ISSN: 2392-456X(Print)
ISSN: 2392-4578(Online)

2026, Volume 8

Journal of Training and Development

TITI

Publication of:

Council for Technical Education and Vocational Training (CTEVT)

Training Institute for Technical Instruction (TITI)

Madhyapur Thimi 2, Sanothimi, Bhaktapur, Nepal

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

Publisher: Research and Development Department, TITI.

Distributor: Learning Resource Centre, TITI.

Price: NPR 300/- (for a printed copy)

ISSN: Print: 2392-456X, online: 2392-4578

E-mail: editorial@titi.org.np;

4titi.official@gmail.com

For article submission and other information

Research and Development Department

Training Institute for Technical Instruction (TITI)

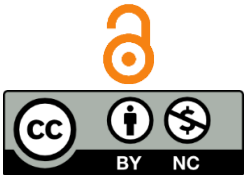
Madhyapur Thimi-2, Sanothimi, Bhaktapur, Nepal

Journal of Training and Development

Volume 8, June 2026

ISSN: 2392-4578 (Online), 2392-456X (Print)

Also available at: https://www.nepjol.info/index.php/JTD



Published by

Council for Technical Education and Vocational Training (CTEVT)

Training Institute for Technical Instruction (TITI)

Madhyapur Thimi-2, Sanothimi, Bhaktapur, Nepal

+977-1-6630187, 6630409

Web: www.titi.org.np

Email: info@titi.org.np; 4titi.official@gmail.com

Table of Content

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95883

Editorial

Continuing the Journey of Education, Training and Research

Purushottam Chapagain*, Shiba Bagale

Training Institute for Technical Instruction (TITI)

The *Journal of Training and Development*, Volume 8, has been published with the objective of sharing knowledge and recent research findings in the field of Technical and Vocational Education and Training (TVET). This publication has a collection of valuable articles from TVET experts, scholars and educators. The articles in this journal are valuable resources for scholars, educationists, TVET experts and stakeholders.

This issue consists of six articles on different aspects of training and development.

The article **"Striving for Adopting and Adapting Information Technology: A Qualitative Study of Informal Skills Learners in Nepal",** authored by Dr Durga Prasad Baral, examines how the informal sector learners adopt and adapt the information technologies in daily settings. The qualitative case study through an interpretive approach has highlighted that the new skills are learned through observation, imitation, and digital platforms. The author highlights that informal networks and self-directed learning are the coping strategies for technological transformations, where support, awareness programs and training are seen as the need.

The article **"Local Government Financing in TVET: A Study of Gandaki Province of Nepal",** jointly authored by Dr Prakash Kumar Paudel, Prof. Mahesh Nath Parajuli, Prof. Prakash Chandra Bhattarai, Dr Suresh Gautam, Milan Shrestha, and Anup Bhurtel, emphasizes the role of the local governments in designing, implementing and monitoring TVET. The data of the study was collected through SUTRA, a financial management system of the government of Nepal. The study emphasizes how local governments are prepared to finance TVET and provide access, especially in Gandaki Province. The study found that there is minimal allocation of the budget in the province. Also, the conclusion is that the budget allocation is more on short-term training programs and less attention to long-term programs.

The article penned by Nirmal Bhusal, Bikas Raj Ghimire, Sunita Acharya, and Shiv Mangal Prasad**, "Bridging the Skill Gap: Abhyangakarta (Ayurveda Massage Therapists) Training in Nepal's Health and Wellness Sector",** is about the analysis of the gap of trained human resources in

* Corresponding email: editorial@titi.org.np

Abhyangakarta. The authors highlight the importance and scope of therapists in the health service. The need for nationally accredited, competency-based vocational training programs related to Ayurveda is highlighted in the study. The findings focus on bridging the gap and unlocking the full potential of the Ayurvedic health sector.

The article "**Aligning Sustainable Development Goals With TVET: Evidence From Policy and Practice in Nepal**", written by Baikuntha Prasad Aryal, highlights the TVET-related policies and practices and the implementation modality of sustainable development goals. The qualitative study focuses on gaps, issues, challenges and governance of TVET programs in achieving SDG targets. The paper also focuses on the strategies and highlights their importance in achieving SDG targets.

Richan Shrestha and Prof. Prakash Chandra Bhattarai, in the article "**Factors Influencing Students' Choice of Bachelor of Hotel Management Program in Nepal",** focus on the factors and reasons behind students' choice of hotel management program. A survey with the exploratory factor analysis revealed that self-interest, career development perception, expected outcomes and societal pressure are the main reasons for choosing the course. The dilemmas and difficulties in choosing the course are highlighted in the study.

The article **"Greening TVET for Sustainable Future**" by Shiba Bagale focuses on the different dimensions of greening TVET. The review article basically focuses on the empirical studies, policy reviews, and theoretical reviews related to greening TVET. The author suggests some strategies related to greening TVET. Basically, the article focuses on the incorporation of greening TVET in curriculum, policies and governance, capacity enhancement of teachers, instructors, institute and industry linkage in greening. The necessity of green jobs and skills is also highlighted, and focuses on greening TVET as an enabler for a sustainable future.

Finally, the editorial team expresses its heartfelt gratitude to the authors, reviewers and TITI management for their invaluable support and collaboration. We look forward to continued cooperation from them in the future. Additionally, the editorial team welcomes feedback on this publication, as we believe it will help further enhance its quality.

