical experience in school production units.

Overcoming these challenges required collaboration between TVET providers, industry partners, and governments. Investment in modern equipment and resources, establishing partnerships with local industries, and providing instructors with relevant training and professional development opportunities enhance learning in real-world situations in TVET programs.

Professional Development

Professional development is another subtheme under learning essential for production unit students to increase their skills, knowledge, capabilities, and overall job performance. There are several ways in which production unit employees can engage in professional development. Experiential learning in the school production unit allows students to gain practical, hands-on experience in a real-world work environment. Professional development is essential to experiential learning as it helps students develop the skills, knowledge, and competencies needed to succeed in their chosen profession. Most participants agreed that professionalism and work ethics were other common learnings from the experiential learning experience in the school production unit. Many students wanted to work in the production unit to learn about possible career paths and find jobs that fit their skills and values.

Experiential learning in the school production unit helped students learn to work with people of different backgrounds, be professional, and work as a team. Participants agreed that students in the production unit could develop professionalism through mentoring and coaching by their instructor. Mentoring and coaching from professional instructors to students are essential components of professional development for them in the school production units. These activities helped students to learn from experienced professionals in the field, receive guidance and support, and develop the skills, knowledge, and competencies needed for success. Mentoring and coaching are essential components of professional development in the agriculture production unit. Here are some ways to use mentoring and coaching in agriculture in the school production unit of School A. I found that students received monitoring and coaching from their instructors during each production activity in school. A student participant, AS2, mentioned that his instructors were always with him. They helped

students in various ways, like solving their practice-related problems and providing proper guidance on an agricultural product, she said:

> *"Our instructors are always with us; they teach us, they help solve problems, and work hard themselves to maintain quality products by involving us in the production unit."*

Likewise, from school B, experiential instructors provided students with perfect mentoring and coaching during their veterinary practice by enhancing their sustainable practice and allowing them to network with other professionals. Chances for collaboration, knowledge sharing, and career growth could be created. A student BS3 experienced with their instructor for mentoring and coaching in their production unit as,

> *"Experienced instructors guide how to reduce environmental impact, conserve resources, and improve the sustainability of veterinary practice; they also help build networking with other veterinary professionals."*

Instructors as mentors and coaches can assist individuals in determining their talents and shortcomings, establishing career goals, and formulating plans for how they can achieve those goals. Students can learn to formulate business plans, administer funds, and reach strategic conclusions. According to a student participant ASS from School A,

> *"Our instructors are our mentor and coach; they know our ability and strength, and they shape our ability and strength for production. They provide us with various business strategies to sell our product."*

The next way to develop professionalism is reflective practice. Reflective practice is a valuable tool for promoting professionalism in various fields; this involves self-reflection, where individuals critically analyze their experiences, thoughts, and actions to gain insights and improve their practice. All participants agreed that school production units provided professionalism through their reflective practice. Overall, it was helpful because it provided them with a component based on real life.

An Instructor AI3 participant of school A mentioned that reflective practice could help individuals develop self-awareness by examining their actions, beliefs, and assumptions. This could help individuals identify areas for improvement, develop a deeper understanding of their strengths and weaknesses, and promote critical thinking

by encouraging individuals to analyze their experiences. Students sought feedback about their product; he mentioned that.

> *"Improving self-awareness is a process that lasts a lifetime and requires a commitment to self-reflection and personal growth engaging in self-reflection."*

Involvement in the school production unit was their first professional experience. Students were placed into a new environment and had to learn how to navigate challenges, and they improved self-reflection to promote professional development. Participants agreed that regular on-the-job training activities increase their professional development during the school production unit. Regular training of students and instructors improved production by updating their knowledge and finally improved their professionalism.

Career exploration was the common way school production units helped students grow professionally. Most participant noted career exploration as a motivation for pursuing their experiential learning.

It is an important phase of the career development process, during which students learn about different career opportunities and define their preferences. In the production area, students were involved in various real professional activities. For example, in School B, they provided services through a veterinary hospital and conducted cow, goat, and fish farming. While most students had a general idea that they wanted a career that contributed to helping others or addressing social or political issues, their work-based experience facilitated further exploration of their career options.

> A student participant at BSI of school B practicing veterinary said,
>
> *"Yes, I had a dream to be a good veneration professional, and I would have a dream job, but I don't know what I want to do in the future. I got the idea after pricing in the school production unit".*

The ability to arrive at work on time and dress appropriately are other features of professionalism learned from the school production unit. These helped them and had the most significant impacts on their future academic career.

Workplace Planning

Effective production planning in the workplace was the third most common subtheme, a new skill acquired by students during their time in the school production unit during their experiential learning. Production planning organizes and coordinates

resources to ensure the efficient and successful production of goods or services. It entails establishing production goals, identifying the required resources, and scheduling work. Production planning is essential in the workplace to ensure that operations are carried out effectively and that items are produced on time and within budget.

During the interview about how students' workplace planning helped them learn, they said they gained these skills during their experiential learning in the school production unit. They described how workplace planning and teamwork were critical in experiential learning planning in a school production.

One agriculture student from school A, AS1, listed workplace planning as the number one skill he gained during their experiential learning in the school production unit. The first step in production planning is determining the required product quantity during a specified period. This involves examining market trends, sales statistics, and other potential demand-influencing factors related to agricultural needs in the market. Based on the anticipated demand, a production schedule specifies the required quantity and timing of product production. In this regard, he stated,

> *"Initially, we were unmown about workplace planning learning; we started to work with planning after suggestions from our instructor based on demand forecasting and by establishing a production schedule."*

During her experiential learning, another student, BS4 of School B, shared how she found workplace planning particularly important. She agreed with the previous statement of School A that once the production plan has been developed, labor, materials, and equipment are allocated to ensure that production goals are reached. Throughout the production process, progress is checked to verify that goals are being reached and difficulties incurred are resolved promptly. BS4 of School B said,

> *"During my stay in the school production unit, we needed to be conscious of what we were always accomplishing. Proper production planning of production schedule with the planning of resources required in production and monitoring production is also important in production unit".*

Another student provided his view from School A, commenting on how workplace planning assisted him in maintaining effective workplace management. He added that continuous improvement in regular planning is also essential for production to be finished,

"I think constant improvement in workplace planning is important; data is looked at to find ways to improve the production process. Then, these changes are made in the next production cycle".

Workplace planning helped each student set priorities for each time spent. As a result, they could maintain increased responsibility and manage multiple projects through their workplace planning skills. Students said their experience helped them learn or improve their organizational, communication, and time management skills. They became more confident in their skills and abilities. A student who finished difficult experiential learning in a school production unit said that what she learned there was one of the most important things she did in college.

Promoting Self-confidence

Promoting self-confidence is another subtheme. Learning by doing is important for personal growth and development. Proper guidance and supervision from the instructor are crucial characteristics of learning. Students can reflect on their roles, decisions, and skills gained from their personal learning experiences within a school production unit. Fifteen out of twenty participants agreed that something they did as part of their experiential learning practice made them feel more confident. Student participants talked about imposter syndrome during their school production unit practice. Participants talked about times when they felt they had the least experience with their tasks in the school production unit (and, in many cases, they were). During their work practice, they remembered worrying that they did not know enough to be useful. Participants initially thought about how they dealt with these feelings and got used to working with senior staff, attending important meetings, and writing materials that would be passed around the organization. During the interview session for this study, student participants were actively encouraged to talk about their experiences. Experiential learning is an effective way to develop self-confidence. Here are some ways that experiential learning can help build confidence.

In School A, students gained practical experience in the production area of the working school. It provided them with hands-on experience working in agriculture while producing vegetables and other products mentioned above, which could help them build confidence in their abilities. They gained experience and learned new skills. They would start to feel more comfortable and confident in their work. According to the participant AI2, students looked for opportunities in their field of

interest and applied for positions aligned with their goals. According to the participants' instructor,

> *"Yes, the school production unit allows students to gain practical experience in the agricultural field. This experience builds their confidence."*

A participant instructor, BI1 of school B, added that getting feedback and help from mentors, supervisors, and other students was a common part of experiential learning through school production. This feedback could help them figure out where they did well and where they could do better. He said it could also give students important encouragement and support as they worked to improve their skills and build confidence. He added,

> *"Feedback from the instructor corrects the working style of students that improves the confidence as it pushes students outside of their comfort zone, and they'll start to realize that they're capable of more than thought, which can help build self-confidence."*

Students who were getting experiential learning and utilizing the school production unit had the potential to be an effective instrument for the cultivation of increased levels of self-confidence. They could become more self-assured and secure in their talents if they obtained experience in the real world, received feedback and encouragement, learned from their mistakes, and acquired acknowledgment and appreciation from their instructor.

Students were gaining a lot from the knowledge and the relationships. According to the findings, the participants considered the experience novel and beneficial. They could judge how well they did and how well their peers did. It was seen that students gained experiential learning in school production units by building their confidence.

Student-centered Learning

Another theme obtained from this study is student-centered learning through the active participation of students in the experiential learning practice of the school production unit. This active participation promotes a student-centered approach and provides the best opportunity to connect, learn, and share ideas. This overarching concept was broken down into the subthemes listed below. Active Student participation encompassed collaborative rather than monotonous one-way learning, emphasizing deep approaches such as student responsibility, accountability, autonomy, and interdependence between the student and instructor (Damşa & Lange,

2019; Shah, 2020). The student-instructor relationship is built on mutual respect; students are not completely independent or dependent, and the instructor is a facilitator in the constructivist, student-centered classroom (Damşa & Lange, 2019; Schweisfurth, 2013). The findings based on the documentary facts were the following: From the vision, mission, and objective of school A, the school production unit was a student-led project that aimed to establish experiential learning where students might mix their learning through studies and work. In addition, it emphasized the collaborative and inventive nature of independent and self-directed learners who came together to share their ideas and collaborate. Likewise, part of the mission in the SPU of school B was that the production unit was mandated to ensure that learners were empowered to gain good behavior, attitudes, knowledge, and the necessary skills to produce quality production with experiential learning practices today. Providing chances and channels for student voices to be heard and valued is essential. It is necessary to provide them with independent and autonomous learning environments. The theme of a student-centered learning environment was developed with the following sub-themes paired with the number of times they were mentioned: student-led activities, student autonomy, flexible learning environment, and self-directed learning**.**

Student-led Activities

According to participants, students contributed to SPU's reputation as a learner-centric hub where their ideas, perspectives, and discussions about the future of successful education were heard and valued. The most reoccurring sub-theme was student-led activities. From my observation, I found in SPU, all students were assigned to be involved in their specific tasks, and they produced goods according to their assigned tasks. Students were involved in every learning and production activity. Documents like the logbook and production records showed that students were involved in all production access. Vegetable production activities led by students could provide a significant opportunity to learn about agriculture and food production while strengthening their leadership and teamwork abilities. Here are some instances of vegetable-producing activities led by students. I observed that students could develop, establish, and maintain a school garden to cultivate vegetables and herbs for the local market and school restaurant. This exercise helped them to develop collaboration and communication skills while learning about sustainable agriculture and herb cultivation. Students organized and operated a production exhibition at the

school or the local community, selling the vegetables grown in the school's production unit.

According to the school production unit coordinator participant AA2 of school A,

> *"All agriculture production activities are led by students in production, with guidance and support from the instructor and other adult mentors. Student-led activities help students improve social and business skills and learn marketing. Students can study canning, pickling, and drying processes to preserve their raised crops."*

In school A, students were involved in producing their assigned agricultural products. Each group was assigned to produce different types of vegetables for fixed tenure, and their evaluation was done based on their production. Similar activities were observed in school B in their respective subjects. Face-to-face interviews with participants also supported this view. Participant BA1, principal of school B, stated,

> *"All activities in the school production unit were made based on students' activities, and evaluations are done based on their quality and quantity of production performance. Therefore, students actively participate in their workplace learning"*.

In School B, I observed that they made six groups for their production, and six different production tasks were given to each group. Their activities were done under the direct supervision of a professional instructor. To improve student-led activity, the school conducted workshops. Students actively participated in goat/ poultry/ fish management practices in school B. They could teach goat/ poultry/ fish farming management practices, such as breeding, feeding, housing, and health care. They were taking hands-on training in goat/ poultry/ fish farming by volunteering at local farms. Students actively participated in organizing community outreach events to educate others about goat /poultry/ fish farming. They hosted workshops, spoke at local events or partnered with local organizations to promote goat farming. Volunteering at local farms gave students hands-on training in all these farming activities. They learned about the different poultry, goat, and fish breeds and how to select breeding stock and care for these products. Students involved in different poultry products make food products such as chicken/mutton/fish, nuggets, sausages, and jerky. They could research recipes and develop their products to sell or donate. According to the instructor participant BI2 from school B,

"Many student-led activities are done in Goat/ poultry/ fish farming in our school production unit. The possibilities are endless and depend on the interests and passions of the students involved".

The beauty of SPU was that it focused on students and encouraged student-led activities where they met, explored, shared ideas, and solved problems comfortably. Students made the most of the learning environment due to the limitless choices for arranging the equipment and production activities in School A.

Student Autonomy

There were significant pieces of data to support the issue of another subtheme of student-centered learning: student autonomy over their learning. Student autonomy is the ability to oversee one's learning and make decisions about things like goals, content, and progression, as well as choosing the methods and techniques to be used, keeping an eye on the process of learning, and judging what has been learned (Holec, 1981). The idea of control has three levels: control over how learning is managed, control over how learning is done, and control over what is taught (Benson, 2016). Little (2003) proposed a more holistic view of learner autonomy and said practicing learner autonomy requires insight, a positive attitude, and a willingness to be proactive in self-management and interactions with others. Students like to oversee their learning, and when they can make their own decisions, they can feel more confident and motivated. In response to the semi-structured question evaluation, over 90% of the participants agreed that students should participate greatly in experiential learning through the school production units. Several comments were made regarding the issue of student autonomy. Students could build the most exciting and individualized study programs according to their learning styles and topics. Students could determine their objectives, choose available resources, and track their development. Students participated in product-based learning activities, where they were given the leeway to select their areas of study, develop their products, and work cooperatively with other students. For instance, one instructor, AI2 from school A, shared the following statement:

"Students plan, monitor, and evaluate their learning for particular production in school production unit related topics, but many instructors don't frequently perform this in some subject area."

All participant instructors from both schools agreed that the students involved in the school production unit showed a wide range of levels of autonomy. Most

participants agreed that the school production unit helped students become more independent in experiential learning. Success in school was often linked to giving students more freedom. Students could evaluate their learning progress by using rubrics and other forms of self-assessment tools that could be provided to them. This could assist students in recognizing their capabilities and limitations, a step toward taking responsibility for their education. Instructors could present students with various choice-based activities, from which they could select their activities based on their learning interests and requirements. Students might be able to read production-related literature, watch a YouTube video as a search work activity, or complete experiments. One instructor BI3 at school B who took part in the study said that, as students became more independent,

> *"They are allowed to assess their learning progress using rubrics or other self-assessment, and they may have their optional choices for production."*

Students could have more say in the type of projects, and the topics could be related more to what is happening worldwide, and they were free to choose their work. Students were encouraged to think about what they had learned, what they still needed to learn, and how they applied what they had learned in various settings by reflecting on their personal learning experiences and engaging in self-reflection. A participant student BS5 explained that the experiential learning in the school production unit was intended to facilitate the development of autonomy and individual instructional practices (typically more closely supported learning in the initial stages and less closely supervised independent learning in the final stage), which should lead to students becoming more autonomous.

> According to him,
>
> *"If they come to me with a question, I want them to remember what they did previously on the same assignment, and I'll reinforce it a bit, but then they must apply and use it more autonomously."*

Autonomy is a crucial part of self-directed learning, and students oversee their learning and do not have to answer to their teachers in experiential learning through the school production unit. The roles of production instructors as facilitators in student group discussions, who share their knowledge when the assigned problems are too hard or when there is not enough knowledge for the group to move forward with their meetings effectively. Participants of this study described the working in a

production unit experience as building their ability to problem-solve in the workplace and their projects without a detailed syllabus or guidelines.

Participant AA2 of School A reflected on his experience and expressed regret that they were not more resourceful then. He emphasized how important it was to take charge of his learning. He described the practicum as opening doors to what was possible, but he had to work to walk through the door to his current career. He stated,

"The production unit was more of a platform that allowed me to get into this area, and the benefit was based on how much I put into it. I got to work independently and taught myself to get the most out of it."

That is supported by the participant AI3 Instructor of school A. The study's results showed that the instructor thought the students were practically well-prepared, worked hard in the production unit, and knew how to learn independently. Self-directed learning skills from a school production unit are the best way to teach students to think for themselves and solve problems independently. Students become independent thinkers and problem solvers by becoming self-directed learners who find the information they need to solve production problems. The instructor further said,

"In production, students work and solve their minor problem themselves; little instructor intervention is needed."

They demonstrated that by implementing experiential learning in the school production unit, student abilities considerably increased in practical knowledge, attitudes, and practices. It was hypothesized that engaging students in meaningful school output improved their capacity for self-directed learning and made them more excited about their educational pursuits. Self-directed learning is highly encouraged through active participation in learning activities. This is primarily attributable to the faculty member's role as a facilitator in the classroom, as opposed to the primary provider of information.

Flexibility and Adaptability

Given their flexibility and adaptability, many participants lauded the CTEVT for introducing a production unit**.** Flexible and able to adapt, learners have the freedom to choose what, how, when, and where they want to learn, and it enhances their participation actively. Different teaching and learning needs are met in these settings, and many learning activities can happen simultaneously. Flexible environments include the physical, social, and educational settings in which learning

takes place. As part of the social aspects, there should be places for both formal and informal learning. There are many ways to learn in pedagogical contexts, such as working together in groups and learning independently. The participant interviews made the subtheme "flexibility and adaptability" stand out in the analysis of the study. Several respondents stated that the school production unit provided a flexible learning environment where students could readily adjust. The flexible environments offered different physical environments for different student needs. In terms of whether those flexible learning environments represented learning and whether they allowed students to engage and collaborate, participants had the following opinions.

A student, AS4 of school A, stated that the production unit symbolizes the act of learning and the learning of the future, where students worked at their own speed and progressed as they were ready. This helped students develop the skills of adapting to different paces of learning. That encouraged students to learn in different environments, such as online, in-person, or through experiential learning opportunities. This helped them adapt to different learning contexts and situations.

The competencies required to achieve one's goals in the twenty-first century include interdisciplinary collaboration, communication, innovation, etc. The flexible learning environment impacted how they engaged and interacted with one another. According to him,

> *"The school production unit provides opportunities for self-paced learning in different environments. The environment unquestionably affects how you engage with and communicate with other people. The adaptability of the workplace encourages students to work together, which we can find in the school production unit".*

Similarly, A participant in the student BS2 of school B mentioned,

> *"We are free to work whenever it is most convenient for them, as there is no such thing as a set work schedule or office hours. Sometimes, however, they may need to put in more time than was originally planned".*

The production unit is more adaptive than the classroom for all students due to the flexible atmosphere in production; as a result, students wish to settle into a more active position. Flexible learning settings necessitate the provision of both physical and psychological safety. When studying, students want experiential learning production units that are motivating, pleasant, and, most importantly, safe. A participant AI2 from school A suggested that,

"In the in-school production unit, kids feel more motivated, adaptable, and comfortable when learning and studying with their peers, and these factors significantly influence students' learning."

The pattern of information agreed that the production unit was a flexible learning area because it allowed learners to learn and engage in their own way. From my observation, learners were provided safety and comfort and had many different sources of inspiration for their studies. In other words, students had freedom regarding how, what, when, and where they learned. School production units provided various styles for learners to learn, engage, and collaborate with the instructor and the material.

There has been a suggestion positing that when faculty members assumed the responsibility of guiding and coaching, they created an atmosphere that fostered student participation in dialogue, investigated the various resources available to them, and used their prior experiences and expertise to form an informed opinion.

Almost all the participants agreed that school production units provided student-centered learning activities in the learning process, but there were some challenges to active participation in their learning process. Student-centered learning may depart from traditional teaching methods, making it challenging for some students and educators to adjust to the new approach. According to School A, time is a major challenge in student-centered learning implementation because it may require more time for planning, implementation, and reflecting on the production of agricultural products than traditional teaching methods, which is a challenge for educators with heavy teaching loads. Training and support for educators and students helped them adjust to the new approach. Similarly, according to the participants from school B, a lack of motivation and clear guidelines in the school production unit hindered the student-centered learning of the students in production activity. Similarly, the limited resources in the production unit, like tools and equipment and land area, were other challenges to actively participating in learning.