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95888

Striving for Adopting and Adapting Information Technology: A Qualitative Study of Informal Skills Learners in Nepal

Durga Prasad Baral*

Kathmandu University School of Education

Abstract

In this study, I explore how informal skills learners adopt (learn and use new digital tools) and adapt (modify their traditional learning practices to fit) these technologies in their everyday work setting. Drawing on a qualitative case study with fieldwork from pottery, metalcrafts, fast-food services, and motorcycle mechanics occupational sectors, we have used an interpretive approach guided by workplace learning theory with technological determinism insights. I have collected the data through kurakani (informal interviews) and observations with eight research participants, focusing on their experiences of using local (basic, manual) as well as information technologies. The findings reveal that although there is limited access to advanced tools and formal training, informal skills learners exhibit solid adaptability and initiative. With the technologies available, they learn new skills through different approaches, such as observation, imitation, and digital platforms like YouTube. It is explored that informal skills learners often rely on informal networks and self-directed learning to cope with technological transformations. The study concludes that there is an acute need for targeted support from the state and public institutions, including awareness programs and flexible training.

Keywords: informal skills learning, technology adaptation, SMEs, informal sector, digital devices

Introduction

Informal skills learning is an important component of Nepal's economy. Why? because there is a huge mass of the working population in the informal sector. Workers in this sector learn essential skills during the work (Baral, 2022). So, small-sized enterprises can be taken as the backbone of Nepal's informal sector. The sector provides livelihoods for many people and also sustains traditional occupational skills (Singh & Kharel, 2023). Most of such enterprises where informal skills learning happens are either private or family-run businesses. In such workplaces worker learners learn skills through different approaches such as observation, imitation, and interactions during the work. This kind of learning system is very important. As the reason, we can take

* Corresponding email: baraldurga@kusoed.edu.np

their social mobility as well as poverty reduction in the context of Nepal.

It is obvious that the process of informal skills learning is experiential. So, it is context specific. Such learning is not like other types of non-formal and formal training which mostly depends on the types of work and the overall environment of the work. Furthermore, availability of mentors and social network also determines and quantity and quality of skills learning (Illeris, 2011). The informal skills learning process is gradual and flexible. Besides, informal skills learners face multiple challenges in getting the appropriate value of their acquired skills. They rarely get a chance to perform formal training programs (Bajracharya, 2022). So, informal skills learners are very vulnerable to rapid technological changes. We can see such challenges particularly in micro- and family-run enterprises where businesses are run with very limited resources. So, naturally, adoption of technological innovations for informal skills learners is slow (Baral, 2023).

The role of technology in informal skills learning, like in other sectors, has become very important these days. Both local traditional and modern information technologies are beginning to shape how skills are acquired and transferred in the informal sector during the work execution. Although the adoption of advanced tools such as ICT remains limited, even basic innovations can have a substantial effect on productivity, safety and security as well as learning processes (Chen, 2018; Ghimire, 2020).

Technology adoption, for informal skills learners in Nepal, means the choice to acquire and use digital tools to work and learn informally. Similarly, technology adaptation occurs when these learners reshape their daily work activities or exploit the technology to overcome existing barriers like low digital literacy, language divides, and limited internet bandwidth. Actually, successful informal learning relies on this dual process, where learners not only accept new IT tools but actively modify their practices to make the technology functional for their specific environments.

However, most of the informal skills learner's struggle in adopting and adapting to new technologies although they are motivated for this. This is more challenging for older workers and people in rural areas. Challenges include low digital literacy, poor digital infrastructure, and limited access to training opportunities (Adhikari & Molla, 2024). Besides, other economic constraints, socio-cultural factors and organizational practices also play a role in determining both the opportunities and limitations of technological use in small-sized enterprises (Chandler, 1995). Thus, there is unevenness in the process of technological adaptation. Some learners are making progress while others struggle to keep pace. In this study, I have used workplace learning theory and concepts of technological determinism to understand how informal skills learners tackle technological adoption (Illeris, 2011).

Workplace learning theory stresses on the importance of work-related learning such as experiential, socio-cultural, and informal learning, and their processes. Technological determinism stresses how the accessibility and nature of technology can shape learning opportunities and results. These theories support in understanding the dynamics of informal skills learners' challenges and opportunities presented by new technologies. So, there is an acute need to know the situation of adoption and adaptation of new technologies by informal skills learners in Nepal. The main focus of this paper is to fill this gap by collecting stories and experiences of workers in different work sectors such as pottery, metal arts and crafts, fast-food services and motorcycle service mechanics. The key research question steering this research is: How do informal skills learners in small-sized enterprises in Nepal adopt and adapt to new technologies?

This research aims to inform policymakers, practitioners, educators and students about the realities of technological change in the informal occupational sector and to propose ways to better support lifelong learning and skills development in Nepal, focusing on both local and information technologies. I review the relevant literature to provide further

background and context for this study in the following section.

Understanding Informal Skills Learners' Use of Technology: A Literature Review

Focusing on how technology influences skill development, this section provides a synthesis of key literature reviewed under the themes of informal skills learning and small-sized enterprises in Nepal. Characteristics of informal learners and their use of local and advanced technologies, together with the impact of digital transformation are covered in this section. Furthermore, theoretical perspectives on technology and its use by informal learners in their occupations are also discussed. Then, the section provides the existing research gaps that lays the groundwork for understanding the complex relationship between informal learning and technology in Nepal's informal sector.

Informal Skills Learning and Informal Skills Learners

Informal skills learning is the process by which workers acquire occupational competencies outside of formal educational or training systems, typically through workplace experience including observation, imitation, and social interaction (Baral, 2022). A huge portion of the national workforce in Nepal (about 80%) gaining skills through informal means. There are different approaches of such learning such as on-the-job training, family-based apprenticeships, and peer learning in small and micro enterprises. Workers of such organizations generally are those who could not continue their school education and dropped earlier and entered into an informal job. They do learn their occupational skills during their work activities (Bajracharya, 2022). So, their skills learning is the result of immediate workplace needs which is not based on any structured curricula and standard process.

Traditionally, skills development and occupational progression of workers in Nepal is based on family and community practices. Experienced and senior artisans, mainly family members or community people, passed down their skills and arts from the higher generation to the lower one. So, process of informal skills learning is not linear and structures as in formal education and training system. Here, learning process incorporates a dynamic interplay of action, reflection, observation, thinking and exchange of feedback (Baral, 2022). These approaches of skills learning are compatible with overall global understanding such as learning by doing, trial and error, as well as socialization process. Informal skills learning remains very less recognized within Nepal's Technical and Vocational Education and Training (TVET) system although it is very important. So, informal skills learners have very limited pathways for formal certification or recognition of skills acquired informally (Caves & Renold, 2018).

Considering career progression, informal skills learners face big hurdles for progressing their career and ensuring social mobility and decent employment. This is particularly due to the absence of sufficient support for recognition of their skills (Bajracharya, 2022). However, informal skills learning provides autonomy in learning, creativity and adaptation and enable workers to face workplace-related challenges including technological transformations. Understanding the processes and experiences of informal skills learners is essential for designing inclusive skills development policies as Nepal's economy seems continued to be dominated by the informal sector. Bridging the gap between informal and formal learning systems is inevitable (Bajracharya, 2022; Baral, 2022).

Small-Sized Enterprises in Nepal

In Nepal's economy, informal sector, particularly small-sized enterprises, play a vital role. Such enterprises incorporate most of the industrial establishments and provides employments to most of Nepali youth and contribute to national resource utilization and ultimately the poverty reduction (European Economic Chamber [EEC] Nepal (n.d.); Singh & Kharel, 2023). The size of micro, small, and medium enterprises in Nepal covers more than 95 percent. Among the registered enterprises in Nepal, there is more than 90 percent share of micro and cottage industries (Singh & Kharel, 2023). These enterprises have a contribution to the national GDP more than 20 percent.

Besides, they also contribute to women's economic empowerment and livelihood (Singh & Kharel, 2023; Verma, 2024). According to the Industrial Enterprise Act of Nepal, SMEs are classified on the basis of capital investment and workforce size. Similarly, micro and small enterprises are typically family owned, operated with minimal investment and hugely rely on local resources and traditional skills (Baral, 2020).

Although there is a high significance of small and micro-enterprises in Nepal, they face multiple challenges related to infrastructure, access to finance and technology adoption. The majority of small and micro-enterprises run with very minimal locally created tools and production methods. Such situation limits their productivity as well as competitiveness, particularly in the context of globalization (EEC Nepal, n.d.; Singh & Kharel, 2023). In this sector, use of imported advanced technologies is negligible. Particularly, financial difficulties, lack of awareness, and unavailability of technical support are the contributors for such situation (Kharel & Dahal, 2020). In addition to skills development and occupational progression, management practices are also traditional in such enterprises. We can observe very minimal authority delegation practice and capacity building activities of employees in these establishments. Mostly, such competencies are formed by experiential learning rather than formal capacity development activities. These contexts compel informal skills learners to be relied on workplace routines and arrangements to learn advanced technological skills.

Nepal is getting support of different development partners to enhance the situation of SMEs through innovative support programs, soft loans, and enterprise development services. Most of such support is for micro and small enterprises and some medium-sized forms, aiming to modernize the sector. However, the progress is very slow. Realizing the fact that SMEs remain an important means for inclusive and sustainable economic growth, promoting entrepreneurship and innovation, and acting as a bridge between traditional skills and modern market opportunities (Singh & Kharel, 2023; Verma, 2024).

Technology in Informal Skills Learning: Local and Advanced

During informal skills learning, learners use multiple tools, machines and systems to accomplish the work and solve problems. Such tools, machines and systems are very basic and are developed thorough generation to generations which have evolved in response to practical needs and socio-cultural contexts. As an example, we can take traditional pottery occupation which previously used very wooden and tyre-made flywheel operated manually which was later improvised and operated with electrical wheels. Such changes also impacted on the required skills to perform the job. The next example we can take from metalcrafts trade where the emergence of welding machines, drilling tools and grinders improved work pattern and safety requirements. Similarly, in the sector of fast-food services we can find different manual works replaced with grinders and boilers that affected the informal skills learning approaches (Baral, 2022). In such technological changes we can observe a broader pattern of adaptation of indigenous technology to local conditions and availability of resources contributing to productivity and occupational skills (Chhetri, 2023).

Despite the recognized benefits of indigenous and local technologies, the integration of advanced technologies remains largely out of reach for most small-sized enterprises in Nepal. Contributing to such situation as barriers for widespread adoption of advanced tools and equipment are financial constraints, weak infrastructures, very limited research in the sector and development activities, and a low level of digital literacy (Chhetri, 2023; Outsource Asia, 2022). While government policies and development programs have begun to promote digitalization and the use of information technology, most small and micro-enterprises continue to rely on traditional methods, with digital transformation occurring slowly and unevenly across sectors. However, it is already accepted in Nepali society that local technologies can provide a premise for further advancement in innovations which can support sustainable development through employment creation and preservation of

cultural practices in the informal sector of Nepal (Chhetri, 2023).

Information Technology and Digital Transformation

In these days, we can find somehow introduction of information technology into SMEs of Nepal, albeit in slower rate. Particularly, such technology incorporation has increased through the adoption of mobile phones, and use of YouTube materials and other social networks in performing jobs. Such adoption of IT seems not identical in all informal sector trade. For instance, in metal art and crafts sector, fast food sectors, and mechanics sector, workers use IT increasingly for skills development, whereas in traditional pottery, use of IT is very negligible (Baral, 2022). In these days, we can find that mechanics and metal artists frequently turn to YouTube tutorials and online forums to learn about new tools or repair methods. It is also found that fast-food workers frequently use IT to improve food items quality and enhance the menu. Such digital transformations support informal skills learners to avail diverse knowledge sources in their own field beyond their immediate trade community or locality promoting informal skills learning in self-directed approach (Rintala et al., 2019).