Learning through Collaboration

Collaborative learning takes place when multiple individuals cooperate to acquire knowledge or skills. Collaborative learning is becoming increasingly popular in schools because it helps students learn actively, think critically, and solve problems. Collaboration lets students share their ideas, knowledge, and experiences. This makes the learning environment more diverse and interesting. Learners can take

advantage of each other's strengths, make up for each other's weaknesses, and learn from each other's mistakes when they work together.

Collaborative learning is an instructional approach involving students' active participation in group settings, wherein they collectively engage in problem-solving, task completion, or creating a product. The learner-centered technique indicates that the primary emphasis is on addressing the student's requirements. The objective is to impart subject content in a manner that optimally fosters the attainment of learning outcomes by students. (Weimer, 2013). The qualities of learner-centered classrooms include motivating students to actively engage in their education, encouraging them to reflect on their learning experiences and methods, and helping them uncover the practical significance of the course material. Student-centered classrooms are another name for learners-centered classrooms (Sharkey & Weimer, 2003). Learning through collaboration focuses on cooperative learning, problem-based learning, workplace learning, teamwork, query participation, and activities that encourage reflection.

In contrast to simply listening, watching, or taking notes, collaborative learning involves students doing something related to the subject matter of the class. Collaborative learning works best when learners participate actively and do more work in groups (Barkley et al., 2014). New and old concepts combined to help students reevaluate old beliefs or ideas. Exercises based on this theory should test students' preconceived notions and require them to articulate their thought processes. According to constructivism, people can only profoundly understand what they have constructed themselves. Collaborative learning pedagogy, consistent with Piaget's theory, assists students in constructing personal understanding, encourages students to reflect on newly learned concepts, and ultimately enables learners to incorporate newly acquired understanding with previously understood things (Kim & Cho, 2019).

This allows students to work together to complete tasks, learn new information, and find solutions to issues, which further encourages them to acquire meaningful learning; the growth of this kind of setting can also encourage meaningful learning, develop social skills, and enhance critical thinking ability (Aydogdu & Çakir, 2016; Shahamat & Mede, 2016).

Learning through collaborative effort emerged as a central theme for the first research question. All participants agreed that students experienced deeper learning when the teacher considered strategic grouping and paired them with more proficient or higher-achieving friends.

Student group discussions, group work, group computation and outcome-based work, and peer feedback are the main subthemes in the learning through collaboration theme.

Group Discussion

They start with the student group discussion technique in the production unit. Through the school production unit, experiential learning provided platforms for learners to discuss more about production and enhanced their collaboration through innovation and creativity. The school production unit also helped build a more connected community focused on new ideas. Its main goal is to change how we see the world. In other words, the school production unit's main method is collaborative learning, which allows students to be creative and innovative through discussion.

Group discussions are the most reoccurring subthemes under learning through collaboration, which effectively promotes learning through school production units. These activities allow learners to share their ideas and opinions, learn from different perspectives, and develop critical thinking and communication skills. During group discussions in the production process, learners can express their ideas and share their experiences. All school participants agreed that group discussion in school production supported an additional dynamic learning environment where learners could engage in active learning and constructive feedback. Group discussions also helped learners to develop skills like empathy, respect, and cooperation.

According to AS5 of the school, a group discussion established clear guidelines and expectations. Learners could understand what was expected of them, and it could help to prevent misunderstandings, conflicts, and unproductive interactions. Ultimately, it helped to promote communication, collaboration, and the development of essential skills for both academic and professional settings. AS5 clarified it in the following excerpt:

> *"By engaging in more group discussions, students can create clear norms and expectations for involvement in the production unit, fostering the growth of skills applicable in both the classroom and the workplace."*

Group discussions give students a safe and supportive place to learn where they can express their opinions and ideas without restrictions. In such discussions, students are encouraged to participate and lead conversations to ensure everyone can contribute to the school production unit. According to BS1 of School B,

"Group discussions give students a safe space to voice their thoughts. Facilitate dialogues to ensure that all students may contribute to school production unit efforts".

Group discussions offer constructive criticism and encourage students to learn from their errors. Use technology resources like online discussion boards or video conferencing platforms to encourage group discussions and debates added by AS3.

"Group discussions help students learn from their mistakes. Employ online forums or video conferencing to enable group discussions and debates".

Overall, group discussions are effective ways to promote learning from collaboration. They give chances for students to engage in active learning, enhance critical thinking and communication skills, and learn from different perspectives.

Group Work

Group work was an additional group learning approach suggested by the participants. According to Passarelli (2016), teamwork fosters innovation and deep learning. According to Participant BS2, students from school B in the production unit were expected to contribute their ideas collaboratively. Team-based hands-on projects may suit the production environment because they allow for a more personal and reflective experience. He argued that,

"The production unit was created to promote communication, ideation, and, most importantly, activities that involve working together as a team."

An instructor AI 1 from school A talking about agriculture also mentioned that:

"They work together in groups of four to six members on their given project in the workplace and tasks that involve many contributions from diverse students when they are in the school production area. They take a holistic approach to their participation in the production".

Teamwork was designed as an active learning strategy that assisted students in solving issues, achieving goals, and completing tasks most efficiently and effectively. Other participants also mentioned group work as a significant learning approach utilized in the school production unit. These learning strategies allowed for dialogue and conversations centered on finding solutions to problems and promoted in-depth thought. For example, an instructor AI3 of school A added that:

"They are thrilled about the prospect of having a production workplace on campus that is not affiliated with any particular college. The production area consists of areas for a student from a diverse group, where they can

congregate outside of the classroom to work on group projects and
collaborative assignments, and this aspect of the facility is essential."

A participant mentioned that the production unit allowed students to collaborate on group projects and created an atmosphere amenable to such endeavors. The student continued by stating that it was a different environment and that this was an alternative explanation. When they had the opportunity to use the location, they reported that their time there had been positive. According to participant BI3,

"*Participation in group activities and completing projects based on assigned tasks are necessary for in-depth learning and the growth of abilities. In addition, the participants note that they could acquire effective learning competencies because they worked in big groups, observed the rules, and listened to each other's opinions and ideas, which enabled them to get these competencies*".

They imparted valuable information, skills, and ideas to one another that assisted one another in achieving success in educational efforts and life. The findings indicate that the environment is conducive to group activities.

Peer Feedback

Peer feedback is a valuable tool in collaborative learning that allows learners to provide feedback. This feedback allows students to cultivate their critical thinking and communication proficiencies with constructive feedback to help them improve their work. Peer feedback can take many forms, including written comments, oral feedback, and peer evaluation forms. Effective peer feedback should be constructive, specific, and actionable regardless of the form.

All participants agreed that peer feedback allowed learners to benefit from diverse perspectives and see their work through others' eyes, according to participant AS3 from School A. Peer feedback can make people more interested because they must answer to their peers and their teacher. Learners might work harder on their work if they know their peers would give them feedback. AS3 further noted,

"*Due to peer accountability, peer feedback can boost engagement. Students may study harder knowing their peers will give feedback*".

Similarly, Participant BS5 from School B also agreed that students must think critically about the work they were evaluating and articulate their opinions to provide feedback to their peers properly. These abilities are important for success in various academic and technical environments. According to BS5,

"Students who want to improve their critical thinking and communication skills will benefit from giving and receiving peer feedback. Possessing these abilities is crucial to your success in school and the workplace".

Learners can reflect on their work and identify areas for growth after receiving feedback from their peers. Learners benefit from a developing mindset and a willingness to study.

Overall, peer feedback is a useful tool for collaborative learning because it enables students to consider things from various perspectives, improves their communication skills, and encourages them to think about themselves. It is a decent technique to improve people's learning and help them reach their goals.

Outcome-based Work

Outcome-based work is another subtheme that comes under learning through collaboration for educational and work-based contexts.

A difficult task or problem is subdivided and assigned to different group members in group computation. Combining the contributions of all group members yields the result. This strategy is particularly beneficial for activities that demand specialized knowledge or abilities. In contrast, outcome-based work requires establishing specific goals or objectives for the group and working towards achieving them. This strategy emphasizes the outcome more than the precise duties or functions assigned to each group member. Outcome-based work is especially beneficial when working on projects or tasks that require a creative or imaginative solution.

According to participant AS4, group computations are done before starting production. Group computations are more efficient if a complicated task is broken down into smaller parts and each group member is given a specific task, which promotes outcome-based work that focuses on achieving specific goals or objectives, which can help keep the group focused and motivated. AS4 clarified,

"By dividing down a complex task and assigning tasks to each group member, group computation can increase efficiency. This promotes outcome-based work, which helps the group stay focused and motivated by setting goals".

When group members are assigned, duties corresponding to their areas of competence and knowledge, it is possible to make the most of the group's collective expertise. Outcome-based work emphasizes accomplishing targets or goals, which can help maintain the group's concentration and enthusiasm. According BA2,

"Providing tasks that match each group member's experience, group computation can increase expertise. Outcome-based work helps the group stay focused and motivated by setting goals".

SPU takes help improve the ability to solve problems. Group communication can improve problem-solving by providing many viewpoints and potential answers to complex issues. Based on its outcomes, it inspires inventiveness by requiring group members to think in ways that are not traditionally rewarded and develop novel approaches to problem-solving. Participant AI2 stated,

"Presenting numerous plausible solutions improves problem-solving. Outcome-based work allows teams to try new problem-solving methods, leading to more creative solutions".

Depending on the specifics of the activity or project, the school production unit will benefit from either an outcome-based approach to work or a group computation approach. Both are effective. Group work can effectively accomplish various aims and targets, provided the appropriate strategy is selected and clear guidelines and expectations are established.

A major challenge in learning through collaboration is the unequal student participation in experiential learning. If the participation is not evenly distributed, certain group members may be more active or dominant than others, resulting in unequal involvement and an imbalance in the group's dynamics. School B added that time constraints hindered effective collaborative learning in school production. BS1 mentioned

"Learning through collaboration is time-consuming, and it is challenging to plan frequent meetings, especially for collectives comprising individuals in disparate time zones or adhering to varied work schedules."

Collaborative learning necessitates that group members keep one another accountable for their efforts and guarantee that everyone does their fair share. Yet, enforcing accountability is challenging, especially in the absence of institutional procedures to monitor progress.

When discussing accountability within the framework of collaborative learning, each learner must contribute to the overall achievement of the group. It entails holding one another accountable for fulfilling individual and group goals, finishing responsibilities on time, and participating actively in talks and activities.

Accountability is crucial to collaborative learning because it fosters individual and group responsibility for the consequences of the education received.

When each participant is accountable for their contribution, it creates a sense of commitment to the group's success, fosters trust and collaboration, and promotes a positive learning experience.

Establishing clear expectations and goals for the group's work and individual contributions is one of the many ways accountabilities may be promoted in collaborative learning. There are other ways to do this. I am putting certain ground rules in place for both communication and collaboration. Offering comments and regular check-ins to keep track of progress and modify objectives as needed.

<div align="center">**Summary**</div>

The findings of an exhaustive examination of the data unveiled three overriding themes consisting of thirteen sub-themes for effectively addressing the research question. The participants in this study have had the opportunity to experience various learning approaches. Many participants shared their perspectives on the experiential learning in-school production experience, highlighting concepts such as learning by doing, active participation, and collaboration. Based on the research question, most participant responses indicated a positive perception of experiential learning through the effectiveness of the production unit. In Chapter 5, I present an exhaustive synopsis of the results of the second research question, which focuses on the skills acquired through experiential learning for the study.

CHAPTER V

EMPLOYABILITY SKILLS OF STUDENTS IN PRODUCTION UNITS

This chapter discusses the skills diploma students learn in their production units at their polytechnic institutes that make them more likely to get a job. This chapter addresses the second research question: How does experiential learning enhance school production units' employability skills? I generated four major themes: technical skills, interpersonal skills, personal skills, and entrepreneurial skills.

Technical Skills in Production Units

Technical skills include the abilities and knowledge required to perform specific tasks related to a particular job or profession (Connett, 2023; Robles, 2012; Tomaszewski, 2023). Technical skills are called hard and subjective-specific skills. Technical skills involve using tools, equipment, or software (Connett, 2023; Robles, 2012; Tomaszewski, 2023). These skills have played a vital role in today's workforce, creating new jobs and replacing obsolete ones (Short & Keller-Bell, 2019). Two subthemes, technology skills, and subject-specific skills, are obtained from this study.

Technology skills

Proficiency in technology is essential since it empowers employees to enhance their productivity, efficiency, and practicality. (Burke & Maceli, 2020; Gibson, 2019). All participants concurred that technological proficiency in agriculture was advanced by using contemporary technologies to improve productivity, efficiency, and sustainability.

In my field observation at School A, I found students were able to get exposure to recent equipment, such as a new semi-automatic mixer machine, a new teller machine, and a grass-cutting machine in the agriculture production unit of a polytechnic institute. They solved basic technical problems that arose in the workplace with the help of an experienced instructor. These types of opportunities enhanced their occupation-related technical skills. I observed students using soil sensors to measure soil moisture, temperature, and nutrient levels accurately. These sensors assisted in precise irrigation and fertilization practices.

Additionally, the students were implementing smart greenhouses equipped with sensors and automated systems to manage controlled environments that promoted optimal growth conditions. An agricultural educator from School A, AI1,

stated that they used social media and mobile applications for marketing, networking, and accessing agricultural information. Additionally, they employed software to conduct cost-benefit analyses. According to him,

> *"We use smartphone apps and social media to learn about agriculture, market our products, and network. We also employ technologies to conduct cost-benefit analyses."*

Technology is a crucial component of the contemporary workplace, and employees must possess certain technological abilities to thrive in the labor market (Gibson, 2019). Employers prioritize candidates who possess expertise in specific technologies. (Burke & Maceli, 2020), including technologies associated with veterinary X-rays and laboratory diagnosis. Technological skills in veterinary science are crucial for ensuring animal health, improving diagnostic accuracy, and enhancing treatment methods. Candidates with fundamental abilities applicable to various jobs, career paths, or specific industries often attract the attention of employers.

The coordinator participant of school B asserted that the graduates' abundant exposure to technology development instilled an inherent drive. Gaining proficiency in technological skills could improve a student's job marketability and foster their professional growth. He added,

> *"The profusion of technological development gave graduates drive. Learning technology can help students improve their job prospects and professional progress."*

With the development of technological skills in the school production unit, the participants faced the challenge of technology evolving quickly, making it difficult for TVET institutions to stay current with the latest tools, platforms, and systems. This can result in skill gaps, where employees' current knowledge becomes outdated quickly. Proficiency in workplace technology has posed challenges due to its constantly evolving nature. Technology has posed a challenge to remaining abreast of the current advancements (Gibson, 2019; McGunagle, & Zizka, 2020)

Subject-specific Skills

Subject-specific skills refer to the abilities and knowledge necessary to execute tasks associated with a given job or profession (Robles, 2012). These competencies, called hard skills, are job-specific abilities typically acquired through education and experience. These abilities have been essential in the contemporary workforce, facilitating the creation of new positions and replacing outmoded ones

(Short & Keller-Bell, 2019). The production unit of the TVET institutions was one of the best experiential learning platforms for subject-specific technical employability skills development.

In school A's production unit, an agricultural instructor participant working in the production unit mentioned that students were constantly working on a wide range of subjects focused on the curriculum. Agricultural subject-specific skills were specialized abilities needed to complete activities within an agricultural production unit. These abilities are referred to as "agricultural production unit skills." Students were improving their agricultural production skills, including skills linked to planting, harvesting, and maintaining crops. These skills included preparing the soil, irrigating the plants, managing pests, cultivating medicinal plants and vegetables, etc. These activities improved students' knowledge of the subjects they were studying and their cognitive abilities to perform the task with minimal supervision. According to AA1,

"Agricultural production unit duties demand subject-specific abilities. Students are learning how to plant, harvest, and maintain crops, including soil preparation, irrigation, pest management, medicinal plant growth, and vegetable growth. These activities improve students' understanding of the subject and their cognitive abilities to work efficiently."

Similarly, agricultural machinery operating skills pertain to operating and maintaining agricultural equipment such as tractors, harvesters, and irrigation systems. Soil science education involves understanding soil composition, fertility, management strategies, testing, and analysis. It covers plant breeding, genetics, and biotechnology, as well as abilities linked to researching to enhance agricultural techniques. AI1 added;

"Skill in operating agricultural machinery is necessary for safely and efficiently using tractors, harvesters, and irrigation systems. Composition, fertility, management, testing, and soil analysis are all part of the field of soil science."

In school B, subject knowledge gave additional advantages to students for their better employability because employers preferred candidates with deep subject knowledge about their employment organization. Veterinary subject-specific skills are specialized skills, and students must perform specific tasks within the veterinary field.

During their practice in a veterinary hospital, students gained expertise in prescribing and administering pharmaceuticals to animals, including an awareness of

dose, side effects, and drug interactions. This involved training and behavior modification strategies, including the information and abilities to treat animals in emergencies, including trauma, shock, and cardiac arrest. This comprised knowledge and abilities connected to managing animal husbandry and nutrition, such as housing, feeding, and managing animals. This covered knowledge and abilities associated with public health and epidemiology, such as the monitoring and controlling of animal diseases that harmed people, such as zoonotic infections. According to a veterinary instructor BI2 working in an animal teaching hospital and school production unit,

> *"Students learn to diagnose and treat animal ailments, execute surgical operations, and advocate for animal health and welfare while expanding their pharmacy and pharmacological horizons."*

Similarly, students were learning about animal production. These genetic and breeding principles enhanced students' understanding of animal characteristics such as growth rate, meat quality, milk output, reproductive performance, knowledge of feed composition, the nutritional needs of various animal species at various life stages,and feeding techniques that optimized growth and performance. Students also learned about feed composition and the nutritional needs of various animal species at various life stages, as well as feeding strategies to maximize the growth and performance of animals. BI1 added;

> *"Understanding the principles and practices of breeding, feeding, management, and health care of domesticated animals, such as cattle, pigs, sheep, goats, poultry, and aquaculture. Some examples of knowledge in animal production include."*

They were also learning about environmental issues that affected animal production, such as soil health, water quality, and greenhouse gas emissions, as well as ways to limit the environmental impact of animal production. They also acquired knowledge of the market demands for animal products, pricing tactics, and the economics of animal agriculture from a marketing and economics perspective. Participant BI3 added:

> *"Knowledge about animal production can help them improve animal productivity and welfare, lessen their environmental impact, and make more money. This includes poultry farming, fish farming, and goat farming."*

Experiential learning through school production programs can provide a valuable opportunity for individuals to develop subjective technical skills in real-world settings. However, there are several challenges that individuals may face when trying to acquire technical skills. Some technical skills require individuals to understand abstract concepts and theories. Technology constantly evolves, and keeping up with the latest developments is difficult. Insufficient familiarity with the most recent developments in their domain can impede individuals from acquiring technical expertise. Learning technical skills requires access to specialized resources, like software, hardware, and equipment. Without access to these resources, fully developing technical skills is difficult.

Learning technical skills is time-consuming, and individuals may struggle to dedicate time to learning them alongside their other responsibilities. Individuals may struggle to learn technical skills effectively without proper training and instruction. This is particularly challenging for those who prefer structured learning environments. Learning technical skills is challenging. However, by confronting these challenges, individuals can gain the necessary abilities to excel in their professional endeavors. With dedication, hard work, and support, individuals can overcome these challenges and develop the technical skills they need to achieve their goals.

Interpersonal Skills

In the school production unit, students run businesses within a school or educational setting. These activities allow students to develop business and interpersonal skills that are advantageous for their future career aspirations. Interpersonal skills are essential for effective communication and collaboration within the school setting. The skills encompassed in this list are active listening, proficient verbal and nonverbal communication, dispute resolution, and efficient teamwork. Students with these skills will be better equipped to work with their peers, customers, and suppliers within the school production unit.

In addition, interpersonal skills are important for customer service and building customer relationships. Students who effectively communicate and build relationships with their customers are more successful in their experiential learning through school production units. They can provide excellent customer service, understand customer needs, and build customer loyalty.