Although there is high potential of using digital tools in small and micro-enterprises of Nepal, there are several challenges hindering optimum realization of digital transformation. Such challenges include very poor digital infrastructure, difficulties in availing reliable internet access, as well as low digital literacy among informal skills learners, particularly among adult and older workers (Adhikari & Molla, 2024; Azency, 2024). Digital literacy among management and leadership levels is very crucial for the digital transformation of the sector. The reason is that digitally literate and trained leaders can better guide their workforce through the complexities of adopting new technologies and also enhance the innovative culture in the workplace (Singh & Kharel, 2023). When we talk about the satisfaction of learners with technology adoption, it varies greatly among enterprises depending upon the occupational sector and the location of the enterprise. We can find the evidence that in urban and more technologically advanced sector there can be higher satisfaction level of worker learners in comparison to rural and traditional enterprises (Adhikari & Molla, 2024). To address such challenges, there is necessity of targeted investments in digital infrastructure, provision of regular training in technology as well as management development. Only with such interventions, SMEs of Nepal can be benefited through incorporation of digital transformation in the informal sector.

Technology Use in the Informal Occupational Sector: A Theoretical Perspective

According to the empirical research conducted in the field of technology adoption in the informal sector of Nepal, we can find that there is the existence of both drivers and barriers in the field which is shaped by the country's socio-cultural, economic and infrastructure related conditions. Research in different occupational fields highlights that informal skills learners often adopt very basic local technologies during the execution of work enhancing safety and security (Chen, 2018). For example, potters in the Kathmandu Valley are limited to use improved flywheels and kilns whereas metal artists use improved welding machines in place of traditional riveting joining methods (Ghimire, 2020). Although these technological adaptations seem very basic, they indicate an increasing pattern of technology adoption that is driven by necessity and contextualized innovation and not a systematic modernization (Chhetri, 2023). Still, incorporation of advanced IT, for instance, automation and digital platforms, is rare in the field due to different reasons (Adhikari & Molla, 2024).

To understand how informal skills learners interact with technology, workplace learning theory (Illeris, 2011) and technological determinism theory of Chandler (1995) provide a convincing framework. Workplace learning theory stresses on the role of experiential, social and informal as well as non-formal learning processes in skills development which is compatible with how informal skills learners

cum workers in Nepal adapt new tools through observation, imitation, and trial-and-error (Baral, 2022). As a theoretical lens, we can also see this phenomenon with the theory of technological determinism that highlight how technology shapes and being shaped through social process. This theory also provides an insight why informal skills learners adopt certain simple tools but resist with some others (Chandler, 1995). All these mentioned theoretical perspectives stress on the complex relationship between informal skills learning and technology use.

Nepal's experience of infrastructure-related challenges and lacking digital competencies and financial hindrances in adopting broader information technologies by informal skills learners is compatible with the global scenario (Chen, 2018; Rintala et al., 2019). But it is well understood that even very basic adoption of informal technology, for instance using YouTube and other mobile application in performing work can support in skills development and increase productivity, particularly among the youth. Such findings indicate that role of technology in informal skills development is not only limited to its instrumentality but it is deeply rooted social and cultural practices.

Existing Research Gap

Although there is increasing interest of digital transformation in small and micro enterprises, we can find a considerable gap in knowledge how local as well as digital technologies contribute to informal skills learning processes in Nepal and also in similar contexts. We can find multiple literature in the sector but mostly they are focused on productivity and broader trend of adopting technologies. Such studies overlooked how technologies can be adopted and adapted, and how they influence skills development (Adhikari & Molla, 2024). Similarly, we can find multiple studies on use of traditional tools and equipment in the informal sector, but there is less researched how such technologies influence the skills learning process, including in the inter-generational skills transfer. Although Rintala et al. (2019) sheds light on non-interpersonal learning through digital platforms, there is dearth of literature explaining how such practices intersect with traditional skills transfer model in different sectors such as pottery and metalcrafts. Such research gap is found acute particularly in those trades where informal learning remains a major approach of skills development. However, it is well established that in present days technological changes are reshaping identities of occupations and competencies of workers cum learners (Ghimire, 2020). To address such research gap which is based on the lived experiences of informal skills learners as workers in SMEs of Nepal, this study utilizes a qualitative case study method.

Methodology

In this study, I posit myself within the interpretive paradigm and use a qualitative case study approach as proposed by Yin (2018). The paper is premised on my PhD research study on informal skills learning processes and dynamics in small-sized enterprises in Nepal (Baral, 2022). I believe that qualitative research is suitable for understanding the lived experiences of informal skills learners, especially because their learning processes and use of technology are deeply connected to their everyday work, workplace culture, and their sociocultural background. The main objective of the study was to explore not only what kind of technologies are used by informal skills learners in SMEs but also how these technologies are experienced, learned and adapted by the learners.

For this research, I selected eight research participants from four occupational sectors: pottery, metalcrafts, cafeteria (fast food), and two-wheeler mechanics. The participants (all pseudonyms) were Lambodar and Damodar from the pottery sector; Yuvaraj, Amod, and Gaurav from the metal arts and crafts sector; Chandrika from the cafeteria sector; and Ratna and Dinesh from the two-wheeler workshop sector. These participants were chosen because they had direct experience of using both traditional and new technologies in their work, and they were willing to share their stories and learning experiences.

The fieldwork for this study was carried out over fifteen months, from September 2018 to

November 2019. I spent long hours in the workplace, observing and talking with the participants during their work shifts, which usually lasted from early morning to evening. In this study, I have used a conversational approach of data collection which is called *kurakani.* This is a simple way of talking and having informal interaction in Nepali culture. One of the reasons for using this method of data collection was to make the participants feel comfortable and reduce any hesitation they might have about being interviewed (Dhakal, 2021). Informal skills learners are mostly busy and sometimes they can feel vulnerable or hesitant to talk to outsiders. So, I tried to be sensitive to their situation and avoided interruption in their work as much as possible (Baral, 2023). All interviews and observations were recorded with the participants' consent.

In the data analysis phase, I have used the thematic analysis process (Braun & Clarke, 2006). For this, I used Atlas.ti software (version 8) as CAQDAS. I observed patterns and themes related to the use of technology, the process of learning, and the challenges faced by the informal workers as learners. This approach of analysis supported me in giving voice to the experiences of informal skills learners and highlighting the vitality of understanding technology adoption from my research participants' perspective. I also used Perplexity AI for enhancing writing.

In the following section, I discuss how informal skills learners in small-sized enterprises in Nepal adopt and adapt to both local and information technologies, and how these experiences shape their skills learning processes. The findings of the study are organized by the occupational sector and stresses on the voices and perspectives of the participants themselves.

Findings: Use of Local and Information Technologies in Informal Skills Learning

In this section, I have presented the key findings regarding how learners engage with local and advanced technologies including IT in the processes of informal work and skills learning. There are two main sections. The first section presents the use of traditional and locally available technologies shaping skills development practices of informal skills learners. Whereas, in the second section, it is provided how informal skills learners adopt information technology and tools that influence learning and day to day execution of work. Stating briefly, these findings also offer the dynamic interaction between traditional practices and modern digital tools in the process of informal skills learning.

Use of Local Technologies in the Skills Learning Process

Technological change is an essential element in a society (Miller, 1984) that is different from place to place. Based on the field visits' information, I have concluded that informal skills learners use basic technology although we can observe some improvements there. Information obtained from the research participants supported that the informal skills learners' use of basic technology and the transfer of such technology as a socio-cultural phenomenon.

Lambodar, a senior potter, informed that they used everything manually previously. But, for two decades, they have incorporated some new but simple technologies which is also affecting skills transfer. Such change includes improvement in the fly-wheel and the use of clay mixing machine. When I asked him about the use of technology and subsequent changes in skills transfer, he mentioned to me during one of the interviews:

> *In our occupation, there are certain changes in our work which also affected our skills. One of such changes that occurred in the present days is the clay-mixing machine we are using. At that time (previous days), we had to perform clay mixing work using our feet. It was very difficult. But, at present, the machine is making our work easy and fast. The next change we experienced is the wheel for making pots. Previously, we had to work with a large wheel made from tyre and wood. But now, a small-sized flywheel is introduced. It is operated with electricity and covers less space. We have to know skills required for these technologies.* [Field note]

Reiterating what was mentioned by his father regarding technological changes in the mud mixing machine and the improved fly-wheel, Damodar, son of Lambodar, noted the use of an enhanced kiln. However, the improved kiln proposed by the government was not successful because the community of potters had to manage a common free land, which was not easy to manage by the community in costly urban locations.

Studies of Ghimire (2020) and Shrestha (2018) support the experience of the above-mentioned duo-potters that potters in the Kathmandu Valley rely primarily on their traditional mode of production. There has been little change in their adoption of new technologies. Similarly, the study of Kasten (n.d.) shows that despite efforts to introduce some advanced technology with the help of some NGOs, there has been no significant change in the potter's working style. The effect of which has been felt to some extent in the teaching and learning of skills. However, it is noteworthy that when using basic technology, there may be some differences between the potters of different regions of the same country (Mahias, 1993) which may lead to general differences in the type of skill.

Similarly, mentioning the adoption of some changes in the technologies in the sector of metal arts and crafts, Gaurav, a metal artist (son of Yuvaraj) said that the trade had welcomed certain simple technologies that are supportive in increasing productivity. *"Nowadays, tools such as welding machines, grinders, drilling machines, etc. are being used*." Gaurav provided the list of items of some technologies introduced in the sector in recent years. Chen (2018) mentions that previously sheet metal arts and crafts such as statue works were based on joining individual shapes with riveting and soft soldering. The availability of modern technologies such as welding and blowtorches has made the process easier. It also enhanced work safety. It showed that the traditional metalcraft occupation is moving from the middle path of adopting new technology and preserving the tradition of the work.

In the cafeteria, the incorporation of modern technology was limited to using a grinder for crushing fresh meat. *"This is a hand-operated machine for crushing chicken. In other activities, we only use our hands"*, Chandrika, a young café worker, informed me during one of the interviews and how simply she learned the grinder operating skills from the owner. In the motorcycle workshops, the use of new technology was also less. The only mentionable point in this sector is the use of mobile applications searching for new information. Ratna, a senior mechanic, mentioned that the changing of technology in the automobile sector is very fast, and they have to adopt those changes and learn new skills. Once, he said, *"If the technology changes in this way, within few years, an uneducated person will not be able to work as a mechanic*." However, modern technology was found more negligible, and craftspeople performed most work with manual tools. It is natural that not only in the occupations of two-wheeler mechanics and fast food but overall, using simple technology is still the characteristic of Nepali micro and small-scale enterprises. Research has already established that skills acquisition occurs not in large-sized enterprises but also in small-sized ones (Kharel & Dahal, 2020).