Teaching and developing interpersonal skills in school-based production is achieved through various methods, including role-playing exercises, team-building

activities, and mentoring programs. Students enhance their readiness for success in their prospective professions, regardless of their chosen field. The school production unit is an excellent way for individuals to develop interpersonal skills and offers a distinctive chance to acquire practical experience and cultivate these abilities.

During experiential learning in the production unit, students work alongside experienced professionals in a specific trade or profession. They acquire the necessary skills and information to carry out the job while also having the chance to observe and learn from experienced professionals. This includes developing interpersonal skills like communication, teamwork, and conflict resolution. Students acquire the skills to successfully communicate with colleagues and clients, establish and nurture professional connections, and work collaboratively to achieve common goals. These abilities are vital for success in any workplace, regardless of the industry. Experienced professionals can provide guidance and feedback on interpersonal skills and help individuals identify areas for improvement. This personalized support can help individuals develop their skills more effectively and quickly.

Interpersonal skills refer to the aptitudes and competencies individuals employ in their interactions. These skills are essential in personal and professional relationships and can greatly impact one's success and satisfaction in life. The key subthemes within interpersonal skills include communication, teamwork, cooperation, collaboration, problem-solving abilities, and time management skills.

Communication Skills

The first frequently reoccurring sub-theme under interpersonal employability skills is communication skills. Communication skills are a key part of getting along with other people. Interpersonal skills are the abilities that help people communicate and get along with each other well. Building strong relationships with other people, both personally and professionally, requires good communication skills**.** As a recognized lifelong learning skill within this study, it is integrated into the school production unit, focusing on oral and written communication. Most participants in the study believed that experiential learning, through school production, contributed significantly to students' communication skills (both written and verbal). Most participants concurred that communication was the first and invaluable soft skill, yet they observed that students could not speak effectively.

Employers across all sectors emphasize communication as an essential interpersonal skill to a candidate's employability. Those with effective communication

skills can transmit their ideas, thoughts, and information to others succinctly and convincingly. The following are some essential components of communication that play a vital role in the workplace: Participants narrated that experiential learning through school-based learning experiences supported the development of their oral and written communication skills.

Most participants agreed that good communication skills could enhance active listening, attention to others' messages, and providing appropriate feedback. Active listening helps build trust and rapport with others and permits a deeper comprehension of their perspectives and needs in the workplace. By communicating, we can establish goals, share ideas, and work together towards a common objective. In my observation, all students participated in a group presentation once a week about their production status, and their instructor gave them suggestions about their problems and progress.

In school A, students were developing their communication skills in the production unit; these skills are essential in agricultural production and business. Students relied on suppliers for inputs like seeds, fertilizers, and equipment and on customers for sales of their products. Skillful communication can facilitate the development of solid relationships with suppliers and customers, leading to better-quality inputs, improved market access, and higher sales. According to the agricultural production unit instructor AI3, effective communication within the organization is important to ensure that everyone is working toward the same goals, i.e., good communication skills can help avoid misunderstandings, improve coordination and collaboration among employees, and foster a positive work environment. The following excerpt clarifies the above argument:

> *"Production units enhance the communication abilities of students because everyone is working toward the same goals. Strong communication skills can help minimize misunderstandings, improve teamwork, and create a healthy work atmosphere."*

Effective communication skills can help build trust with the public by addressing concerns and misunderstandings and developing them can lead to improved productivity, profitability, and sustainability.

In school B, school production and workplace learning effectively enhance communication skills within the organization and with external stakeholders. Effective communication is essential in animal production as it helps to ensure the health and welfare of animals, improve production efficiency, and maintain positive

relationships with suppliers, customers, and regulatory agencies. Animal production workplace learning programs can provide training on effective communication techniques such as active listening, empathy, and conflict resolution. This training can improve employees' communication skills with colleagues, customers, and regulatory agencies. In this regard, BS5 mentioned,

> *"Production units in vocational learning programs can teach active listening, empathy, and dispute resolution. This training improves students' communication with coworkers, consumers, and regulators.'*

Workplace learning programs can also include feedback and coaching sessions in which employees receive constructive feedback on their communication skills and guidance. This type of feedback and coaching can help employees identify areas for improvement and develop a plan for enhancing their communication skills.

In school A, workplace learning programs can also provide safety protocols and procedures training. Effective communication is essential in maintaining a safe working environment, and this type of training can help employees communicate effectively to prevent accidents and injuries. Workplace learning systems can also teach safety procedures. According to AA2,

> *"Overall, workplace learning is an effective way to enhance communication skills in animal production. Organizations can improve animal health and welfare, increase production efficiency, and maintain positive stakeholder relationships by allowing employees to learn and practice effective communication techniques."*

The target for students is to give complete satisfaction to their customers by providing quality products and services from their production unit. Students use best practices in communication to sell their products on the market. A participant BS4 from school B commented,

> "*It is necessary for learners to have the ability to communicate and figure out what the customer wants. Students need to be able to advise their customers on what they should and should not be doing and provide them with ideas."*

This type of practice similarly enhances their communication skills. Feedback from peers, instructors, administrators, and grievance management in the production unit area increases interactions that ultimately enhance communication skills. The participant AI2 added,

"Communication is the key to every interaction and the core of every relationship. You can pass on and receive the message if you are conversant in communication. You need to be able to communicate with the clients to gather their feedback and grievances."

The students successfully improved their communication skills through the school production unit, as they were required to communicate with clients and other concerns.

My field observations revealed that the production unit exhibited a deficiency in the important communication skill of active listening. Listening actively entails paying attention to the person speaking, participating in the conversation by asking questions, and providing comments. A significant number of workers, according to Coffelt et al., (2022), do not engage in active listening, which results in misconceptions, incorrect interpretations, and a reduction in productivity. I have highlighted the great significance of several workforce-related communication skills, including writing, non-verbal communication, working with people from diverse backgrounds, locating and organizing information, evaluating information, teamwork, proofreading skills, interacting with clients, and listening (Coffelt et al., 2022; Kleckner & Butz, 2022). Kleckner and Butz (2022) assert that efficient communication is essential in the workplace, requiring employees to collaborate, exchange knowledge, and achieve shared goals.

Problem-solving Skills

The second subtheme under interpersonal skills for developing employability skills is problem-solving skills**.** Problem-solving skills are essential in production as they enable individuals to identify and resolve issues during production.

Most participants in this study believe that experiential learning within the school production unit significantly enhances trainees' problem-solving abilities. A participant agricultural instructor, AI1 from School A, mentions that production units enhance problem-solving skills through root cause analysis. When an issue arises during vegetable production, individuals with strong problem-solving skills can identify the root cause of the problem rather than just addressing the symptoms. According to him,

"Root cause analysis allows for more effective and long-lasting solutions because most of the time, we started new production planning; it's been a new phenomenon. Trying something new can give you the confidence and resolve

to face adversity. This becomes abundantly clear when considering the inner
workings regulating how we approach solving problems".

By adding this participant, BI3, a veterinary instructor from school B, adds students with critical thinking skills can evaluate existing production processes and identify areas for improvement. This may involve identifying inefficiencies, redundancies, or other areas where time and resources are wasted. Students with strong problem-solving skills can identify opportunities for improvement and implement changes to improve the production process continuously. BI3 stated,

"Students' critical thinking enhances production process optimization and
enhances students' problem-solving skills for continuous improvement."

Effective production requires the efficient use of resources such as labor, materials, and equipment. Individuals with problem-solving skills can identify ways to optimize resource usage and reduce waste. Critical thinking skills are essential in identifying potential production process risks and developing mitigation plans. This may involve identifying safety hazards, assessing the impact of potential disruptions, and implementing contingency plans. BAI added,

"Students enhance their problem-solving skills through resource management,
risk management, and critical thinking by identifying potential risks in the
production process."

Problem-solving skills involve the identification, analysis, and resolution of issues. Problem-solving entails formulating a solution to address the existing issue. My observation indicates that insufficient time and restricted access to knowledge, tools, or resources impede problem-solving. Individuals may experience stagnation if they lack the necessary data, resources, or assistance to investigate viable solutions thoroughly.

Teamwork, Cooperation and Collaboration Skills

Teamwork, cooperation, and collaboration are other essential components of experiential learning in the school production unit. Working collaboratively with others can enhance the learning experience and promote the development of essential skills highly valued in the workplace. These competencies empower individuals to collaborate efficiently with others to accomplish shared objectives, resolve issues, and reach well-informed conclusions. Experiential learning allows individuals to acquire practical experience and abilities within a professional setting.

The results of this study revealed that a substantial proportion of respondents expressed that engagement in experiential learning within the school production unit is vital in fostering the growth of students' abilities in teamwork, cooperation, and collaboration.

An instructor from school A stated that students worked together in a group throughout the production process. That did help them to build their teamwork skills and enhance their cooperation and collaboration. Students had to seek advice from each other to solve common problems in agricultural production and produce quality production. Students collectively work in a team and divide their tasks for mushroom production.

There is group work that enhances teamwork and collaboration to achieve shared goals and enhance productivity in agricultural products. Participant AS1 stated,

> *"If a student brings useful knowledge regarding the production process, they can share it with the rest of the team. Likewise, suppose a student discovers a superior technology or method related to production. In that case, they can share the link with the other trainees, improving their cooperation and teamwork."*

The instructor at School B shared that students' engagement in collaborative work within a specific production unit has contributed to developing their teamwork abilities. The individual explained the impact of experiential learning in facilitating the growth of effective strategies for students to collaborate and contribute their expertise toward completing a production. Students come from different backgrounds; for example, some come from a pre-diploma background and have some practical workplace experience in production, while others come from a fresher background and have less practical experience in production. Students often feel their knowledge is distinct from their peers, making it challenging to share information with various individuals. BS3 added,

> *"Working in a team provides a support system for individuals in WBL. Team members can offer encouragement, feedback, and advice, which can help learners develop confidence and self-efficacy. It also allows building relationships and networks with others in the workplace."*

An instructor's interventional role in teamwork and collaboration skills is also essential for solving problems that arise in the manufacturing process. This may involve working with other students to identify and diagnose issues, develop and

implement solutions, and monitor progress. They are also capable of being linked to a body of knowledge that is held in common regarding their production, thereby further enhancing the opportunities for communication. Student participants from School A have confirmed that instructors' active involvement in facilitating cooperation and collaboration is paramount.

Students in the school production unit work in groups and receive evaluations based on their performance. Consequently, this may lead to personal competition or conflicts among members, undermining cooperation. Team members frequently exhibit diverse working styles, personalities, and methodologies for problem-solving. Diversity can benefit a team, but if members struggle to adapt or understand each other, it can cause conflict. Teams comprising persons from diverse cultural or language backgrounds may encounter difficulties comprehending one another's viewpoints, communication methods, or anticipations. Collaboration is vital for organizational performance, enabling people to unite and work collectively toward shared objectives. Employees exhibit a deficiency in essential collaborative abilities, resulting in diminished production, reduced morale, and heightened turnover. The lack of essential collaborative abilities has profoundly affected organizational effectiveness. Inadequate collaboration has diminished production, reduced employee morale, and heightened turnover rates.

Personal Skills

Personal qualities are an individual's positive attitudes and traits utilized in obtaining, retaining, and achieving success in employment (Zaharim, 2009). Employability refers to a student's propensity to discover, acquire, adapt, and consistently increase the skills, knowledge, and individual traits that put them in a better position to secure and generate financially and personally rewarding employment opportunities. Self-management, creative thinking, decision-making, and time management are subthemes under personal skills.

Self-management Skills

Self-management skills refer to an individual's ability to comprehend and regulate their values, attitudes, abilities, aptitudes, interests, and the equilibrium between work and personal life (Clarke, 2018). These activities typically commence with cultivating self-awareness, self-compassion, self-motivation, self-regulation, and self-organization (Clarke, 2018). Proficiency in self-management is crucial for individual development and achievement in several domains, such as education,

professional pursuits, and networking. These skills empower students to assume control over their behavior, thoughts, and emotions, allowing them to accomplish their objectives. Self-management skills are the first subtheme under personal skills obtained from the school production unit.

Self-management skills are essential in production activities, enabling students to identify and address potential issues before they become major problems. According to student participant AS3 from school A, students enhance their self-management skills through self-awareness by monitoring their work processes and outputs to identify potential issues. This could include tracking their production times, inspecting their finished products, or monitoring their inventory levels. She stated;

>*"We regularly check the quality of our product, the total yield production*
>*percent, and the final quantity.*   ‘

Similarly, a student participant, BS1, from school B added that they enhance their self-compassion by seeking feedback from their instructor, colleagues, or mentors. Use their feedback to identify areas where you excel and areas where you could improve. According to him, they took time to reflect on their successes and challenges in the workplace by considering what worked well and what did not and how we could improve it. BS1 said,

>*"We take feedback from our instructor, consider the successes and failures of*
>*past endeavors, and think about how we may make changes for the better in*
>*the future.*"

Likewise, my observation in both schools found that they enhance their self-management by keeping themselves informed about market trends and best practices in production. Their document of training sessions, conferences, and or trade shows that they stay informed and learn new skills that may help them gain knowledge to identify their strengths and weaknesses and reflect on their work performance to strive to improve their work processes and outputs continuously. The coordinator AA2 of School A states that this could include experimenting with new production methods, seeking more efficient tools or equipment, or finding new ways to optimize the workflow. The coordinator stated that,

>*"We follow market trends and production best practices and attend*
>*conferences, trade shows, and training to develop new skills and identify our*
>*strengths and shortcomings; this could involve trying new production*
>*methods, finding better tools, or optimizing the process."*

By developing self-management skills, students become more effective and self-aware learners, better managing their learning and development in the workplace.

The school production unit can serve as a mirror for students, allowing them to gain insight into who they are and how they can best position themselves to find the opportunities, jobs, and careers that best fit them.

Enhancing self-management requires discipline to stay focused on tasks, meet deadlines, and maintain productivity. I observed some individuals who struggle with self-discipline may find it hard to stick to routines, avoid distractions, or follow through on their goals. Some students find it difficult to balance their responsibilities without proper time management, planning, or prioritization;, leading to stress, unfinished tasks, or suboptimal performance.

Creative Thinking Skills

Creative thinking skills have become a crucial skill in the 21st century. It is commonly described as a collaborative effort between higher education institutions and employers to foster innovation and creativity while acknowledging adaptability's importance in the workplace (Heaviside et al., 2018). Creative thinking skills refer to the enhanced cognitive ability of pupils to think in an imaginative and adaptable manner, acknowledging the necessity to adjust their thoughts and knowledge to unfamiliar circumstances. Creativity is the cognitive capacity to envision, conceptualize beyond conventional boundaries, and generate novel solutions or ideas for creation or problem-solving (Koraneekij & Khlaisang, 2019). It is also the capacity to develop unique and valuable ideas, whereas innovation brings those ideas to life and executes them in the real world. Creativity and innovation are becoming increasingly crucial talents in the school production unit. They are critical for staying ahead of the curve, adjusting to change, and discovering new development and success prospects.

Creative thinking is an essential skill enhanced in the production unit, enabling individuals to generate new ideas, approaches, and answers to problems. Here are some ways in which creative thinking skills are fostered in experiential learning:

The Principal AA1 of school A states that experimentation is a great way to develop creative thinking skills and should be encouraged. We have to inspire the learners in our class to try out various ideas, methods, and tactics. They should be encouraged to take chances and investigate new avenues and opportunities. They

should also be encouraged to experiment with new ideas and methods. The principal stated,

> *"Experimentation fosters creativity and innovation. Encourage students to try new strategies. Allow students to experiment and take chances".*

Enhance students' creative thinking skills by giving them autonomy and control over their learning process and using real-world issues and problems as the basis for their education. Experiential learning lets students select their learning objectives, methods, and tactics, allowing them to work independently and take responsibility for their learning. This can help them develop practical problem-solving skills and encourage them to think creatively and innovatively. According to AB2, the coordinator of school B,

> *"Give students autonomy and control over their learning and employ real-world challenges and problems to boost creativity and innovation. Practical learning lets students set their learning goals, methods, and strategies and work independently."*

Learners should be given regular feedback on their work, including positive and critical feedback in the form of constructive criticism. They have to be inspired to take a moment to consider their learning process and pinpoint areas where they could improve. Learners should be encouraged to communicate their thoughts, praised for their accomplishments, and supported by their peers throughout their education. According to the instructor of school B, BI2,

> *"Give students constructive and encouraging feedback on their work. Promote self-reflection and progress. Share ideas, praise triumphs, and support learners."*

By incorporating these strategies, experiential learning programs can foster creativity and innovation in learners, helping them develop the skills and abilities they need to succeed in the workplace and beyond. The experts also provide two notions of creativity and innovation: coming up with new ideas or using new solutions and being able to question the way things have always been done.

Creative thinking skills are vital in the workplace, as they empower people to address intricate situations and make informed judgments (Bailin, 2019). Critical thinking abilities enable professionals to assess circumstances, evaluate information, and make informed decisions (Safavi & Mousavi, 2017). A key challenge was the insufficient time and resources required for comprehensive training in critical thinking

for students. Educational institutions have focused on achieving immediate goals and have struggled to allocate funds for updated resources. TVET institutions must comprehend critical thinking skills and offer support to facilitate the development of these competencies in personnel. Educational institutions have concentrated on achieving immediate objectives but cannot prioritize investments in modern resources. TVET institutions must comprehend critical thinking skills and offer support to facilitate the future development of these skills.

Decision-making Skills

Decision-making abilities consist of the capacity to collect data, evaluate alternatives, and render well-informed judgments. It also involves taking responsibility for the outcomes of those decisions. Experiential learning through a school production unit can provide an effective platform for improving decision-making skills. Students in the production unit of the school participate in interactive simulations and group projects that model the process of making decisions in real life. With this activity, learners can practice making judgments and better understand the implications of those decisions. Experiential learning can open the possibility for students to collaborate on projects and homework together, which can aid in developing their ability to make decisions by exposing them to a variety of points of view and arguments. WBL can give learners access to a vast amount of information, which can help them make more informed decisions. They can learn from case studies and real-life examples. As the instructor AI1 from school A mentioned,

'Interactive simulations and group projects simulate decision-making for production unit students. This activity helps students make decisions and understand their consequences.

Participant BS2 states feedback and assessment are important tools for developing decision-making skills. They can provide learners with timely and specific feedback, use assessment tools to evaluate performance, encourage self-and peer assessment, set clear assessment criteria, and provide practice opportunities. BS2 further elaborates on this as,

"Timely and specific feedback can help learners understand their decision-making process and identify areas for improvement. Feedback should be focused on the decision-making process rather than the outcome".

School production units offer learners the flexibility to learn at their own pace, which can help them make better decisions as they have more time to reflect on the

information they have learned. This can encourage them to practice their decision-making skills in a fun and interactive way. AS5 added,

> *"SPU gives students extra time to think about what they've learned, which might help them make better judgments. This can inspire an engaging, participatory decision-making exercise."*

Enhancing personal skills is challenging to some extent. Individuals may encounter numerous challenges as they strive to improve their skills. Enhancing decision-making skills is crucial for both personal and professional success. Students may face challenges such as overloading information, fear of failure leading to missed opportunities, and making decisions under pressure with less thought.

Time Management Skills

Students can obtain time management skills in a production unit. That can help learners achieve their goals, increase productivity, and meet deadlines. At SPU, individuals must balance their academic responsibilities with experiential learning experiences, which is challenging.

Students working in production units plan production and prioritize their activities for efficient time management. This involves identifying the most important tasks and allocating time for them accordingly. Prioritizing tasks can help learners stay focused, manage their workload, meet deadlines, and enhance their time management skills. This can also help learners stay organized, track their progress, and adjust their schedules. According to the AS5,

> *"Planning with prioritization is an essential aspect of time management in SPU. This involves creating a schedule that outlines the tasks and activities that need to be completed each day, week, or month to improve time management."*

Participant students from school B lauded that self-discipline is an additional tool to enhance students' time management skills, including staying focused and avoiding distractions. In SPU, learners may be working independently, making it challenging to keep on track. Developing self-discipline can help learners manage their time effectively and stay productive. As BS2 added,

> *"Self-discipline helps us to focus and avoid distractions, which improves time management. Students may work independently; self-discipline helps students manage time and be productive."*

Instructors from both schools schedule blocks of time for specific tasks or activities, which can help learners stay focused and avoid multitasking. Time blocking can help learners allocate time for experiential learning experiences and academic responsibilities. Learners should delegate tasks to others, when possible, to free up their time for other responsibilities. This can help learners focus on their experiential learning, according to AS3.

"Blocking time for production tasks and delegating those tasks improves students' time management skills."

Interpersonal skills are important for enhancing employability in various fields, and learning these skills is challenging for some individuals.

Some students working in production units may lack awareness regarding the significance of workplace skills, which can limit their motivation to learn and improve these skills because they can find it difficult to measure and track progress. Unlike subject-specific technical skills, which are quantified, interpersonal skills development is subjective and relies on feedback and observation from others.

According to the instructor at school A, interpersonal skills training may not be as readily available as technical training. Some employers or educational institutions may not prioritize it. These skills may be easy to learn in theory but challenging to apply in real-world situations. Soft skills require practice and adapting to different scenarios and contexts.

According to School B, some individuals may resist developing interpersonal skills, particularly if they lack confidence in acquiring and applying knowledge. Developing interpersonal skills is challenging, but individuals can develop and enhance their chances of success in personal and professional settings with persistence, self-reflection, and practice. It is important to prioritize the growth of interpersonal skills, as they are crucial for effective communication, collaboration, and leadership in various contexts.

Time management is essential for personal skill development. Still, balancing work, study, and personal obligations is challenging, and individuals may need to prioritize and schedule time for skill-building activities. Some students fear failure and may hesitate to take risks or try new things. Overcoming this fear is a key challenge in enhancing personal skills. Breaking old habits and embracing new ways of thinking and working is challenging. Individuals may need to overcome resistance to change to develop new skills and approaches, but they may struggle with holding

themselves accountable for their skill development. It is easy to become complacent or lose motivation without external accountability measures.

　To overcome these challenges, individuals can try several strategies, such as setting achievable goals, seeking support and feedback from others, creating a plan or schedule for developing their skills, and seeking new resources and opportunities. It is important to remember that personal growth is a journey and that setbacks and obstacles are a natural part of the process. Individuals can overcome these challenges and continue to enhance their skills with persistence and determination.

Entrepreneurial Skills

Entrepreneurial skills are crucial for self-employability. Self-employment requires various skills and traits, including identifying business opportunities, creating a business plan, overseeing finances, marketing products or services, and successfully communicating with consumers. These are all key skills that successful entrepreneurs possess.

A willingness to learn new things and improve oneself, along with adaptability, inventiveness, resilience, and risk-taking, are necessary for entrepreneurial skills. Because people who work for themselves frequently need to function in a continuously changing environment, take risks, and find new and imaginative ways to solve issues, these abilities are crucial for self-employment. Individual students can boost their chances of achieving self-employment success by acquiring entrepreneurial skills. Also, they can create new chances for themselves, establish their businesses, and achieve financial independence. Self-employment requires a strong work ethic, dedication, and the ability to manage time efficiently. Before starting a business, it is essential to be realistic about self-employment difficulties and have a strong plan.

School production units can foster entrepreneurial skills in students by providing them with hands-on experience in starting and running a business. Through this school production program, students can develop the skills and mindset necessary for entrepreneurship, including creativity, risk-taking, problem-solving, and adaptability. One of the key benefits of school production units is that they allow students to learn by doing, allowing them to apply to the workplace. This can help learners improve their entrepreneurial mindset and gain practical experience in marketing, finance, operations, and customer service. In addition, school production programs can provide students with access to mentorship and networking

opportunities, connecting them with experienced entrepreneurs, business professionals, and community leaders who can offer guidance and support.

In this study, documents like production, business, and financial records from both schools showed that different entrepreneurial activities were conducted in each school. Students get benefits and earn money from their experiential learning through the school production unit. Learning with earning, business planning, marketing, and legal knowledge are the main subthemes under entrepreneurial intention.

Earning Skills

Earning skills is the first sub-theme under entrepreneurial skills. Most participants from both schools agreed that selling their products in the local market enabled them to earn money through business while still learning. After my field visit to schools, I observed that students actively produced and sold their products in the local market. Documents like financial statements and production records also proved that students got money from the profits of the school production units.

Learning with earning is an approach to education that focuses on gaining knowledge and skills through real-world experiences, like starting a business, freelancing, or doing workplace practices in the school production area. Unlike traditional classrooms, this method allows people to learn and improve their skills by doing things and getting paid. The school production unit provides students with real-world experience through which they produce products, get income from them, and learn about their products while earning. This learning-by-doing provides individuals with hands-on experience in the field they are interested in. This enables them to learn from real-world situations like market demand, consumer behavior, and competition.

The school production unit of school A produced different types of vegetables and other agricultural or herbal products and sold them in the local market. According to the principal of this school, the production unit was responsible for skill development. By participating in real-world experiences, individuals can develop specific skills and knowledge relevant to their chosen field. That enhances their skill development and earnings after selling their products. This earning motivates students to pursue their entrepreneurial intentions and enhances their entrepreneurial skills. According AA1,

> *"School production unit enhances students' entrepreneurial skills through earning and learning through different entrepreneurial activities in school production through hands-on skills.*

Similar views were expressed by the principal of School B, where students earned money through experiential learning by producing veterinary products and providing animal health services through their veterinary teaching hospital. He stated that these business activities, combined with learning, enhanced their entrepreneurial skill and increased their chances of success in their chosen career by networking with local people and stakeholders. BAI added;

> *"Earning while learning provides an excellent opportunity to meet and network with experts in a subject. Jobs, relationships, and opportunities can all benefit from this."*

Overall, learning by earning is a valuable approach to education because it can provide individuals with experience in the real world, such as opportunities to develop their skills, network with others, become financially independent, and pursue entrepreneurial endeavors.

The main challenges in the production unit with the learn, earn, and pay idea involve matching educational pursuits with production responsibilities, adhering to deadlines, fulfilling quotas, and sustaining efficiency. Students engaged in the learning process may necessitate additional time to comprehend the procedures, commit errors, or seek oversight. This may hinder production and adversely affect output. Novice students or trainees in a manufacturing environment may lack the skills or expertise necessary to fulfill quality standards. Errors occurring during the learning process may lead to flaws, material waste, or the necessity for rework, thereby escalating costs and diminishing overall efficiency.

Confidence Building Skills

Developing self-confidence through school production units is another subtheme under entrepreneurial skills. Both schools agree that it is crucial in determining an individual's entrepreneurial skills. Enhancing entrepreneurial intention refers to a student's desire and willingness to start a new business venture. According to the school A coordinator, students develop entrepreneurial skills by building their confidence in the production unit. Those with a high level of self-assurance have a higher confidence level in their capacity to launch and successfully manage a successful business. This self-confidence might translate into a greater ambition to become an entrepreneur since the person holds the conviction that they are endowed with the requisite knowledge and skills necessary to succeed in the capacity of an entrepreneur. AA2 added,

"Self-confidence refers to an individual's belief in his or her abilities, which is developed through a school production unit. When people believe they have what it takes to be successful as entrepreneurs, they are more likely to pursue that path."

Experience in a school production unit increases an individual's sense of control, which is associated with their perception of control over their surroundings. People who are confident and sure of themselves tend to feel like they have more control over their actions and their surroundings. This can make them more likely to want to start their business. According to the coordinator participant BA2 of school B,

"School production unit experience boosts perceived control and risk-taking capacity. Confident people feel like they have more control over their actions and environment and are more willing to take risks, which can increase their desire to start a business."

Entrepreneurship is inherently risky, and people confident in their abilities are more willing to take risks. This can make them more likely to want to start a business because they feel better about taking calculated risks and seizing opportunities.

Ultimately, self-confidence is crucial in defining an individual's entrepreneurial goal. Developing and maintaining high levels of self-confidence can lead to improved confidence, perceived control, risk-taking, resiliency, and goal-setting, all of which can contribute to a stronger intent to launch a new business endeavor.

Through these programs, students can learn about legal issues such as intellectual property rights, contracts, liability, and compliance with laws and regulations. School production unit programs can teach legal knowledge by incorporating legal concepts into the curriculum. For example, students could learn about the different types of legal entities, such as sole proprietorships, partnerships, and corporations, and the legal implications of each. They could also learn about the importance of contracts in business, including how to negotiate, draft, and enforce them.

Another way that school enterprise programs can teach legal knowledge is by providing opportunities for students to work on real-world legal issues. For example, students could be tasked with researching and analyzing legal problems faced by local businesses, or they could be allowed to work with legal professionals to draft legal documents such as contracts or patent applications.

Overall, school-enterprise programs can effectively teach students about the legal aspects of entrepreneurship and business, preparing them for success in their future careers as entrepreneurs or business professionals.

Business Planning Skills

Another subtheme under this theme is business planning. It was observed that each production unit of the polytechnic institute had a well-planned business plan for selling their products. Students are actively involved in planning for their production businesses. Their active participation in business planning activities synergizes their entrepreneurial skills in the school production unit. It is an effective way to foster entrepreneurial skills in individuals, as it helps to clarify and refine their business ideas and strategies and to identify potential challenges and opportunities.

A participant, AS4 from school A, has trouble developing a business plan. Individuals must think through all aspects of their business, encompassing risk management strategies, financial projections, operational processes, value propositions, and marketing and sales strategies. This process helps to develop a comprehensive understanding of the business and the industry, as well as the potential opportunities and challenges. AS4 further said,

> '*A business plan must consider the target market, value proposition, marketing and sales strategy, operational processes, financial predictions, and risk management techniques. This method helps comprehend the business, industry, prospects, and obstacles.*"

In addition, participant BI3 from school B could learn to create a business plan that could assist entrepreneurs in articulating their vision and objectives for their company and in communicating those ideas to others, such as potential investors, lenders, business partners, and workers. As individuals work toward realizing their business ideas, this process could help develop their confidence, motivation, and devotion to the entrepreneurial endeavor. BI3 further clarified his views,

> "*A business plan can also help entrepreneurs express their vision and goals to investors, lenders, partners, and workers. As entrepreneurs seek to realize their business ideas, this process can boost confidence, motivation, and commitment.*"

In addition, formulating a business plan can assist individuals in recognizing and developing the information and skills necessary for entrepreneurship. These skills

and knowledge areas include research and analysis, financial management, marketing, and strategic thinking. AI2 added,

A business plan can also help people develop entrepreneurial abilities, including research and analysis, financial management, marketing, and strategic thinking.

Overall, developing a business plan is a powerful tool for fostering entrepreneurial intention in individuals.

Marketing Skills

Another sub-theme is marketing skills. Most participants agreed that marketing was an important activity during the sale of their products. Two polytechnic schools had documents containing product information and advertisements in leaflets, posters, and banners. They were prepared to advertise at local festivals and fairs. This type of marketing knowledge enhanced students' entrepreneurial intentions. Those with entrepreneurial aspirations must possess marketing abilities to promote and sell products or services and establish a customer base. Good marketing abilities can assist business owners in identifying target markets, differentiating their products or services, and developing methods to reach potential clients.

According to AI2 of School A, market research and branding were the key features of marketing, as well as the ability to conduct market research and analyze data to identify customer needs and preferences, market trends, and the competitive landscape. Similarly, the ability to develop a strong brand identity and messaging resonated with target audiences and helped differentiate the business from competitors. According to him,

"Students start their marketing with market research; after that, we select our product according to market needs, which helps students enhance their marketing abilities."

A participant, BS3 from school B, lauded digital marketing as it used online channels to engage them and increase sales. Digital marketing also built and kept strong customer relationships through strategies like customer service, communication, engagement, and the enhanced ability to effectively sell products or services and negotiate deals with partners, suppliers, and customers. BS3 said,

> *"Using social media and email to interact with and sell to target audiences Digital marketing builds customer relationships through customer service, communication, and engagement."*

A participant AA3, instructor, and school A agreed that,

> *"Students were involved in marking their products through direct visits to retailers and giving information to their customers through exhibitions and local festivals; these activities enhanced their sales and motivated them to become businesspeople in the future."*

By developing marketing skills, individuals can better position themselves to succeed as entrepreneurs by understanding the needs and preferences of their target customers, developing effective branding and communication strategies, and driving customer engagement and sales. Moreover, marketing skills can help to build confidence and motivation as individuals see the impact of their marketing efforts on the success of their business ventures.

Learning entrepreneurial skills through a school production unit is a valuable experience for students. However, some challenges can arise. According to the coordinator of School A, schools might have limited resources to dedicate to a school production unit, such as funding, facilities, and equipment. This could make it difficult to create a realistic business environment.

Likewise, an instructor participant from the school shared that schools typically had a fixed schedule, and fitting in the time needed for a school production unit could be challenging, especially during winter, summer, and Dashain vacations. Students had to balance their participation in the enterprise with other academic and extracurricular activities. Similarly, the experience of a school's production unit instructor was that they struggled to sustain themselves over time due to a lack of resources or student turnover due to the school's geographical location. This made it challenging for students to increase a deeper understanding of the challenges and opportunities involved in entrepreneurship.

Summary

This chapter presents an overview of the data obtained from interviews with study participants. The interviews were conducted in two polytechnic institutions and focused on the skills students acquire in the production unit through experiential learning. The results of the investigation unveiled four major themes with twelve sub-themes. The themes encompass subject-specific technical, interpersonal, personal, and

entrepreneurial skills. Each topic encapsulates a distinct aspect of the participant's experience.

CHAPTER VI

PROCESSES, CHALLENGES AND COPING STRATEGIES

This chapter explored participants' common understandings concerning school production units' major challenges and coping strategies to promote school production in TVET institutions.

Process of the Functioning Production Unit in Nepalese TVET Institutions

The school's production plays a vital role in the quality of products and services produced based on the authorized business plan's action plan. The complete business plan includes the identification, anticipated cost, and quality of goods and services that the school can deliver. It also preserves detailed records of the materials and services purchased to manufacture goods and services and training personnel and trainees directly working in production. Making an action plan for market management of produced items and appointing trainers and students, as well as what types of goods and services are in the market. During my field visit, I observed the following procedure phases for the school production unit. Documents like the procedure of a production unit in CTEVT schools, logbooks available at production sites, and production records available in both TVET schools support these findings.

Formation of the Production Unit Management Committee

Forming the school production unit, the core management committee, is the first step for running the production unit in TVET institutions. The main task of the committee is to manage the production unit. Based on the procedure provided by CTEVT, vice principals of both TVET polytechnic institutes are the chairman of the school production unit management committee; likewise, the program coordinator and heads of departments of the programs are members, and the finance head is the member secretary of the committee.

Operation of the School Production Unit

The work procedure of the production unit mentions that the school production unit has two goals: one is to teach students useful, practical skills, and the other is to generate cash that is used to supplement the school's existing financial resources so that it can continue to run effectively and maintain its facilities. I found from my observation that students also raised additional funds by helping the

institutions run these units after school. TVET schools understudy developed production units by following steps incorporated into experiential learning.

The first step is the preparation and submission of a business plan or scheme, including the planning of the area for the production site and the investment required, to the School Management Committee (SMC). The SMC approved the production project plan based on justification and approval of funds for investment in a plan or scheme for school production. The amount spent to carry out activities as mentioned in the proposed plan and the profits after the production and sale of the produced goods and services would be divided among the employees involved in the production work.

The second step is the management of investments. Every educational institution had a separate production unit fund. The council office, the government of Nepal, the provincial government, the local government, and development partner organizations provided the funds. The fund's operation was utilized under the joint signature of the head of the school, the coordinator, and the member secretary of the production unit.

The third activity was the establishment of a production unit. TVET schools created a production unit that mimicked a real-life working environment in the agro-vet industry. Students honed their abilities and got experience in various facets of the agro-vet business by utilizing the production unit, which might be outfitted with the appropriate instruments, machines, and supplies.

The monitoring and evaluation stage is the fourth phase. This stage required that TVET schools monitor and assess the experiential learning implemented in the production units to verify its effectiveness. This involved tracking students' progress and determining how the program affected students' learning outcomes and employability in the workforce.

The fifth step was marketing and market management of manufactured goods and services done by the production unit. Arrangements should be made in such a way that the schemes of the production unit are operated without any hindrance to the school's regular reading and daily program. The goods and services produced by the school were priced based on production costs and market demands. The first customer for the produced goods and services should be the person, family, or group residing within the school. Produced goods and services would be sold in the local market according to market needs.

The sixth step was accounting and auditing. The fund's account was kept according to the prevailing format and method of the Government of Nepal. The internal audit of the fund was done by the internal audit unit of the council, and the Office of the Auditor General did the final audit. The council office inspected the related documents and other cash items.

Production Steps in School Production Unit

I found these production steps from my observation of both schools. The initial phase of experiential learning within the production unit commenced with a comprehensive examination of the curriculum, followed by classifying learners and identifying issues on their technical subjects. The primary objective of expanding the school production unit was to foster students' engagement in focused and technical education. This initiative was driven by the recognition that improving employability skills and updating competencies aligned with market demands were crucial factors.

During the second phase, students engaged in product identification, wherein they analyzed and formulated specifications based on the demands and requirements of the market and community. Production planning was identified as the third step in the operational process. The implementation of this step was of utmost importance for the manufacturing facility. The effective coordination and oversight of various resources, including raw materials, human capital, financial assets, machinery, equipment, and workstations, played a crucial role in ensuring the timely fulfillment of manufacturing orders. Appropriate production planning enabled students to leverage the most beneficial resources. During the fourth phase, students commenced production according to their established plan while closely monitored by a proficient instructor. This oversight was crucial in high-quality products that aligned with predetermined specifications. The subsequent stage entailed marketing, wherein students were required to actively promote and sell their products. The experiential learning themes observed in the production-based learning steps of the school production unit were derived.

Distribution of Profits

School financial records showed that producing goods or services was considered a project, and a separate record was kept for each project. After the completion of the project, the income-expenditure statement was prepared so that the amount invested in the project (expenditure) and the return received from the project (income) were visible. The income-expenditure statement showed that the amount

saved from the program was considered a profit. Trainers and trainees directly employed in the production unit were entitled to a profit. The profit was distributed among the trainees, trainers, and schools.

<div align="center">**Challenges Encountered in the Production Unit**</div>

Producing goods and providing services in a school production unit poses several challenges for the production unit. My observation during fieldwork and most participants from both schools agreed that the limited resources could impact production activities in the school production unit.

Management of Resources

The first challenges in the school production unit were managing resources like fertile land, experienced labor, a good irrigation system, and proper quality inputs like seeds, fertilizer, etc. It was important to identify and plan for these limitations to ensure the success of the school production business. The resources required for production activities vary depending on the production type and the project's scale. In school A, according to the principal AA1,

> *"Management of fertile land, irrigation systems, modern equipment, and modern technology are major resource crises in agricultural production. Activities involve the production and distribution of agricultural supplies. Agro-vet production activities may require land for farming or ranching, and limited land can impact the amount and quality of production."*

Principals BAI at School B agreed that modern equipment and skilled labor were important resources needed for agricultural production. According to him,

> *"In agricultural activities, specialized equipment is required for planting, harvesting, and processing crops or for caring for livestock, and limited equipment impacts production."*

These production activities required a skilled workforce, and limited access to skilled labor impacted production. Both schools agree that resource management is a major challenge in running production units.

Academic Calendar

The academic calendar was another challenge that was associated with production activities. Experiential learning necessitates time and effort from students and instructors, which is problematic in a packed academic calendar. In addition, this may make reconciling academic and experiential learning activities difficult. Production activities frequently have a strict deadline, which might limit the time

available to perform tasks such as casting, rehearsals, set building, and costume design. Agricultural production tasks may be quite time-consuming, and effective time management is required for various activities, including planting, harvesting, and processing crops. According to a student participant in school B, long vacations like winter, summer, and festivals created challenges for running the school production unit. Staff and students were on leave due to these vacations. Providing efficient and timely customer service and support could be time-consuming, especially when addressing technical or complex product issues.

A student participant AS4 from school A added that,

"Our vacations, weather conditions, and seasonality may significantly influence agricultural production operations, with rainfall and drought impacting planting and harvesting timetables."

This was in addition to the information provided by School B, participant BS2, about time management as

"Many aspects of agricultural production depend on the seasons, and some periods of the year call for the completion of very particular jobs and activities."