Use of Information Technology

Regarding the use of information technology, particularly social media, I did not observe it in the pottery sector. The informal skills learners in the other three occupational sectors adopted ICT more or less. Those IT skills were not directly related to the work processes, except in some cases. However, the need for learning and the further enhancement of IT skills was created through informal skills learning (Skule, 2004). Information technology is used basically for two purposes in the metal arts and crafts sector: searching for new art items on the internet and capturing photos of traditional art items located in different locations. *"Today, we use the internet to search and collect photos of art items from different places, including photos from museums"*, said Yuvaraj during a conversation. Similarly, Amod, another senior artist, contrasting the previous days with the present practice and changes occurred in the skills transfer told that:

> *There were no technological devices for capturing the arts and crafts in previous*

> *days. They drew from their hands. But now the situation has changed. There are so many learning sites, such as YouTube, for learning these days. Now, it is easy to learn skills. Of course, we need to be updated with the new technology; we have already started to use it.* [Interview]

The expression of Amod was one of the evidences that the present generation of informal skills learners are trying to adapt to the fast-changing ICT, which was "one of the central skills" (Ashton & Sung, 2002, p. 49) for running the enterprises successfully. Like metalcrafts occupations, two-wheeler mechanics also use information technology. However, their use is mainly to solve the problem by searching for information regarding new technologies. Dinesh considers *"Materials uploaded in the websites such as YouTube channels are very instrumental for learning new skills."* Chandrika expressed that she is learning to enhance food quality from the fast-food sector, referring to YouTube materials. She is happy that there are multiple materials available on the YouTube sites that provide additional information and skills.

"Learning from non-interpersonal sources", such as using internet facilities, is a well-recognized source of learning in the workplace" (Rintala et al., 2019, p. 36). Usually, informal sector small and micro-enterprises use simple and basic technology and ICT (Chandler, 1995; Niehm et al., 2010), which affects the way of working and learning in the informal work setting.

Expressions of the research participants of these three occupations about using YouTube indicated that in the days to come, these youth undoubtedly progress in the use of ICT as their competence will motivate them for further exploration and learning (Harter, 1978). This informal learning can also contribute to enhanced productivity. It also influences the approaches to learning how one can effectively learn essential skills.

Discussion

The findings of this study show that informal skills learners in Nepal's small-sized enterprises are coping with new technologies, even in difficult circumstances, mostly through their own effort and creativity. Although informal skills learners have very limited access to advanced tools and equipment, organized training in the field, and other dedicated support, they exhibit strong adaptability and willingness to learn these technologies. During this study, we observed gradual adoption of local and traditional as well as informal technologies. For instance, senior potters like Lambodar and Damodar found strive to incorporate simple machines such as clay-mixer and improved flywheels during their work. They were not only using newly emerged technologies but also share the skills learned by themselves. Similarly, workers in metal crafts, mechanics, and fast-food services are using digital platforms like YouTube and mobile applications to solve problems, update their knowledge, and enhance their skills, even though they often lack formal guidance or systematic training (Rintala et al., 2019).

This coping and learning process can be better understood through the lens of workplace learning theory, which stresses that much of the skill development in informal sectors is experiential, social, and context-driven (Illeris, 2011). Informal skills learners rely on observation, imitation, trial-and-error, and peer support, rather than formal instruction or standardized curricula. The technological adoption is an evitable part of informal skills learning environment. Also, technological determinism perspective suggests that how technology is available to learner, and what is its nature do shape learning opportunities and the result. In the context of Nepal where access to advanced technologies is very limited to the learners due to different reasons, they do their best in utilizing what is available to them. They combine traditional knowledge and skills with new digital resources (Chandler, 1995)

Informal skills learners do face many hindrances, despite their efforts, which limit their potential to fully benefit from the advancement of available technology. Especially aged workers have low digital literacy. Besides, there is poor digital infrastructure and lack of capacity building opportunities to informal skills learners. Such challenges and scarcity make learners difficult

to cope with fast changing technology (Adhikari & Molla, 2024). Therefore, there should be a great role of the state in supporting informal skills learners in adopting and adapting technologies not limiting promoting technology in general. This effort is possible through regular skills development and training programs including awareness raising activities. Furthermore, there should be a provision of accessible learning resources tailored to the needs of informal skills learners (Amenduni et al., 2022).

The question emerges, who can fulfil this role? Of course, as the Council for Technical Education and Vocational Training is the responsible institution for leading formal TVET, we cannot directly expect that it will take this responsibility. However, as its duty is also to attract informal skills learners to the national TVET system through RPL intervention, it can play a positive role in this regard. CTEVT can develop and launch special programs targeting recognition of informal skills learners' competencies in contemporary technologies. It can offer short duration training modules in off hours and flexible modes, and also digital literacy workshops and community campaigns (Bajracharya, 2022). Besides, CTEVT can help informal skills learners to link them to formal TVET programs in their occupational field. Particularly, it can be achieved through collaboration with industry and developing curricula with their support addressing contemporary needs in the technology adoption and adaption of the learners. Such measures certainly contribute in enhancement of employ-ability and also the productivity of informal skills learners. It also can contribute to broader goals of social inclusion and economic development of the country.

In brief, we can say that informal skills learners are not only passive recipients of technological changes but they are also the active agents who adapt, innovate and learn required skills facing multiple challenges. However, as mentioned above, their efforts alone are not sufficient. Their technological learning journey should be supported massively by the state and its institutions. At the same time, state also should be careful that technological advancement should not widen existing inequalities of the citizen, rather, they should minimize the gap between economically well off and weak people. It can be expected that Nepal can empower its informal workforce to succeed in rapidly changing global context by focusing on inclusive training, digital literacy, and thorough massive campaign of recognizing skills of learners, including traditional occupational skills.

Conclusion and Implications

This research has highlighted that informal skills learners actively engage with both local and information technologies despite of multiple barriers. These learners acquire new skills and trace the emerging technological changes in their particular trades. These findings stress that even very minimal support to these learners can make meaningful differences in the work and learning of these vulnerable groups of people. The voices collected during the data collection process of the study demonstrate that informal skills learners are not merely workers and passive learners but they are the people who constantly seek ways to improve their work, learning, and adaptation to technology.

The research findings of this research can be instrumental for policymakers in the sector of TVET as well as overall education field. It also can be supportive to practitioners working in the skills development field. The study also sheds light on the acute necessity of the state and concerned institutions like CTEVT to recognize specific challenges and strength of informal skills learners and design, develop and implement supportive programs to upgrade competencies of informal skills learners. If such happens, all informal learning can be included to the national TVET system, on one side, and on the other side, overall national production can be enhanced. Based on this research, further research can be conducted; for instance, on long-term impact of digital skills enhancement initiatives as well as effectiveness of related programs in the field of skills enhancement of informal skills learners.

Limitations

The main focus of this study was on the adoption and adaptation of technologies by informal skills learners during their work. It means, other aspects of the technology use among these individuals may not have been fully explored. As the research is based on a small number of qualitative case studies involving eight participants from four occupational sectors, its findings reflect only the specific experiences and contexts of these individuals. So, it does not represent the broader population of informal skills learners in Nepal. t captured within the scope of this study.

References

Adhikari, S. N., & Molla, N. (2024). Navigating the digital shift: Exploring the impact of technology on management practices in Nepalese SMEs. *Nepalese Journal of Management and Technology, 2*(2), 91–109. https://www.nepjol.info/index.php/njmt/article/download/68730/52539/201342

Amenduni, F., Ryymin, E., Maetoloa, K., & Cattaneo, A. (2022). Facing disruptive changes with informal workplace learning strategies: The experience of European companies. *Frontiers in Psychology, 13*, 1-16.

Ashton, D., & Sung, J. (2002). *Supporting workplace learning for high performance working*. International Labour Office. https://www.employment-studies.co.uk/system/files/resources/files/mp36.pdf

Azency. (2024, November 10). *Understanding digital marketing in Nepal: Rise and benefits*. https://azency.com/blog/digital-marketing-in-nepal/

Bajracharya, A. M. (2022). Addressing informal skill learners' challenges in skill test in Nepal. *TVET Journal*, *1 (16),* 21–33. https://www.nepjol.info/index.php/tvet/article/download/45184/33904/133153

Baral, D. P. (2020). Developing a typology of informal skills learning places in Nepal. *Journal of Training and Development*, *5*, 3–15. https://doi.org/doi.org/10.3126/jtd.v5i0.33847

Baral, D. P. (2022). *Informal Skills Learning: A Case Study of Small-Sized Enterprises in Nepal* [Unpublished dissertation]. Kathmandu University. https://elibrary.ku.edu.np/handle/20.500.14301/99

Baral, D. P. (2023). Researching informal skills learners: Considering work interruption and vulnerabilities. *Journal of Training and Development*, *17(1)*, 19–34. https://doi.org/10.3126/tvet.v17i1.52409

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

Caves, K. M., & Renold, U. (2018). Goal-setting for TVET reform: A framework for identifying the ideal system in Nepal. *Journal of Education and Research, 8(1),* 6–28. https://doi.org/10.3126/jer.v8i1.25477

Chhetri, D. B. O. (2023, March). Improving indigenous technology for revitalizing industrialization in Nepal: A content analysis study. *Proceedings of the Second National Economists' Conference-2079* (pp. 162–179). Nepal Economic Association. https://necs.org.np/wp-content/uploads/2023/08/018.pdf

Chandler, D. (1995). *Technological or media determinism.* Aberystwyth University. http://visual-memory.co.uk/daniel/Documents/tecdet/tecdet.html

Dhakal, R. K. (2021). *Women in school governance in Nepal: An ethnographic inquiry* [Unpublished doctoral thesis]. Kathmandu University.

European Economic Chamber [EEC] Nepal. (n.d.). *Overview of Nepalese Small and Medium Enterprises*. https://www.eec-nepal.org.np/backup/ecibon/report/211/Publication/CHAPTER%203-4.pdf

Chen, M. A. (2018). Technology & urban informal workers. WIEGO. https://www.wiego.org/wp-content/uploads/2019/10/Technology%20and%20Informal%20Workers%20-%20WIEGO%20-%20Chen_2018.pdf

Ghimire, B. (2020). *Pottery industry and its prospects, with reference to Nepal* [Unpublished

manuscript]. https://www.researchgate.net/publication/340755592_Pottery_Industry_and_its_prospects_with_reference_to_Nepal

Harter, S. (1978). Effectance motivation reconsidered- Toward a developmental model. *Human Development*, *21*(1), 34–64. https://doi.org/10.1159/000271574

Illeris, K. (2011). *The fundamentals of workplace learning: Understanding how people learn in working life*. Routledge.

Kasten, A. (n.d.). *The potters of Thimi: Village ceramics traditions in flux*. Ani Kasten Ceramics. https://www.anikasten.com/page

Kharel, P., & Dahal, K. (2020). *Small and medium-sized enterprises in Nepal: Examining constraints on exporting* (ADBI Working Paper No. 1166). Asian Development Bank Institute. https://www.econstor.eu/bitstream/10419/238523/1/adbi-wp1166.pdf

Mahias, M.-C. (1993). Pottery techniques in India: Technical variants and social choice. In P. Lemonnier (Ed.), *Technological choices: Transformation in material cultures since the Neolithic* (pp. 157–180). London & New York: Routledge.

Miller, M. D. (1984). *Principles and a philosophy for vocational education.* National Center for Research in Vocational Education, The Ohio State University. https://files.eric.ed.gov/fulltext/ED250497.pdf

Niehm, L. S., Swinney, J., & Miller, N. (2010). Community social responsibility and its consequences for family business performance. *Journal of Small Business Management, 46*(3), 331–350.

Outsource Asia. (2022, January 27). The future of work in Nepal. https://www.outsourceasia.org/the-future-of-work-in-nepal/

Rintala, H., Nokelainen, P., & Pylväs, L. (2019). Informal learning at work: A review of the literature. *Vocations and Learning, 12*(1), 31–55.