Regulatory Compliance

Regulatory compliance is another challenge to running the school production unit. The production facility must adhere to various rules, including health and safety and environmental standards. The process of ensuring full compliance with these standards may be both time-consuming and costly. Regarding regulatory compliance, school production units are subject to the same rules as any other business, which might present some difficulties. Coordinator participant AA2 from school A mentioned,

"Depending on the nature of the business and its location, the production facility may be required to obtain permits and licenses from local or state authorities. This is difficult and time-consuming, especially if students and faculty are unaware of the requirements."

A Participant from School B adds that a production unit must uphold precise financial documentation encompassing revenue, expenditures, and tax obligations. Ensuring compliance with financial regulations might pose challenges when students and faculty lack familiarity with accounting principles and tax laws. According to BI2,

"Production units must accurately report income, expenses, and taxes. Financial regulations are difficult to enforce if students and professors are inexperienced with accounting and tax rules".

The production unit that hires students or faculty members to work in the business must comply with all labor laws, including minimum salary and working hour's requirements. This may be especially difficult when working with individuals, especially those working part-time or seasonal hours.

Marketing and Promotion

Marketing and promotion are other significant challenges for the school production unit. According to AA2, coordinator of school A, Initially, the funds and other resources allocated for marketing and promotion might be constrained, which could pose difficulties in devising effective marketing strategies and engaging potential customers. Another explanation might be that a small consumer base could be confined to the community surrounding the school. Because of this, it could be challenging to expand the company while maintaining stable income levels. This could also make it challenging to grow the business and generate sustainable revenue. AA2 elaborated,

'Marketing and promotion initially have limited funds, personnel time, and supplies. Because of this, promoting and communicating with new clients may be challenging. The school community may be the exclusive client base. This might hinder corporate growth and income.'

In addition, from school B, BA2 unveiled that the production unit might also face competition from other well-established veterinary businesses. Students and teachers participating in the production unit might have a limited grasp of marketing and promotion tactics, impacting how well the marketing activities are carried out. It could be helpful to attract new consumers and keep existing ones by providing promotions and incentives, such as discounts or loyalty programs. Marketing and promotion are essential to the success of a production since they bring in an audience. He added,

"Production unit students and instructors may not comprehend marketing and promotion tactics, affecting marketing efforts against an established firm. Marketing and promotion draw audiences to successful performances."

Curriculum Demands

Curriculum Demands are another challenge under this theme. The production unit must balance the demands of producing goods with the requirements of the school's curriculum. This is challenging, especially if the production unit requires much time and resources. In production units, students run activities within a school setting, often as part of a curriculum or vocational training program. According to participant AA1 of school A, engagement in production units necessitates a substantial investment of time and exertion from students, thereby influencing their capacity to manage the manifold academic demands placed upon them effectively. This predicament presents a formidable quandary in the delicate equilibrium between academic obligations and the demands of practical output, especially during periods of heightened intensity. According to him,

"Production units involve time and effort from students, which affects academic performance. During peak moments, this makes balancing schoolwork and output difficult."

Another participant, BS3 from School B, added that implementing production-related tasks might be necessary due to curriculum requirements, such as learning outcomes or competencies. Ensuring the production activities aligned with these requirements could be challenging and require careful planning and evaluation. Due to various factors, the current production capacity might prove inadequate for creating all curriculum materials.

"Managing the learning and development of students within a production unit is difficult, especially when dealing with disparate student populations and varying learning styles."

Production units help students learn and grow by using tools like project management software, methods for managing time, and mentorship programs to deal with these issues. It's important to be aware of possible problems with curriculum demands and plan to ensure that production activities match academic standards and help students succeed.

Poor Governance

Poor governance in TVET institutions in Nepal has persistently led to many challenges in delivering effective experiential learning through school production units. Governance is crucial for the effective functioning of TVET institutions,

ensuring they meet their objectives and produce trained graduates who can contribute to the workforce.

All participants indicated that the lack of explicit policies and frameworks in Nepal's TVET sector has considerably hindered the execution of effective learning. There is a clear separation of powers among the federal, provincial, and municipal governments regarding TVET as stipulated in the Constitution of Nepal. Well-defined regulations and structures are essential for guiding the operation, administration, and delivery of superior education and training programs. The coordinator of School A made this statement.

> *"There is an absence of cohesive and comprehensive policies to regulate the functioning of TVET institutions. The existing policies are frequently antiquated or disjointed, resulting in ambiguity and inconsistency in program execution."*

Another example of inadequate governance concerning TVET institutions involves the misallocation of funds and the lack of coordination in TVET program procedures, contributing to ineffective governance. The distribution of funds is based on equality rather than necessity. This results in inferior learning conditions, unproductive consequences, and resource inefficiency in the production unit. Likewise, TVET institutes have difficulties due to ineffective leadership and substandard management techniques. Frequently, there is an absence of strategic planning, inadequate decision-making, and ineffective use of available resources in the production unit. An instructor of School B added

> *"Subpar management leads to deficient infrastructure, substandard training programs, and inadequate collaboration with industry partners. This ultimately impacts the quality of education and the employability of graduates."*

The inadequate governance of TVET institutions in Nepal has led to subpar institutional performance, poor training quality, and misalignment with labor market requirements. Resolving these governance challenges necessitates the implementation of transparent and accountable frameworks, enhanced leadership, and the development of robust connections between TVET institutions and industry. In the absence of these enhancements, the TVET sector will persist with its challenges, and its graduates will have difficulties fulfilling the requirements of the contemporary labor market

Coping Strategies

The coping strategy for TVET schools to use production units to facilitate experiential learning in the agro-vet sector is to provide students with more practical and hands-on experience, preparing them for the world of work. This study categorizes the following coping strategies. Technology integration, sustainability diversification in production, sound governance, and flexible learning significantly benefit the school production unit.

Technology Integration

Technology helps production units run more smoothly by automating work like keeping track of supplies, making schedules, and keeping track of sales. This helps improve productivity and cuts down on mistakes. Technology makes it easier for customers to learn about goods and services, place orders online, and get help from customer service. AI2 added,

> *"Automating inventory, scheduling, and sales tracking helps simplify manufacturing unit operations. This improves efficiency and reduces mistakes. Technology makes product and service information, internet buying, and customer support more accessible".*

Technology allows students to work from a distance, which could be extremely useful during extensive disruptions or when students cannot attend school in person. Technology helps with the digital marketing and sales efforts of the production unit. To incorporate technology, it is imperative to initially ascertain the technological requirements of the production unit, encompassing hardware, software, and connectivity. When evaluating the feasibility of implementing and sustaining technology solutions, it is important to consider factors such as budgetary constraints, availability of staff resources, and the level of support provided. Following the identification of appropriate technology, it is imperative to devise a comprehensive strategy for implementing technological solutions. This entails considering the training requirements for both students and faculty and formulating a plan to ensure the seamless integration of these solutions into operational processes. BA1 added,

> *"Identify the production unit's hardware, software, and networking needs before integrating technology. Technology solutions require budget, manpower, and support. After identifying technology, create a plan to install it, teach students and faculty, and incorporate it into operations."*

Similarly, continuously evaluate the effectiveness of technology solutions and improve them as needed to make sure they meet the needs of the school production unit. Put the right security measures in place to protect school production data and systems from cyber threats. Provide ongoing support to students and faculty to ensure technology solutions are used well and to deal with problems. If production groups had the latest technology, it could make them more efficient, improve the customer experience, and help students learn and do well.

Sustainability

Sustainability is an important consideration for any school-based production unit, as it helps to ensure the long-term viability of the business while also promoting environmental and social responsibility. Production units could be designed to incorporate sustainable practices, such as using renewable energy sources and implementing eco-friendly production processes. This would ensure that students were equipped with the essential skills and knowledge to work in an industry focused on increasing sustainability.

The production unit reduced waste by using products that could be reused or recycled, by wasting less food, and by composting organic waste. This helps the business be better for the environment and save money. Production units helped to make the environment safe by using lighting and equipment that used less energy and doing things to save energy, like turning off lights and equipment when they were not in use. This helps support local and sustainable buying by getting goods from local producers and farmers who use sustainable production methods. This helps the local economy grow and lessens the damage transit does to the earth AS2 mentioned,

"Production units should use sustainable methods, such as organic farming, integrated pest control, and conservation agriculture. These ways help reduce the use of chemicals, save resources, improve soil health and wildlife habitat, and cut down on waste."

Developing a comprehensive sustainability plan encompassing well-defined objectives, targets, and actionable measures is imperative to effectively implementing sustainability practices within a production unit. Regularly evaluating and modifying this plan is imperative to ensure that production activities progressively align with sustainability objectives. BS3 added,

"A production unit needs a sustainability plan, including goals, aims, and steps to implement sustainability practices. This strategy should be reviewed and updated frequently to ensure the production meets its sustainability goals".

Including all stakeholders and the larger community in implementing the sustainability plan is also important. By making their processes more sustainable, production units helped make the future more sustainable and improved their long-term survival.

The industrial partnership is another subtheme**.** TVET schools could work more closely with businesspeople to give students a more comprehensive range of real-world work experience. This would ensure that students have the skills and information the business wants and needs. Industry relationships are a good way to help students reach their goals through the production unit. As part of these partnerships, teachers work with local companies or groups to give students more tools and help. Here are some ways business relationships helped students in the production unit reach their goals. AA1 stated that.

"Partnerships with businesses can give students access to experienced professionals who act as teachers and help them figure out how to improve their skills and move toward their job goals. Students also use these relationships to build their career networks, which is helpful when looking for work or going to school."

An industrial partnership provides agricultural production companies access to their latest technologies and advancements. Industry partnerships assist production units in keeping abreast of the most recent technologies and developments in their respective disciplines and help students acquire pertinent skills and remain competitive in their future professions. This includes new techniques for breeding, precision agriculture, and digital instruments that increase productivity and efficiency. New technologies also aid in creating new positions and opportunities for aspiring accounting professionals. An industrial partnership supports research and development activities that create new and enhanced agro-ecosystem products. This contributes to enhanced quality of goods, cost reduction, and increased productivity, thereby augmenting the agro-vet production enterprise's competitiveness. BA1opined,

"An industrial partnership helps students in agricultural production units access new markets and distribution channels. This enables the production unit to expand its customer base and increase revenue, creating new job

opportunities for aspiring accounting professionals. Industrial partnerships provide agroforestry production units with training and capacity-building programs that enhance the skills and knowledge of agroforestry professionals."

Diversification in Production

Diversification in production is another subtheme under coping strategies that enhances flexible student learning. TVET schools have the potential to establish flexible learning models that enable students to combine experiential learning in production units with online learning and various other forms of remote learning. This approach would afford children greater autonomy in their learning process, enabling them to manage their academic commitments alongside employment and other obligations effectively. The school production unit expanded its assortment of goods or services to enhance customer appeal and maximize profitability. As an illustration, a school shop has the potential to offer a diverse range of agricultural commodities, including off-season vegetables, fruits, herbal products, mushrooms, and other related items, to cater to the demands of a broad spectrum of individuals residing in the vicinity.

According to a participant from School A, implementing diversification strategies and establishing an open learning environment could enhance the production unit's customer acquisition and financial performance. Diversification facilitated enhanced financial performance for the production unit, thereby enabling the allocation of additional resources toward operational enhancements or expansion of product offerings. Similarly, flexible learning methodologies increased student engagement and seamless integration into productive units. Providing students with learning strategies aligned with their learning styles and preferences made them more inclined to engage in the production unit and actively acquire valuable skills. AI3 mentioned,

"Diversification and open learning enable a production unit to attract clients and create money. Diversification helps the producing unit make money to improve operations or add goods. Similarly, Flexible learning helps students join production units. Giving students opportunities to study that fit their learning styles and plans makes them more likely to participate in the production unit and develop useful skills."

Diversification allows production professionals to gain exposure to various products and production processes, augmenting their knowledge and skills. The exposure to diverse products and procedures can also assist professionals in production in identifying novel opportunities and potential for growth. Diversification additionally enhances the adaptability and versatility of production professionals. Acquiring knowledge and experience in a wide range of products and production processes enables professionals to cultivate a versatile skill set, augmenting their ability to adapt to changing market conditions and production demands. Diversification and adaptable learning allow students to acquire novel skills and gain experience across many disciplines. This enhances individuals' skill repertoire and augments their prospects for future employment. BI2 added,

> *"Diversification lets production professionals learn about different products and procedures. Exposure to different products and processes can help manufacturing experts find new prospects and growth potential. Diversification and adaptive learning give students new abilities and experience in other fields. This will boost their employability and skills."*

The school production unit could offer a bigger range of goods and services if it did more things. This would give students more chances to learn new skills, explore new hobbies, and help the school make more money. The production unit in learning is to give students an authentic, hands-on education in entrepreneurship and business management that prepares them for workplace success and helps build better, more resilient communities.

Sound Governance

Sound governance is a crucial foundation for attaining high performance in TVET institutions. The principals of both schools agree that cultivating principles of transparency, accountability, and credibility within the school production unit can lead to sustained development in TVET through experiential learning. The principal of School A mentioned

> *"Values such as accountability, transparency, partnership, and others greatly influence the importance of the organization's culture in maintaining its accomplishments and gains."*

Similarly, the principal of school B emphasizes that the governance of technical and vocational education and training is a significant and crucial issue that

positively impacts productivity and students' learning through production units. According to him

> *"Effective TVET governance is crucial for boosting productivity and student learning through production units."*

Governance, defined as the decision-making and implementation process, necessitates a robust strategy for TVET that guarantees transparency, accountability, efficiency, and relevance. It harmonizes stakeholders' interests, fosters engagement, and enhances the longevity of experiential learning within the production unit

Summary of Chapter

A comprehensive exploration of the data revealed the emergence of themes such as challenges and coping strategies spread into nine sub-themes, effectively addressing research question three. The participants in this study have had the opportunity to experience various challenges and coping strategies of experiential learning in the school production unit. Many participants shared their perspectives on the experiential learning in-school production experience, highlighting major challenges such as limited resources, academic calenderer, regulatory compliance promotion, marketing, and curricular demand. In contrast, they experience technological integration, sustainability, industry partnership, diversification, and flexible learning as coping strategies in the school production unit.

CHAPTER VII

FINDINGS AND DISCUSSION

The purpose of this qualitative study was threefold: the primary purpose of this study was to determine the types of learning approaches gained in experiential learning through school production units in TVET institutions in Nepal. The second purpose was to examine the skills gained through experiential learning in the production unit. The third was to explore the major challenges in functionality and coping strategies of the production unit in TVET institutions of Nepal. Qualitative methodology was employed to address the research questions. Face-to-face interviews of principals/ coordinators, instructors, and students were taken. Interview and observation data were used to answer the research question. This chapter provides an analysis and interpretation of the research findings. Examining existing scholarly articles and individuals involved in the research project unveiled the various prospects and obstacles associated with facilitating experiential learning via a school production unit designed explicitly for diploma-level students.

The participants' perspectives provide useful insights into their program goals and aspirations, as well as the various challenges associated with targeting TVET students within the scope of this study. Similarly, educator input revealed their challenges and ambitions to build more robust connections with businesses to cultivate students with sought-after skill sets. This chapter encompasses a comprehensive analysis of the findings, focusing on the interpretation of the results. Its purpose is to address the research questions and establish the connection between the findings and the existing theory and literature. The chapter also encompasses an analysis of the study's strengths and limitations. It culminates with a comprehensive conclusion and a recommendation for future research endeavors.

Learning Approaches from School Production Unit

In this section of the study, three themes with thirteen subthemes are generated in chapter four, where alignments and mergers of the data were conducted to link them to their research topics to provide answers to these inquiries.

Learning by Doing

Usually, the ideas of learning associated with hands-on activities establish the slogan of constructivist learning, which is learning by doing. Learning by doing is

associated with transforming experience into new knowledge as part of creating new knowledge (Kolb, 2014). This method of education is also known as "experiential learning" because it emphasizes acquiring knowledge and abilities through practical application. This approach to education places a premium on gaining knowledge through direct experience and thoughtful introspection.

Experiential learning is rooted in the constructivist and experiential teaching and learning theories that Piaget, Dewey, and Vygotsky fostered, nourished, and advocated (Grant & Branch, 2005). Students construct understanding and knowledge within a constructivist learning environment by establishing meaningful links between concepts and integrating their unique views and experiences (McLeod, 2019). Learning by doing is acquiring mental and physical skills via direct experience. Incorporating real-world practice is crucial in TVET since it enhances learning effectiveness through hands-on experiences. Traditional educational approaches, like attending lectures and studying theoretical materials, are utilized to acquire knowledge in a particular field. Practice is crucial when developing concepts into skills attained through the school production unit. This not only assists in building skills and teaching topics efficiently, but it also controls student involvement. Real-world Experience, Professional Development, Workplace Planning, and Confidence Building are subthemes under learning by doing generated from participants' experience, field observation, and document analysis.

My observation in the production units of both schools showed the production unit gives students a set of learning approaches that can assist them in transitioning from the classroom to the workforce. It also offers students the experience necessary to determine which career path they would like to engage in sometime in the future. The first subtheme under learning by doing is real-world experience. Participants reached a consensus that the "real world experience" gained through experiential learning opportunities in school production units has assisted students in determining the directions they wish to take in their professional lives.

Kolb's model represents a constructivist perspective, significantly emphasizing how students evaluate their learning experiences, assign meaning, and generate knowledge. Kolb (2014) proposes the experiential learning theory as an ongoing procedure through which knowledge is constructed. Students were involved in practicing experiential learning at SPU by retrieving and integrating insights from recent experiences, incorporating prior experiences, and anticipating future

experiences by practicing experiential learning. It allows learners to form better links between their learning engagement, methods, and real-world applications, leading to meaningful learning experiences and achieving the intended learning outcomes (Kong, 2021).

The theoretical basis of this research focuses on reflection as a crucial component of experiential learning, where students construct their knowledge at SPU by engaging in real-work practices and then reflecting on their experiences. Experiential learning necessitates students to reflect after the event, enabling them to comprehend the idea more comprehensively (Kolb & Kolb, 2017). Experiential learning was beneficial as it necessitated students to reflect on their experiences, enhancing their learning. At SPU, students reflected through learning by doing to construct their experiential learning. The study revealed that reflection played a vital role in enabling students to transform their acquired information into something meaningful, which is supported by the study of Bhavsar (2022), Bradberry and De Maio (2018), DeLuca and Fornatora (2020), and Salinas-Navarro and Garay-Rondero, (2020) in their various types of experiential learning studies.

The findings revealed that many participants agreed that experiential learning in school production enhances their learning by gaining real-world experience. Applying work-based pedagogical strategies within an academic production unit enhances students' aptitudes for innovation, creativity, critical thinking, problem-solving, and communication. This finding is in line with the study of Phang et al. (2017), who found that experiential learning improved students' understanding of the importance of learning, and they understood how to learn by themselves collaboratively. Likewise, Monaghan et al. (2017) assert that experiential learning equips agricultural students with essential skills for their future careers. The study revealed that instructors recognized numerous advantages of teaching farms, such as providing students with hands-on experiences, facilitating time outside of classroom settings, offering authentic farm experiences, and enabling demonstrations for class activities on the farm.

The study's findings supported those individuals engaged in experiential learning within a school production unit and highly appreciated the professional development advantages offered by the practicum experience. The benefits mentioned above encompassed the chance to establish professional connections, acquire practical

expertise, and ascertain personal inclination towards a specific vocational trajectory. As mentioned above, the findings are consistent with the notion that practical experiences are considered significant learning opportunities that provide learners with the essential skills for their future professional endeavors (Barnett et al., 2009; McPherson et al., 2018; Simaambo et al., 2022).

Student-centered Learning

The active participation of students in school production units for experiential learning is another significant finding of this study. These findings indicated that students actively participated in production and learning activities within the production unit. This active participation promotes a student-centered approach and provides the best opportunity for them to connect, learn, and share ideas. Active student involvement transcends inert and repetitive one-way instruction as a learning mode. Students are encouraged to assume accountability for their progress, demonstrate autonomy in the learning process, and participate in a collaborative approach that optimizes learning outcomes.

Although learning by doing and students-centered learning are both forms of experiential learning, they share some common characteristics. Learning by doing mostly entails active and hands-on participation in tasks. Activities focus on specific tasks and involve direct involvement, emphasizing skills development via repeated practice. Outcomes typically manifest as concrete and skill-based results directly linked to the tasks. Student-centered learning entails cognitive and social involvement through interactive participation. The activities prioritize conversation and interaction, emphasizing critical thinking and knowledge development. The outcomes frequently pertain to cognitive and conceptual aspects involving information comprehension, examination, and integration (Hartikainen et al., 2019).

Furthermore, this approach underscores the interconnectedness between instructors and learners (O'Neill & McMahon, 2005). My observation showed that there was good student-instructor-student bonding. The relationship between students and teachers is based on mutual respect.

In the educational context, it is observed that students do not exhibit complete independence nor absolute dependence, while the instructor assumes the role of a facilitator. In addition, these findings showed that students demonstrated active participation by engaging in group discussions while instructors were facilitators. These activities were found to promote active learning, which is consistent with the

findings of Kim & Cho (2019). According to them, student-centered activities consist of instructional strategies that allow students to actively acquire, process, and apply knowledge. Moreover, the endeavors undertaken by students within the production unit exemplify an instructional methodology that is student-centric, placing the students' requirements and objectives at the forefront. Students are encouraged to actively participate in their learning by identifying personal relevance in the course material and ruminating on the content and methods of their education (Patton, 2015; Weimer, 2013).

Students-centered learning includes group discussions, documentation, think-pair-share, two-way communication, interactive simulations, and role plays (Patrick et al., 2016). I observed that these learning strategies are implemented in the school production unit, which differs from the conventional lecture model of instruction that prioritizes information transmission over students' comprehension. In my observation, the school production unit utilized an instructional approach that required students' active participation throughout the learning process. This study found that students actively engaged in the learning processes, encompassing various modes of student involvement, including verbal communication, physical activity, cognitive processes, and emotional involvement. This facilitates the retention of acquired knowledge in the student's long-term memory. As demonstrated in the school production unit, active learning pedagogies enable students to construct their knowledge during the learning process through active engagement and interaction with one another (Harasim, 2017).

The subtheme overarching theme encompasses student-led activities, which incorporate active participation techniques in learning. A considerable proportion of the participants indicated that they utilized a variety of student-led activities in the production unit of the TVET institution, including brainstorming, discussions, group work, collaboration, and project-based activities (Patton, 2015). Student-centered learning, which involves diverse techniques and strategies, has gained significant recognition for its capacity to foster skill development and increase student engagement, participation, and retention. This research is consistent with prior scholarly works that underscore the importance of group engagement as a successful student-centered strategy for promoting student connections, involvement, the interchange of ideas, and the development of more profound learning levels (Brooks, 2011; Patton, 2015).

Production units are critical facilitators for many activities, encompassing problem-solving, ideation, creation, and team-based collaboration with the student. An additional study (Baepler et al., 2016; Painter et al., 2013) underscores the importance of active learning strategies in fostering collaboration, critical thinking, student-centered learning, and problem-solving activities. Hence, this research can conclude that for constructivist learning to be effective, encouragement and support for active learning strategies, particularly through school production units, are crucial in experiential learning.

Student-centered learning is based on the constructivist theory of learning, as put out by Jean Piaget, which posits that the acquisition of new knowledge is a process of constructing or building upon existing knowledge (Piaget, 1964). According to Haak et al. (2011), this theory advocates for implementing tasks that question preexisting notions and prompt students to articulate their thought processes. The students inside the school production unit possess a profound comprehension of the projects they have undertaken, which has been cultivated via their active engagement in the learning process. According to Piaget's theoretical framework, the implementation of active learning in experiential learning via school production units facilitates the process of students constructing their understanding, engaging in reflection on novel concepts, and finally enabling the integration of newly acquired knowledge with previously taught material (Kim & Cho, 2019).

Lev Vygotsky, a prominent proponent of constructivist theory, emphasized the pivotal significance of social interaction in the cognitive development process. Vygotsky firmly asserted that the community plays a major role in comprehending and assigning meaning to information (Vygotsky, 1980). Students participate actively in interactions with peers, members of the community, and their instructors within the school production unit. Learning occurs when students, with the assistance of their instructor or colleagues, resolve problems that surpass their present level of development. Active learning strategies concerning group work in the school production unit are grounded in this sociocultural facet of constructivist learning theory. These strategies leverage peer-to-peer interaction to facilitate the construction of precise mental models among students.

In experiential learning within a school production unit, there is a notable presence of student-led teaching and learning activity, wherein students have the autonomy to determine both the subject matter they wish to explore and the methods

through which they will acquire knowledge. Moreover, a crucial element of this pedagogical technique entails students actively participating in self-assessment to assess their academic advancement. Furthermore, implementing a student-centered approach is observed in the production unit, where learners can exercise independence and autonomy in their learning process (Crumley et al., 2014). Harasim (2017) and Paily (2013) suggest that in a constructivist learner-centered approach, learners with diverse prior knowledge and beliefs collaborate to construct new knowledge and acquire new skills through various means. These findings align with the observations made during the investigation conducted in the school production unit.

Learning through Collaboration

The third important theme obtained from this study is an instructional approach wherein cohorts of students engage in collective efforts to address an issue, complete a task, or create a tangible output. Student group discussions, group work, group computation, outcome-based work, and peer feedback are subthemes under collaborative learning gained through the school production unit. It places primary emphasis on catering to the student's requirements to impart subject material in a manner that optimally fosters the attainment of learning outcomes by students (Weimer, 2013). In contrast to simply listening, watching, or taking notes, collaborative learning involves students doing something pertinent to the course material discussed in the school production unit. Using production units as a means of learning fosters collaborative learning, particularly when students actively engage in their learning process and are prompted to integrate new material with their existing knowledge and experiences (Barkley et al., 2014). New and old concepts are combined to help students reevaluate old beliefs or ideas in the production unit.

The constructivist theory of learning, developed by Jean Piaget, is at the heart of collaborative learning, which holds that new knowledge is created by building on prior knowledge (Piaget, 1964). Exercises based on this theory should test students' preconceived notions and require them to articulate their thought processes in experiential learning through SPU. According to constructivism, people can only profoundly understand what they have constructed themselves. Collaborative learning obtained from the school production unit, consistent with Piaget's theory, assists students in constructing personal understanding and encourages students to reflect on newly learned ideas. Consequently, this theory empowers students to effectively integrate newly acquired knowledge with their pre-existing knowledge base (Kim &

Cho, 2019). This allows students to work together to complete tasks, learn new information, and find solutions to issues. That could encourage meaningful learning. This setting can encourage meaningful learning, develop employability skills, and enhance critical thinking (Aydogdu & Çakir, 2016; Shahamat & Mede, 2016).

According to Vygotsky (1980), collaborative learning is fundamentally social, involving students and negotiating with their peers to generate and integrate ideas. In essence, learners construct knowledge by drawing upon personal experiences and existing knowledge within collaborative learning facilitated by the school production unit. According to Harasim (2017), literature has proven that constructivism posits that individuals acquire knowledge and develop their view of the world by actively constructing it via personal experiences and subsequent reflection.

Practice in the school production unit through group work and discussion enhances learning by collaborating. In learning through collaboration, learners come together to solve a problem, perform a task, or work on a project by working in a team, having extensive discussions, and making decisions after getting feedback from peers. As Barkley et al. (2014) delineated, collaborative learning is a pedagogical strategy or undertaking tailored explicitly for and executed within groups or pairs. Implementing various techniques is one potential approach to enhance student involvement in the school production unit. These strategies aim to promote increased student engagement in the task, facilitate academic progress across different subject areas, and foster the development of social skills through collaborative work with peers (Carnazzo et al., 2019; Shernoff et al., 2017). Students are engaging in experiential learning and collaborating with their peers, which provides significant advantages to them through peer collaboration (Akbar et al., 2018). This pedagogical approach to experiential learning through the school production unit is grounded in the belief that knowledge is constructed through active student engagement, exchanging ideas, and sharing experiences among peers (Choy & Goh, 2016).

Findings from documents, observations, and data collected from participants in the study underscored the importance of collaborative learning inside the school production unit. In this scenario, team members in production activity focus on a specific objective aspect, engaging in an investigative process, acquiring expertise, and disseminating their knowledge to the remaining team members. Engaging in collaborative teamwork to accomplish a specific objective is significantly more effortless than individual efforts. This discovery aligns with the scholarly work of

Entwistle and Peterson (2004), which supports the notion that learners who engage in collaborative activities, whether in pairs, small groups, or large groups, either physical or online environments, are more likely to effectively solve problems or attain shared learning objectives compared to learners who work individually. The presence of consistency and parallels in the existing literature and the present study has underscored the essentiality and value of collaborative learning in facilitating students' knowledge acquisition.

Collaborative learning catalyzes learner motivation by facilitating the interchange of ideas and nurturing the growth of critical competencies such as communication, problem-solving, and in-depth understanding. Hence, it is advisable that academic establishments give precedence to and consistently improve production units that facilitate and promote collaborative learning (Haddara & Skanes, 2007; Rosso et al., 2010).

Instructors may encounter many obstacles when integrating collaborative group work into their instructional practices instead of employing a traditional teacher-centered approach. The conventional approach to teaching typically entails the teacher assuming the role of the primary instructor, with limited student engagement or discourse and a uniform assignment or outcome for all students. Introducing a collaborative learning approach in school production unit sessions necessitates the adjustment of several elements, such as the responsibilities assumed by both students and instructors. Moreover, the extensive use of technology inside the advanced production unit allowed students to cultivate and employ higher-order cognitive abilities, foster creativity, and enhance their technical proficiencies to address their job responsibilities effectively.

Skills for Employment

The skills for employment section aims to consolidate the main findings and comprehensively analyze the suggested skills and their primary outcomes. This serves as the primary contribution to the research question two. The chapter progresses from acknowledging skills as distinct things for developing an integrated comprehension of the interconnectedness between skills and assessment. The subsequent discourse pertains to assessing the core employability skills, which significantly contributed to this study by facilitating the identification and comprehension of numerous complexities.

The study aimed to understand how diploma students, instructors, and administrators of TVET institutions experience their employability skills within experiential learning through the production unit. The production unit has received endorsement from the CTEVT, a specialized initiative that emphasizes providing practical skills-based education to individuals in Nepal. The primary objective of this program is to equip individuals with the requisite expertise to secure employment in labor markets that demonstrate a substantial demand for such skills (Conneely & Hyslop, 2018).

There are several approaches for integrating employability skills; experiential learning and simulated workforce classrooms are two common and important models for employment (Moyer et al., 2017). School production units allow students to learn practical skills through experiential learning that directly apply to their professions. SPU provides a miniature space to constitute these employability skills, and developing these skills is critical for success in the industry. The current research investigated the process of acquiring employability skills in an educational environment and their subsequent application in professional contexts of production units. The current investigation aimed to explore the phenomenon of experiential learning graduates further, specifically focusing on their acquisition of employability skills.

Enhancing employability constitutes a fundamental objective for students and TVET establishments. Employability refers to preparing for work and the conditions essential for securing early career prospects (Yorke, 2010). According to Zegwaard et al. (2017), employability primarily encompasses technical and generic skills essential for graduates to be prepared for the workforce. According to Sobiechowska and Maisch (2007), experiential learning offers students the opportunity to gain practical work experiences, fostering a sense of autonomy in their learning process and enhancing their level of engagement. This study revealed various employability skills acquired in school production units through experiential learning. These skills include technical skills, which pertain to professional subjects; interpersonal skills, such as teamwork and communication; personal skills, including self-management skills, creative thinking skills, decision-making, and time management skills; and entrepreneurial skills, which are valuable for employment and self-employment. Employers highly seek these skills, as they aim to enhance the capabilities of graduates for their employment. These findings are consistent with those by Aasheim

et al. (2012, p. 199), Holtzman and Kraft (2016, p. 16-17), and Robles (2012, p. 456), they found that employers perceived personal qualities, interpersonal skills, and communication skills to be important skills for job applicants to possess.

Employers desire TVET graduates who are flexible, self-disciplined, good communicators, and positive, knowledgeable, able to analyze, reason, and solve problems, all elements of personal qualities, interpersonal skills, and communication skills, in their workplaces. The following part discusses the specific employability skills acquired through this study.

Technical Skills

The first theme under employability skills is technical skill, which refers to specialized abilities or areas of knowledge required to perform a professional-specific task (e.g., doctors, pharmacists, agriculturalists, veterinarians, nurses, etc.). Technical positions necessitate technological skill and subject-specific skills, and employers continue to value career sector expertise (Connett, 2023; Tomaszewski, 2023). These results showed that the school production unit is an excellent experiential learning environment for developing technological and subject-specific technical employability skills, and it can assist students in acquiring subjective technical skills applicable to real-world situations. Technical skill acquisition may be challenging. Abstract concepts and theories are involved in technical skills. Technical skills are concrete knowledge-related aspects (Balcar, 2016; Robles, 2012) that is produced through practice in the school production unit.

The data collected from the interviews and field observation indicated that experiential learning in the production unit is highly valuable for enhancing the acquisition of both technological and subject-specific technical skills. The use of simplified, interactive, and diverse resources has been suggested to enhance learners' acquisition of new knowledge in the production unit. The potential factors contributing to this phenomenon may be presenting these materials in a more captivating format for learners, accommodating different learning preferences among trainees, and enabling the execution of innovative tasks and activities in the school production unit.

According to Clark and Luckin (2013), practical workplace learning facilitates access to subject-specific information. It enhances the range of functions and learning activities undertaken within the classroom setting. Work-based practice improves the learner's subject-specific ability to obtain information from diverse sources in the

workplace (Kimmons & Hall, 2016), which is seen in the school production unit. The statement above emphasizes the considerable impact on instructors' duties, as they are responsible for facilitating the educational process in settings characterized by ambiguous and uncertain parameters, which include multiple dynamic elements beyond their jurisdiction (Siemens, 2004). Although the acquisition of subject knowledge was challenged, instructors could evaluate student knowledge of the concepts and methods through observation of subject-specific skills. As such, the instructors perceived that the level of student understanding could be determined by the product, the skill performed in, or the skill performed in the production unit.

Interpersonal Skills

Another essential skill found in this study is interpersonal skills. It is one of the important skills gained in school production units**.** Communication, problem-solving, teamwork, cooperation, and time management are essential subthemes of interpersonal skills. These findings are aligned with the study of Kantrowitz (2005). According to him, interpersonal skills include teamwork, stress management, coping, motivation, flexibility, adaptability, and etiquette that can improved through experiential learning. Gonzalez et al. (2013) stated that communication/persuasion skills are needed to effectively communicate with others by imparting or exchanging information through speech, writing, or other media to enhance employability. The findings of my study indicate that the implementation of experiential learning practices has a positive impact on the development of interpersonal skills among students in a production unit. These abilities are considered crucial for success in the workplace, particularly in the global market context.

Employers emphasize candidates' academic qualifications and interpersonal abilities (Mishra & Mishra, 2018). According to Paolini (2020), graduates must possess interpersonal skills, which is cultivated by their involvement in a school production unit, thereby enhancing their employability. Consequently, allowing these individuals to acquire such abilities within a professional setting is essential.

According to the findings of this study, communication skills were the most valued interpersonal skills obtained from the school production unit of TVET Institute. Work requires good communication skills for professional life (Ortiz et al., 2016). According to each participant's data, workplace communication in the production unit resembles the tri-category forms of communication that Newnam and Goode (2019) propose in their tri-category definition of communication: task-related

communication, relationship-related communication, and safety-related communication.

Good communication is obtained by observing, interpreting, following instructions, and speaking and writing (Clokie & Fourie, 2016), which can also be practiced in the school production unit. The empirical findings of this study, obtained from interviews with instructors and experience involved in the school production unit of TVET programs, indicated that experiential learning activities improve graduates' ability to communicate effectively and have a seamless transition fits with Bridgstock's (2019) study on the link between communication skills and employability, which looked at what employers wanted and found that well-developed generic skills, such as communicating well, can make people more employable.

Persuasion, collaboration, conflict resolution, leadership, and change management are all components of the communication concept. (Matteson et al., 2016). Effective communication requires self-awareness and empathy. Empathy enables individuals to comprehend and collaborate across domains, generations, cultures, and nations. The study identified four communication skills in the school production unit: self-confidence, openness to criticism, body language, and listening.

Another subtheme under this study is that workplace problem-solving skills were vital to professional and personal success in the school production unit. Problems often arise in the workplace during experiential learning, requiring students to actively identify and address complicated issues within the production unit. The process entails the identification and characterization of a problem, the assessment, ranking, and examination of potential solutions, and the execution and assessment of solutions in collaboration with their instructor, which serve to strengthen their problem-solving skill in the production unit. To foster problem-solving abilities among employees, they must develop various methodologies, including listening, research, analysis, creativity, multidisciplinary collaboration, and effective communication (Dörner & Funke, 2017). According to Mainert et al. (2019), utilizing problem-solving skills in the workplace incrementally predicts success as individuals gravitate to jobs requiring general problem-solving skills. Employers often rank problem-solving skills as highly requested across employment requirements (Rios et al., 2020).

Likewise, another subtheme is **c**ritical thinking skills that is developed for the students working in the school production unit. Students are enhancing their critical thinking skills by implementing a production unit that requires them to evaluate, synthesize, compare, and interpret knowledge. This approach necessitates the use of a consistent and rational cognitive methodology. Students with critical thinking skills demonstrate the capacity to utilize their knowledge in novel scenarios effectively, analyze various viewpoints, comprehend causal relationships, appraise evidence, and comprehend the implications and repercussions of their actions (Thonney & Montgomery, 2019). Critical thinking involves examining assumptions, identifying concealed values, and evaluating findings (Jagannathan et al., 2017). It is anticipated that an employee s can adopt a macroscopic perspective, accurately analyze data, and utilize clear, rational procedures in decision-making (Germaine et al., 2016).

Teamwork inside the workplace is paramount to an organization's overall success and effectiveness. Teamwork is characterized by the collaboration and efficient coordination of individuals striving to achieve a common goal or specific objective. The school production unit fosters a work atmosphere that prioritizes teamwork, encourages students to cultivate trust in their peers, and promotes the development of professional ethics. The present study examined the concept of teamwork outlined by the participants, focusing on relationship-building, camaraderie, and support inside the school production unit. This study was aligned with the study conducted by Sanyal and Hisam (2018). My observations in the production unit showed that student teams with great collaboration abilities could work efficiently, productively, and respectfully with their classmates. Over time, these groups built trust, fairness, and credibility while constructively handling disagreements and differences to maintain a smooth workflow. Woodard & Fatzinger (2018), provided trustworthiness, empathy, likability, conflict resolution, emotional intelligence, team building, group dynamics, sensitivity to others, social graces, compromise, mentorship, and working relationships as teamwork attributes. Many of these traits are also seen in this study in experiential learning through the production unit. According to James-Constantine (2018), team members should collaborate, empower colleagues, appreciate their unique qualities, and support a common goal to boost motivation, cohesiveness, and priority-setting.

Interpersonal skills are becoming recognized as essential skills that individuals should possess in the workplace. With the ongoing rise of automation, interpersonal

skills remain crucial, given the current limitations of machines in doing such activities (MacLachlan, 2019; Raine & Anderson, 2017). Employers anticipate that students who have completed their college degree will have the essential interpersonal skills to assimilate into various important responsibilities effectively. Organizations must ensure their employees have the necessary skills and competencies (MacLachlan, 2019). If there are differences in skills within an organization, it could make it less productive, which would increase the cost of labor because more workers would be needed to make the same amount of goods. In addition, this inequality can hurt the company's ability to make money (McGuniess & Ortiz, 2016). Students learn how to get along with others better when they take part in school production units.

Personal Skills

Personal skills are another important finding from this study that comes under employability skills. Self-management skills such as "self-awareness, self-confidence, independence, flexibility and adaptability, stress tolerance, creativity, enthusiasm to learn, reflectiveness, dedication to lifelong learning, and adherence to professional behavior" (Wye & Lim, 2009, p. 97) are expected from graduates by employers. These skills apply to employees at all levels within an organization. This study showed that most personal skills are acquired through experiential learning in a school production unit.

Learning conventional subject-specific technical skills and developing personal talents earned in a school production unit is paramount for achieving professional success. These skills are considered essential requirements by today's employers to enhance graduate employability (Stewart et al., 2016). The experiential learning experience inside the school production unit has facilitated personal skills development, enabling effective engagement with individuals across different hierarchical levels within an organization and with external clientele. As per Sharma's (2018) findings, there is a growing trend among companies to seek workers who possess lateral talents that facilitate effective collaboration with colleagues. Numerous studies (Balcar, 2016; Ibrahim et al., 2017; Ritter et al., 2018) have elucidated the importance of possessing robust personal skills within the professional setting. Suppose an employee has a deficiency in the requisite personal skills for their job. In that case, there is a potentiality for them to be characterized as lacking in friendliness and politeness, and they may ultimately face termination (Sharma, 2018).

Adaptability is considered a subtheme within the broader area of personal skills. A notable disparity in the perceived level of adaptability is observed between the initial and final stages of experiential learning within a school production unit. This discrepancy implies that students experience a notable improvement in their adaptability attribute throughout their engagement with the production unit. The finding was consistent with the outcomes observed when students were queried regarding their involvement in a work-based simulation exercise, and they expressed an increase in mental flexibility and adaptability (VanLoon et al., 2015) by that they could assimilate and digest fresh knowledge that required a new approach and inquiry.

Self-confidence is another personal skill developed through participation in school production unit activities. According to Kusumaningrum et al. (2015), production-based learning improves students' self-confidence. This is because such learning methods give students more opportunities to actively participate in activities such as asking questions, engaging in discussions, and providing relevant statements about the product being developed. Similarly, Yorke and Knight (2007) suggest an alternative definition of self-confidence as effectively handling challenges in both employment and life (p. 8).

Self-awareness is a personal ability that is acquired within the educational setting of a school production unit. As proposed by Jackson and Chapman (2012), the framework for employability skills encompasses self-awareness by incorporating reflection, evaluation, and learning as integral components. Self-awareness underscores individuals' needs to actively engage in the cognitive process of introspection and assess their behaviors, competencies, and limitations within the professional setting.

Creativity and innovation are widely recognized as essential qualities under personal skill within the domain of human talents, frequently employed interchangeably by scholars and professionals in their efforts to delineate this idea. Furthermore, previous scholarly investigations have explored the relationship between creativity and innovation of a person to enhance productivity, thus enhancing employability that can improve experiential learning (Ritter & Mostert, 2017).

Positive attitude and ethics are other crucial personal qualities cultivated through experiential learning in a school production unit. These abilities hold significant importance in the context of employment. Given the highly competitive

nature of the job market, companies often prioritize candidates who possess extra attributes, such as a positive attitude, strong ethical values, and a high level of excitement. According to Gopinath (2020), when an employee perceives his personnel as an important asset within labor markets, it fosters a sense of fulfillment and inspiration among employees concerning their work. Furthermore, Ozyilmaz et al. (2017) argued that employees should prioritize resources towards enhancing employee ethics and fostering trust to enhance workplace attitudes.

Entrepreneurial Skills

Another important skill obtained from the school production unit is entrepreneurial skills, which are often essential for self-employment. Entrepreneurial skill requires various skills and characteristics, including recognizing business opportunities, formulating a comprehensive business plan, proficiently overseeing financial matters, strategically promoting items or services in the market, and communicating effectively with consumers. Findings from my study show learning with earning, business planning, marketing, and legal knowledge are the main skills under entrepreneurial skills.

Students and institutes have found opportunities for financial gain through experiential learning in school production units. This approach can contribute to the transformation of the economy, shifting it from a consumer-oriented state to one that emphasizes production. By establishing and operating production units within TVET institutions, students, schools, and the nation's economy can benefit (Chukwu & Omeje, 2019). The manufacturing unit is anticipated to assist TVET institutions in achieving self-sufficiency by enhancing their capacity for generating funds. Generating revenue through exchanging products and services and monetizing knowledge and skills can yield financial returns that may be reinvested into the system. This reinvestment can help enhance production capacity, address challenges, ensure long-term viability, reduce dependence on external resources, and contribute to economic preservation (Chukwu & Omeje, 2019).

Based on my observations and interviews, many students demonstrate increased self-confidence, innovative thinking, and other entrepreneurial traits within the production unit setting. These qualities are essential for fostering entrepreneurship development (Neupane & Bhattarai, 2024). It is inferred that the students' self-confidence has been positively influenced by their involvement in entrepreneurial ativities on production. The statement provided aligns with the current topic of

discussion. Kusumaningrum et al. (2017) suggest that engagement in the production unit can improve students' self-confidence in various aspects of business, such as planning, production, and marketing. This approach offers students enhanced opportunities to actively engage in activities such as asking questions, participating in discussions, and sharing relevant statements about developing a forthcoming product.

Students could develop a production plan, encouraging them to engage in critical thinking, creativity, and self-assurance to effectively convey their ideas and explore the potential for transforming their concept into a viable product within a product plan (Hidayat et al., 2017). Therefore, it is designed to align with the needs of society while also considering the presence of other industry players. In production-based instruction, learners are encouraged to actively engage and create products that align with the specific needs and demands of their respective departments and markets. According to Hidayat (2015), the implementation of experiential learning in the production unit of higher education offers students the opportunity to cultivate their critical thinking abilities, which in turn can enhance their entrepreneurial skills within the school production unit.

Including a production-based learning process within lectures or workshops has been found to make a constructive contribution to enhancing the overall caliber and significance of the educational encounter. According to Ganefri (2013), students often find that the learning experience is the alignment of work practices with the established standards and specifications of the field is a key aspect. The educational process is paramount in cultivating profound enthusiasm for entrepreneurship within students. Moreover, educational activities afford a significant opportunity to gain a deeper understanding of the effects on cognitive abilities, psychomotor ability, and attitudes in the workplace. Hence, this model is widely regarded as suitable for implementation in initiatives aimed at fostering entrepreneurial interests among students (Ganefri & Hidayat, 2015).

Research suggests that incorporating production-based learning into various educational stages has demonstrated the potential to create commercially successful products. The successful integration and combination of this specific circumstance is effectively accomplished through the application of entrepreneurial learning (Hidayat et al., 2017). It is clear from the views expressed by the participants that the development of entrepreneurial skills is effectively supported by establishing school production units. The implementation of production unit learning holds the capacity to

augment students' entrepreneurial disposition, as it is evident from various perspectives. The current study's findings align with a previous study by Kusumaningrum et al. (2015) that suggests the inclusion of production-based learning in a school production unit can augment experiential learning and develop understanding in three different learning domains.

The educational activities that prioritize entrepreneurship and utilize a production-based approach highlight the importance of aligning entrepreneurship education with products that have commercial viability. The above activities highlight the significance of developing comprehensive business plans to effectively design and assemble the mentioned products (Hidayat et al., 2017). School production units increase student engagement and promote collaboration within group contexts during the instructional and learning stages (Hidayat, 2015).

The findings of this study indicate that the business plan developed shows promise and feasibility for implementation in a experiential learning in a production unit learning environment. The results are consistent with the research carried out by Kusumaningrum et al. (2017) and Hidayat (2015) as well as Hidayat et al. (2017). Implementing a business plan has the potential to enhance students' entrepreneurial endeavors.

Processes, Challenges, and Coping Strategies

This section aims to consolidate the main findings and comprehensively analyze their primary outcomes' processes, challenges, and coping strategies. This serves as the primary contribution to the research question three.

Process for Production Units

This section aims to discuss the production unit processes in TVET institutions. In my findings, running a school production unit is based on the directive provided by CTEVT in "School production unit operation and management procedure, 2022" in both TVET schools. Within this context, the term "process" is a compilation of instructions that are methodically structured, coherently, and orderly, functioning as a framework for implementing a specific task. The process refers to various tactics designed to support the execution of learning, with the primary objective of engaging learners actively throughout the learning journey. These are the essential procedures or stages that instructors must engage in to enable students' active, participative, and interactive learning, emphasizing generating a product or

service that is essential for society while concurrently guaranteeing competency (Ganefri & Hidayat, 2015).

In my findings, each process involved in the school production unit aligns with the steps of production-based learning models that comprise a set of syntactic structures or sequential procedures that aid the learning process, as Ganefri and Hidayat (2015) suggested. According to them, there are a total of nine stages to this model. First, the curriculum and student characteristics are analyzed; then, potential products are found; third, the most important questions about the product are formulated; fourth, a question map is developed; fifth, the resources needed to make the product are evaluated; sixth, a production schedule is set; seventh, the product is made; eighth, and finally, a business plan is formed.

The results of this study indicate that the production unit's managing structures comprise several key positions, namely, the principal, vice principal, production unit committee, coordinator, and teacher. This finding is consistent with prior studies and empirical observations, which have together demonstrated that the effectiveness of all educational endeavors rests on the principals and the entire administrative staff. Etsey (2005) revealed that the absence of effective leadership from the school principal could have detrimental effects on various aspects of the institution. The principal must supervise carefully to facilitate the optimal development of curricular and co-curricular domains. The production unit shows a significant capacity for generating profits when adhering to stringent business conditions.

Challenges of Production Units

It is essential to identify and address the issues that impede its performance or prevent the achievement of its established objectives to operate effectively and maintain the long-term viability of any program. Multiple participants in the study highlighted concerns regarding certain difficulties that impact the performance of production units in the sampled schools. Management of resources like fertile land, experienced labor, a good irrigation system, and proper quality inputs like seeds, fertilizer, etc., are the first challenges in the school production unit. The academic calendar is another challenge associated with production activities, and marketing and promotion are other significant challenges for the school production unit.

Management of resources like fertile land, experienced labor, a good irrigation system, and proper quality inputs like seeds, fertilizer, etc., are the first

challenges in the school production unit. These conditions reduce productivity. The finding was like the findings of Simaambo et al. (2022), whose research identified a lack of clear definition of inputs necessary to make production units more viable and a failure to incorporate production unit activities more harmoniously with the school curriculum in terms of time allocation as critical factors contributing to the failure of production units.

The academic calendar poses a significant difficulty in effectively managing production operations within the school's production unit. The acquisition of knowledge requires considerable effort and time from both learners and instructors, which can pose challenges within the constraints of a busy academic schedule. The execution of agricultural production tasks can sometimes demand a significant amount of time, necessitating efficient time management strategies for various operations such as planting, harvesting, and crop processing. Extended breaks such as winter, summer, and festival holidays can make running the school production unit difficult. The school's faculty and student body were absent from campus during this vacation.

Moreover, it is crucial to underscore the significance of market accessibility. Engaging in production activities without a corresponding market might lead to financial losses. This phenomenon occurs due to the inherent perishability of food, rendering it susceptible to spoilage or unreliability if not appropriately kept or marketed within the optimal timeframe. Hence, it is imperative to examine the issue of establishing accessible marketplaces to mitigate potential losses incurred by educational institutions due to market scarcity. Similar obstacles have been identified in prior research. For instance, Chukwu et al. (2019) discovered that a lack of organizational vision for establishing and perceived difficulties integrating industries and entrepreneurship into school curricula significantly hampered the production unit.

Additionally, the study revealed that educational institutions should focus on enhancing their marketing techniques. In certain instances, the wastage of vegetables, such as tomatoes, can occur due to the unavailability of a market during harvest. The identified practice of wastefulness was deemed inappropriate and impeding production entities' progress. Considering this, educational institutions must develop strategic approaches toward market formation. This is accomplished by establishing formal agreements, such as memoranda of understanding, with prominent grocery chains, etc.

Despite the inherent difficulties, the study revealed promising prospects for integrating production units within the conventional educational framework. Several key proposals were suggested from different studies (Ananda & Mukhadis, 2016; Herry & Hendro, 2016), including enhancing the profitability of the production unit, prioritizing the improvement of managerial performance, expanding stakeholder participation, enhancing infrastructure, allocating additional resources to research in new areas, extending capital infrastructure, and fostering a school culture that promotes the sustainability of the production unit through appropriate training and development of human resources.

Coping Strategies

The coping strategy for TVET schools to use production units to facilitate experiential learning in the agriculture sector is to provide students with more practical and hands-on experience, which will better prepare them for the world of work. Technology integration, sustainability diversification in production, and flexible learning are the main themes of participant experience.

The coping strategies pertain to implementing initiatives to improve production unit management within educational institutions. Undoubtedly, the profitability and sustainability of production units in TVET institutions may be enhanced by implementing necessary measures and creating an environment that fosters creativity, innovation, teamwork, and building upon previous successes. This is primarily due to the potential profitability of well-managed production units, which can serve as a valuable source of revenue for schools.

An identification of the necessity for technological integration in the production unit segment to enhance productivity was made public as one of the study's findings. Educational institutions continue to function at a minimal level. As a result, it was necessary to commercialize production facilities to serve a greater number of markets and increase their profitability. The research results shared similarities with those Waithera (2013) reported, which indicated that technical integration within the production unit was necessary to increase agricultural output. According to the study participants, technology was necessary for schools to intensify the activities outlined in the production unit segment.

Likewise, the production unit also harbors a future aim towards sustainability. Sustainability pertains to the capacity to fulfill the current generation's requirements while safeguarding future generations' prospects. The notion of sustainability

encompasses ensuring the continuity of activity over the long term, with the confidence that the resources currently allocated to it will be adequate to ensure upcoming profitability (Simon & Goes., 2013). There exists a debate surrounding the notion that the mere existence of a continuing activity does not inherently confer sustainability upon it. The reallocation of resources from other units to maintain operations can strain the organization.

Another coping strategy is the diversification in production and flexibility of a production unit that is sufficiently and suitably educated to oversee and manage the operations of school production divisions. Several constraints were found, encompassing issues such as inadequate training of human resources, financial limitations, restricted water access, insufficient land availability, a shortage of qualified public utility managers, and time constraints for public utility activities. On the contrary, research has revealed that the integration of production unit activities in educational institutions can effectively maintain their functioning owing to the availability of student labor and a readily accessible market through diversification of production. Diversification is widely acknowledged as a significant asset for both nations and organizations, as stated by Fugar et al. (2013). Hence, educational institutions must recruit individuals with the qualifications and expertise to manage these units, effectively facilitating diversified output inside adaptable production facilities.

The results showed that poorly practiced good governance principles are challenges to the proper functioning of SPU for conducting experiential learning. Effective governance is a crucial factor in improving educational quality. Effective governance influences the formulation and implementation of robust policies by creating a framework for monitoring, evaluation, and adjustment in alignment with national needs (Bhattarai, 2021; Mohamed & Kulmie, 2023). Studies indicate that several alternative solutions for advancing Nepali TVET emphasize the importance of rootedness in Nepali values and addressing the needs of Nepali youth and the community (Parajuli et al., 2020). Consolidating TVET under a single ministry, establishing national standards and strategies for implementation at sub-federal levels based on per-capita funding, involving employers in leadership roles within TVET, and clearly defining the rights and responsibilities of each governance tier are critical actions for improving multilevel TVET governance (Bhattarai et al., 2021; Caves & Renold, 2017).

The implementation of integrated national TVET policies, the provision of sufficient finance, the cultivation of positive societal attitudes towards training, and the enhancement of management practices achieve optimal experiential learning in school production units. Efficient governance of TVET for sustainability necessitates collaboration among all stakeholders to secure adequate funding, personnel, and infrastructure, foster stakeholder synergy, and develop a flexible curriculum that meets industry demands and 21st-century skills (Caves & Renold, 2017).

Contribution of This Study

This study contributes to exploring experiential learning through school production units in the context of Nepal; it provides information regarding the development of learning approaches and employability skills in experiential learning through school production units. Furthermore, this study contributes to understanding the major challenges of running school production in TVET institutions in Nepal. The study's findings delve into implementing experiential learning in a school production unit within the Nepali context.

This study showed that students practicing in the production unit of the agriculture sector of the TVET department maintain the value chain. The value chain in agriculture encompasses all operations necessary to transition an agricultural product from production to consumption. A collective of players facilitates the transition of agricultural products from field production to ultimate consumption, with value being added at each stage of the process. Experiential learning in the agricultural value chain involves hands-on experiences at various stages to comprehensively understand the processes, challenges, and opportunities involved. Students may participate in a project that includes multiple value chain stages. This thorough methodology ensures their understanding of certain stages and their interrelations, fostering innovation and efficiency in the agricultural value chain.

All participants reflected on the significance of the hands-on learning experiences that led to the learning connection of the students, also referred to as experiential learning theory. The theoretical framework of experiential learning theory facilitated a deeper comprehension of the gap between urban students and practical engagement with the value chain. The participant's experience indicated that experiential learning theory was the most appropriate framework for engaging in the school production unit, resulting in enhanced production outcomes.

Kolb (2014) validated the experiential learning theory, positing that students acquire information and comprehension through experiences. Kolb's theory of experiential learning encompasses four levels of experience: introspective observation (experience), abstract conceptualization (understanding), active experimentation (application), and concrete experience (sensation/experience). These four levels of experience are well embedded in the school production unit. However, these four levels vary in the institutional setting, students' choice, and instructor's pedagogical skills. This cycle encompasses experience, reflection, cognition, and action that contribute to enhancing the positive learning experience of the students in SPU. The study's results were further examined through a literature analysis, which demonstrated alignment with prior research and the theory outlined in Chapter two.

The four stages of experiential learning commence with the initial stage and culminate with the student's reflection on the event upon its completion. This study revealed supplementary learning outcomes beyond the four stages of learning, specifically in the action phase, which encompassed the activities and tasks undertaken by the group engaged in experiential learning and interaction between students and the teacher, ultimately fostering student reflection. This stage established a compact environment for cultivating information and skills, resulting in learning outcomes in the subsequent phase. The learning outcomes encompass technical, interpersonal, personal, and entrepreneurial abilities. Such skills helped to increase the coping ability of students and TVET institutes to connect industries and technical education.

Another contributions of this study's data analysis uncovered additional learning approaches, which is related research question two, "How do students experience industry-related skills in the school production unit? It led to uncovering the internal transformation students experience that contributed to their skill development, specifically in areas of technical, interpersonal, entrepreneurial, and personal skills; data also indicated that students experienced meaningful community engagement, which supported them with further reflection and a better understanding of their perspectives on diverse cultures and diverse populations.

The research investigated students' motivation to learn about the agricultural value chain in community-based service-learning programs and how these programs can help enhance their skills. It also aimed to understand the skills and knowledge students can develop through EL at SPU.

Likewise, another contribution to this study is an examination of the primary obstacles to operating a successful production unit within a TVET university. The third research question is, "How do school production units cope with challenges to ensure institutional work-based learning?" This section explored the significant challenges and coping strategies to fulfill the challenges. Students encountered operational procedures and future goals while participating in the school production unit.

Chapter Summary

In this chapter, the researcher provides a detailed discussion of the study's findings. Detailed justifications of findings from different studies were discussed in this study. This chapter encompasses a comprehensive analysis of the findings, focusing on the interpretation of the results. Its purpose is to address the research questions and establish the connection between the findings and the existing theory and literature. The chapter also encompasses an analysis of the study's contribution in knowledge creations in TVET institutions on agricultural sector of concerning experiential learning through school production units.

CHAPTER VIII

SUMMARY, CONCLUSIONS AND IMPLICATIONS

This chapter begins by providing a concise overview of the research procedure, outcomes, and overarching conclusions derived from the study. I conclude this part with an epilogue. Moreover, I outline the implications of this study, followed by a discussion of its constraints and limitations.

Summary

This chapter begins by providing a concise overview of the research procedure, outcomes, and overarching conclusions derived from the study. I conclude this part with an epilogue. Moreover, I outline the implications of this study, followed by a discussion of its constraints and limitations.

The qualitative case study approach aimed to explore the experiences of students, instructors, and administrators at the TVET institution in Nepal. This dissertation delves into the experiential learning experiences of Nepal's students, instructors, and administrators (principal and coordinator), facilitated by the SPU program for TVET diploma students.

Students create, elaborate, and reorganize their knowledge and understanding in the production unit. Such involved processes and efforts greatly impact students' learning outcomes. In addition, learners come together to create, elaborate, reorganize, and share their own knowledge and understanding. In addition, it has been shown from the study that learning activities that integrate constructivist pedagogical approaches and experiential learning pedagogical approaches allow learners to attain knowledge, skills, and competencies of this age. The most attained skills that the study has highlighted through the school production unit include subject-specific technical skills, interpersonal skills, personal skills, and entrepreneurial skills of TVET diploma students, and these skills are important employability skills acquired in school production units.

This study effectively explores the various subthemes of skills that underscore the production unit's advantages while also emphasizing the importance of involving students in this unit. The study has identified several highly acquired skills, including collaboration, communication, problem-solving, critical thinking, and soft skills such as self-motivation, creativity, and self-confidence. The research and literature have

highlighted that production units provide students with the ability and autonomy to learn, create, and exchange knowledge, and significant learning occurs.

This study explored experiential learning through school production units in the context of Nepal; it provides information regarding the development of learning approaches and employability skills in experiential learning through school production units. Furthermore, this study contributes to exploring the understanding of the major challenges of running school production in TVET institutions in Nepal. However, studies conducted outside of Nepal have shown that experiential learning in production units has the potential to enhance student learning, employability, and entrepreneurship (Chukwu et al., 2019; Ganefri & Hidayata, 2015; Pratama & Triyono, 2018). The study's findings delve into implementing experiential learning in a school production unit within the Nepali context.

This study contributes to exploring the industry-related skills in the school production unit. The study reveals that school production units equip students with essential employability skills such as technical, interpersonal, personal, and entrepreneurial skills. Additionally, it delves into the significant obstacles and future goals of school production at TVET institutions. Furthermore, this study utilized constructivism and experiential learning theories to support learning approaches in the school production unit.

Likewise, another findings of this study is an examination of the primary obstacles to operating a successful production unit within a TVET university. This section explored the significant challenges. Students encountered operational procedures and future goals while participating in the school production unit.

Conclusion

My study concludes that experiential learning, through school production units, goes beyond traditional lecture-based learning approaches and has proven valuable in promoting efficient and effective learning among students, instructors, and administrators. Indeed, it is evident that school production units play a crucial role in enhancing student learning by fostering equity and strong relationships within the learning environment. Nonetheless, even though the data makes valid conclusions about the significance of the school production unit, the researcher was concerned with the input from other important players in the school production unit, including the policymakers and directors, and additional experiences from student participants.

Hence, the researcher urges and suggests more research and further investigation on how school production units provide experiential learning and impact students.

This study explores different learning approaches and identifies how school production units enhance students' learning. The findings conclude that the production unit promotes learning by doing, collaborative learning, and a student-centered learning approach for TVET diploma students. The discussion surrounding these themes of learning approaches has highlighted the effectiveness of constructivist pedagogical approaches, such as the production unit, as valuable learning practices that should be integrated into education systems, particularly in TVET, due to the numerous benefits they offer.

The study indicates that institution-based learning is also an alternative to promote work-based learning by strengthening the capacity of TVET institutions. a. TVET institution promoting the constructivist approach of learning.

Despite challenges such as limited resources, an irregular academic calendar or yearly plan, regulatory compliance, curriculum demands, and the marketing and promotion of the school production unit, these production units expect to connect with the labor market. The study concludes by emphasizing the importance of support mechanisms and providing enough tools and resources in the production unit. Likewise, this study highlights the potential future directions for experiential learning in production units, finding that technological integration, sustainability, industry partnership, diversification in production, and flexible learning are the main concerns for the coping strategies of experiential learning through school production.

Implications of the Findings

The potential implication of experiential learning in school production units is highly valuable as schools continue to make efforts to enhance the preparation of students for college and career opportunities. The implications of the study's findings are wide-ranging and affect all stakeholders, like students, instructors, school administrators, and policymakers in the educational community. Educational stakeholders, including students, instructors, staff, and administrators, play a significant role in making decisions that contribute to the transformation of TVET. In this study, the theory, practice, and policy all have significant roles in transforming pedagogies from teacher-centered to empowering learner-centered approaches. This shift provides learners with valuable opportunities to develop knowledge and skills

collaboratively and mutually. Therefore, they may be connected to this case study's findings.

The school production unit aims to create an environment that focuses on the needs and interests of the learners by connecting with the labor market. In a learner-centered environment, the facilitator supports learners by guiding and encouraging learners to construct knowledge and solve problems independently. Once more, in the context of active and collaborative learning within a school production unit, facilitators play a crucial role in promoting and nurturing active involvement and interaction among learners while employing various instructional resources to support enhanced comprehension and proficiency growth.

The findings underscore the significance of facilitators in fostering adaptable, cooperative, and learner-centric educational experiences within production units, as well as their significant contributions, which have played a crucial role in the advancement and execution of relevant educational experiences inside these units. Their valuable contribution to developing and implementing meaningful learning experiences in these units. This research highlights the importance of a robust support system that prioritizes services, safety, comfort, and flexibility as key responsibilities for staff in the teaching and learning process.

The results of this research indicate that the government has the potential to play a significant role in facilitating collaboration among stakeholders, including students, instructors, staff, and administrators, and addressing gaps through policy interventions. Policy interventions are crucial in ensuring quality and providing students with valuable opportunities in exchange for their investment. The government can also assume a significant role in facilitating the replication and expansion of established practices that have demonstrated efficacy in addressing experiential learning requirements. One such example is the school production unit, which has successfully helped graduates excel in their skills.

This study's findings suggest that areas within experiential learning through school production units could benefit from further attention and improvement. The graduating students' core, personality, and organizational adaptability skills may benefit from further development to meet employers' expectations. In this scenario, academic institutions have the potential to provide valuable support to students in developing their skills and achieving excellence in their areas of expertise through the implementation of the learn, earn, and pay concept.

This study also highlighted the potential benefits of an updated curriculum and effective delivery methods and the value of incorporating experiential learning opportunities through a school production unit. In this situation, academic institutions can potentially provide valuable support to students. This support is achieved by creating an inclusive learning environment that encompasses learning, earning, and paying.

Additionally, academic institutions can significantly facilitate collaboration among various stakeholders, including students, instructors, staff, and administrators, ultimately contributing to the overall sector enhancement. This study is highly beneficial for students. Additionally, numerous opportunities are available for students seeking knowledge through school production. Students can further enhance their abilities and excel in their chosen field of study by investing additional effort. This will enable them to develop valuable skills and competencies that can be applied in various professional or entrepreneurial pursuits.

This study has important implications for theory, specifically the theory of constructivism, which has an important role in shaping the concept of the school production unit as a means of developing essential employability skills and relevant knowledge. As Harasim (2017) has pointed out, epistemological standards, empirical methodologies, and communities of knowledge are all critical determinants of the efficacy of learning theories. This perspective promotes the exploration of alternate methodologies for education, such as creating learning environments and spaces, as opposed to exclusively depending on traditional lecture-based teaching within classroom settings. In simpler terms, these theories highlight the importance of education stakeholders shifting their focus away from traditional methods of delivering knowledge. Instead, they encourage the adoption of pedagogies that promote experiential, active, and collaborative learning. Learning theories provide valuable insights into the process of student learning, acquiring skills and knowledge, and the impact of pedagogy on this process. The findings highlight the significance of the social and informal aspects upon which production units are founded. Furthermore, the findings underscored the significance of creating a production unit accommodating diverse activities.

Limitations

This study has contributed to the literature exploring skills development through school production units while focusing on the TVET institutions. It has also added to the literature learning approach examining within the TVET context. The present study was limited to school administrators, instructors, and students working in the school production unit of TEVT institutions. Further research could concentrate on more developed initiatives and involve other participants, such as CTEVT directors, public policy officials, subject matter experts in various trades or fields of study, and parents of children engaged in experiential learning via production units. Future research should conduct a series of comprehensive interviews with stakeholders who were not included in this study.

The current study had a limitation in that it exclusively conducted research within the production units of two polytechnic institutions located in the Far Western area. I recommend broadening the study's scope by including additional model TVET schools from each province. Including additional model TVET schools from each province would establish important themes and patterns associated with these TVET institutions.

Another limitation of this study is that it is qualitative in nature. This research did not cover longitudinal research on the school production unit to offer valuable insights into the curriculum and investigate strategies for its long-term sustainability. Furthermore, conducting a comparison case study including two or more programs would provide a further understanding of the experiences of each case as well as how the practices and processes of these programs may result in equivalent or dissimilar outcomes.

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APPENDICES

Appendix A: Case Study Protocol

Title of Research: Work-based learning through school production unit

A. Overview of the Case Study

Objectives of the Study

The objective of this study is to investigate the experiences of students, instructors, and administrators (principal and coordinator) regarding work-based learning within a school production unit designed for TVET diploma students. The study aims to assess the effectiveness of this approach in enhancing students' learning approaches, skills, processes, challenges, and future aspirations.

Research Question

Research questions of this study are:

1. How do students, instructors, and administrators describe learning approaches by work-based learning through school production in TVET institutions?

2. How do learners gain skills in the school production unit?

3. How do school production units run for ensuring work-based learning?

Before Data Collection Procedures

1. Firstly, I would like to extend a warm greeting to all participants. Reiterating the investigator and study participant roles is crucial. This includes providing comprehensive information about the protection of participants as human subjects throughout the research process.

2. Additionally, participants have the right to remain anonymous, and all narrative enquiries will be coded in a secure manner before, during, and after the interviews.

3. The implementation of member-checking procedures will occur once electronic transcriptions obtained from the transcription entity are received. Additionally, a sample review of responses will be conducted to guarantee the accuracy, validity, and reliability of the data.

4. The researcher will input memos of learning round observations into MAXQDA software for the purpose of classification, coding, thematic pattern matching, and analysis.

5.   These memoranda will serve as data information for the analysis of the collected data.

Data Collection Procedures

1.   Before and during face-to-face interviews, the necessary documentation linked with the study, will be provided to ensure that all necessary documents are filled out and confirmed. To ensure the confidentiality of the sample responses, permission forms will be stored in a protected database and saved as number-identified PDF files.

2.   The Data Collection Plan entails the identification and acquisition of several data sources, which encompass

1.   Performing personal interviews to address three specific research inquiries.

2.   A member-checking process was conducted to validate the findings obtained from the study participants.

3.   Detailed field notes were taken during the data analysis phase to provide additional evidence for the direct observations made in the field. These notes included information such as dates, times, and frequency of the direct observations.

4.   Archival data documentation was retrieved to verify the coding patterns identified in the study.

5.   Establishing a connection between each data source and research-backed citations and annotated bibliographies.

3.   The data obtained will be maintained securely in MAXQDA, with each entry being identifiable by numerical identifiers that correspond to participants, individual interview responses (including the years of round conduct and observed circumstances), and interview responses.

4.   Furthermore, the data compilation consisting of archival records, documents, direct participants, and observations will be organized and protected within the MAXQDA software. This compilation will be categorized and sub-categorized depending on the variables that pertain to each individual data source.

5.   The confirmation of participant replies is established by the data collection procedure.

6.   The provisional categorization of the data will occur as a result of the data gathering process in steps 1-6. This categorization is done in anticipation of conducting thematic pattern matching and identifying key concepts. The categorized data will be stored in a secure database using MAXQDA software.

7.   A collection of supplementary materials will be prepared and imported into MAXQDA to ensure credibility and reliability

The procedures for data analysis

1.   The execution of face-to-face interviews

2.   The records of the interview was transcribed manually and imported into MAXQDA.

3.   The process involves conducting a thorough examination of the recordings and transcriptions, accompanied by written field note summaries. These summaries are an integral component of the manual review process, which is followed by the submission of the materials to a professional entity.

4.   Contact will be established with all informants by email to advise them that transcriptions will be supplied to them once they are finished. Additionally, a reminder will be sent regarding the need to maintain confidentiality and anonymity. Finally, informants will be asked for member-checking purposes.

5.   Upon receiving the document, it is necessary to adhere to the established member checking procedures. Additionally, any necessary revisions, amendments, or deletions should be promptly addressed, if appropriate.

6.   Upon the validation and confirmation of transcription accuracy and validations, it is necessary to collect and combine all transcripts.

7.   If deemed necessary, proceed with conducting telephone interviews to verify the membership status of individuals.

8.   The data was compiled into MAXQDA software.

9.   The process involves categorizing coded data into thematic categories, beginning with semi-structured interviews and extending to archival data records. This categorization is done to conduct a thematic pattern cycle analysis using MAXQDA.

10.   The utilization of codes, categories, and thematic pattern analysis serves to establish a connection with theoretical assertions, hence validating and confirming those propositions.

11.   Incorporate secondary data derived from direct observations of the topic under study into the various phases of the learning circle process using axial codes. This review aims to examine descriptive narratives as exemplars of data to facilitate the process of coding and categorizing narratives.

12.   . Perform a comparison analysis on the responses to research questions, interconnected propositions, field notes, firsthand observations, and evidence from archive documents.

13.   Conduct a comprehensive examination of coding practices.

14.   Conduct a comprehensive examination of thematic coding methodologies.

15.   The use of recursive analysis through the utilization of Yin's Five Phase Cycle Process.

16.   The ongoing documentation of analytical findings and subsequent submission to the supervisors for evaluation and constructive input.

Guide for Writing a Case Study Report

1.   Determine the case study's profile (the TVET institution's school production unit).

2.   Analyze the current study to sample to discuss implications for upcoming research and publications.

3.   Provide a case study evaluation.

4.   As the data analysis progresses, the dissertation outline will take shape**.**

Appendix B: Literature Review Matrix

Component/s	Resources
Work-based Learning	Grey (2001); Haruna and Kamin, (2019); English (2005); Boud (2006) argued Rossin & Hyland (2003) and Hardacre and Workman (2010); Marsick et al. (2009); Eraut (2004); Marsick et al. (2009) Morris (2010); Kubiak et al. (2010)
Production-based learning model	Ganefri (2013); Ganefri and Hidayat (2015).
Experiential Learning	Xu & Shi, (2018); Hegarty & Kelly, (2011); Nagowah & Nagowah (2009); Sutinen, (2008); Kolb, (2014); Kolb & Kolb, (2017): Kolb,(1984), Yardley et al., (2012): Kolb, (2014); Amod & Brysiewicz, (2019);McLeod, (2019).; seng et al., (2023); Phipps et al., (2012); Chan, (2012); Stocker et al., (2014); Baker et al., (2012). Bradberry and De Maio (2018),: DeLuca and Fornatora (2020),; Salinas-Navarro and Garay-Rondero, (2020) ; Barnett et al., 2009; McPherson et al., 2018;
Active Learning	McLeod (2019); Bell & Bell, (2020);S antos & Serpa, 2020; Bell & Liu, (2019): Kim & Cho (2019): Patton, (2015); Weimer, (2013); Sharkey & Weimer, (2003): Harasim, (2017): Patton, (2015): Patrick et al., (2016)
Employability skills	Barrie, (2004); Deny & Reid, (2005); Raban, (2006); Franz, (2008); Muldoon, (2009); Yorke, (2010); Yusof & Jamaluddin, (2015); Tomlinson, (2016); Bendixen & Jacobsen, (2017); Bargsted, (2017); Zegwaard et al., (2017); Yorke & Knight, (2007) Kuh, (2008); Robinson, (2000); Cunningham et al., (2004) ; Holzer & Lerman, (2014); Golding, (2011), Ackermann, (2001); Powell & Kalina, (2009); Solvie & Kloek, (2007); Powell & Kalina, (2009)

Constructivism	McLeod, (2019); Aravind & Bhuvaneswari, (2023); Plummer et al., (2021); Lee & Hannafin, (2016), Siregar et al., (2024) ; Armstrong's (2019); Mishra, (2023): Umayrah et al., (2024); Turakhia et al., (2023) ; Vijayakumar Bharathi & Pande (2024); Hedin (2010); Lee & Hannafin, (2016).; Yoders (2014): Vygotsky, (1980); Fosnot, (2005) :Lambert et al., (2002); Lee & Hannafin, (2016); Armstrong, (2019)
Qualitative case study	Stake, (2000); Merriam, (2009); Yin, (2018); Creswell, (2013); Crotty, (1998); Yin, (2014); Merriam, & Tisdell, (2016); Merriam & Grenier, (2019;) Stake, (2005)

Appendix C: Themes and Subthemes

S. N.	Theme	Subtheme	Code
1	Learnings	Learning by Doing	Real-world Experience,
			Professional Development,
			Workplace Planning,
			Promoting Self confidence
		Student-centered learning	Student-led Activities,
			Student's Autonomy,
			Flexible Learning Environment
		Learning through Collaboration	Group Discussions
			Group Work
			Peer Feedback.
			Outcome Based Work
2	Skills	Technical skill	Technological Skills
			Subject-specific Skills
		Interpersonal skill	Communication Skills
			Problem-Solving Skills
			Teamwork, Cooperation, and Collaboration Skills
		Personal skill	Self-management Skills
			Creative Thinking Skills
			Decision Making skills
			Time Management Skills
		Entrepreneurial skill	Earning Skills
			Business Planning Skills
			Marketing Skills
			Legal Knowledge
3	Challenges and future aspiration	Challenges	Limited Resources
			Academic Calendar/Time
			Regulatory Compliance
			Marketing/Promotion

			Curriculum Demands
			Poor Governance
		Future aspiration	Technology Integration
			Sustainability
			Industry Partnerships
			Diversification in Poduction
			Sound Governance

Appendix D: Informed Consent Form

DESCRIPTION OF RESEARCH STUDY

This study used a qualitative case study approach to gain a comprehensive understanding of the phenomenon of work-based learning inside the school production units located in the framework of Technical and Vocational Education and Training (TVET) institutions in Nepal. Consequently, the PhD candidate will need to have an in-person interview with me at a prearranged time and location, mutually agreed upon between the months of February 2020 and July 2020. Furthermore, I thus provide my consent to engage in member checking procedures, which involve the assessment of individual transcripts. The objective of this review is to ensure the accuracy, verification, and validation of the case study on Work-based learning through school production units. The participant acknowledges the researcher's dual role as an observer and participant in the study process during the rounds.

RISKS

There are currently no known risks associated with participation in this study. However, it is important to acknowledge that in every research endeavor, there exists a potential for unforeseen risks that have not yet been found.

BENEFITS

Your involvement in the research may not yield immediate advantages, it could contribute to the expansion of scientific understanding that will benefit coordinator instructors, principals, students, and schools by providing a better comprehension of potential implementation strategies for the school production unit to enhance teaching and learning in TVET institutes.

CONFIDENTIALITY

The confidentiality of all data acquired during this research is rigorously maintained. While the findings of this research investigation might be cited in publications, presentations, and reports, no identification of the subjects will be included. To ensure the preservation of record confidentiality, interview responses will be transcribed from audio recordings of the interviews, and correspondence pertaining to the interviews will be transcribed using an audio recording transcription device. The participant-numerical identifiers will be utilized to store the recordings in a cloud database, which will be also protected by a safe at the residence of the researcher. In order to ensure the confidentiality and anonymity of your responses, your name will

be withheld and your identity will be classified using coding features recorded in MAXQDA, a database for qualitative data analysis. Information shall not be disclosed to any other entity, regardless of the reason, except with the explicit and specific consent of the subject.

WITHDRAWAL PRIVILEGE

This study's participation is entirely optional. It is acceptable for you to decline. Even if you say yes now, you can say no later and leave the study at any moment. Furthermore, non-participation or withdrawal from the study at any point will have no effect on your district status. In the event of withdrawal, all data recorded will be erased in accordance with the confidentiality part of this informed consent form.

COSTS AND PAYMENTS

There is no remuneration provided for involvement in the research participation.

VOLUNTARY CONSENT

I will be available to address any inquiries you may have regarding the research project or your involvement in the study, both before and subsequent to your agreement. The provided document elucidates the inherent characteristics, requirements, advantages, and potential hazards associated with the project. By affixing your signature to this document, you acknowledge and willingly accept the responsibility of assuming any potential hazards associated with the subject matter at hand. Please be reminded that your participation in this study is voluntary. Participants have the option to decline participation or revoke their permission at any point throughout the study without facing any negative consequences or loss of advantages.

Your signature below indicates that you consent to participate in the above study.

Subject's Signature

Name   Date

INVESTIGATOR'S STATEMENT

"I certify that I have explained to the above individual the nature and purpose, the potential benefits and possible risks associated with participation in this research study, have answered any questions that have been raised, and have witnessed the above signature. These elements of Informed Consent conform to the Assurance given by Grand Canyon University to the Office for Human Research Protections to protect the rights of human subjects. I have provided (offered) the subject/participant with a copy of this signed consent document."

Name and Signature of Investigator -   Date-