Shrestha, P. (2018). Challenges and scopes of pottery industry. *Pravaha*, *24*(1), 147-158. https://doi.org/10.3126/pravaha.v24i1.20234

Singh, D., & Kharel, P. (2023). *Mapping innovation support programmes for micro, small and medium enterprise development: Findings from Nepal.* South Asia Watch on Trade, Economics and Environment (SAWTEE). https://sawtee.org/publications/SMEs-Nepal.pdf

Skule, S. (2004). Learning conditions at work: A framework to understand and assess informal learning in the workplace. *International Journal of Training and Development*, *8*(1), 8–20. https://doi.org/10.1111/j.1360-3736.2004.00192.x

Verma, A. (2024, May 16). *The critical role of SMEs in Nepal's economic development*. Friedrich Naumann Foundation for Freedom. https://www.freiheit.org/south-asia/critical-role-smes-nepals-economic-development

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE.

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95889

Local Government Financing in TVET: A Study of Gandaki Province of Nepal

Prakash Kumar Paudel*, Mahesh Nath Parajuli, Prakash Chandra Bhattarai, Suresh Gautam, Milan Shrestha, and Anup Bhurtel

Abstract

The national policy in Nepal, particularly after the promulgation of the new constitution in 2015, emphasizes the role of local governments in designing, implementing, and monitoring Technical and Vocational Education and Training (TVET). Despite policy priority, households, the private sector, and other non-government organizations primarily share TVET costs. The contribution from these sources varies from unit to unit, from time to time, and from place to place. This variation in financing has often created problems, such as a lack of funds and inconsistencies in designing and implementing TVET among different government agencies and tiers. With this context, this study explains how local governments are prepared to finance TVET and provide access to it for youth employment. We detail allocation, particularly in their investment in TVET and sources of funding made by local governments in Gandaki Province of Nepal. This would help in understanding the priority of the local governments in designing, implementing, and monitoring the TVET sector. The data were collected from secondary sources (SUTRA – a financial management system managed by the government of Nepal). This study found that the local governments in Gandaki province allocated a minimal budget from their internal source in three consecutive fiscal years (2019-2022), which reveals the fact that local governments are yet to prioritize this as the TVET budget shares only about 5% of the total budget. The findings also show that almost all the budget goes to short-term training programmes and the long term formal TVET gets little attention. Further, the study also found TVET at local governments are largely financed by external sources.

Keywords: Local Government, Gandaki Province, TVET financing, Fiscal Transfer, Budget Allocation

Introduction

Human resource development generally encompasses the education system. Education, particularly Technical and Vocational Education and Training (TVET), prepares competent human resources (Bonvin, 2019). In this case, it is obvious that a country aims to expand quality TVET systems along with general education successfully. Nepal is not

* Corresponding email: prakashpaudel@kusoed.edu.np

exceptional; skills development of youth through TVET has been a long-standing agenda of TVET programme. The Council for Technical Education and Vocational Training (CTEVT), established by its CTEVT Act 1989, is mandated to govern TVET in the country. Diploma and pre-diploma under the CTEVT system and 9-12 grades in technical stream under the Centre for Education and Human Resource Development (CEHRD) are secondary-level formal TVET programmes. Nevertheless, the students must have at least appeared in the Secondary Education Examination to enroll in the Pre-Diploma level programme. The basic and secondary levels of general stream education are provided in community, religious, and institutional schools. The first two types of schools receive regular funds from the government, while the third type of school charges fees for operational costs. Secondary Level TVET is offered at general schools (such as Technical Education in Community School [TECS]; Technical Stream in General School [TSGS]) and polytechnics (both constituents of CTEVT and affiliated private institutions). CTEVT is the largest institution running formal TVET programmes in over 65 constituent polytechnic schools, consisting of over 1500 affiliated private institutions and community schools with partnership modalities across the country. The constituent and private institutes under CTEVT also run various non-formal vocational training programmes. Likewise, CEHRD runs over 500 institutions under the technical stream in general schools (CEHRD, 2022).

The national policy in Nepal, particularly after the promulgation of a new constitution in 2015, however, shared the roles and responsibilities among three tiers of government (Local, Provincial, and Federal). Despite the change in the governance system, skills development remains a priority as Article 51 of the constitution envisions competent human resources through scientific, technical, and vocational education (Nepal Law Commission [NLC], 2015) for national and economic development. The constitution and the subsequent unbundling reports have defined the roles of three spheres of government. For instance, Education Policy 2019 and the Local Government Operation Act 2017 have envisioned an active role of local government in the management and governance of TVET programmes and activities. In these contexts, the current TVET system has quite a visible misalignment with the intended mandates envisioned under the federalization. The CTEVT Act (1988) commenced during the unitary state did not recognize the federal structure and the constitutional provision that has assigned TVET as the responsibility of the provincial and local governance.

The change in the governance system caused a shortage of skilled human resources. Along with the modern education system that also started in the early 50s, skill development in Nepal formally began to fulfil the demand. The governance of TVET was unitary and financed directly by the central government.

A vocational training programme ranging from 40 to 1696 hours, as a non-formal TVET, is also provided under CTEVT. However, besides CTEVT, short-term vocational training programmes are also run parallelly by over ten other ministries, including the Ministry of Education, Science and Technology. Among others, a few non-formal vocational training programmes lead to skills tests conducted by the National Skill Testing Board (NSTB) under CTEVT. Non-formal training programmes run fragmentedly, as they are run by many actors, leading to issues such as duplication of the programmes. It has also become difficult to trace how many of them actually go through certification (Bhattarai et al., 2020). Furthermore, several informal skills learners have yet to be connected with a formal TVET system (Baral, 2023).

Public financing is the largest funding source; however, households, the private sector and some other non-government organizations also largely share TVET costs in Nepal (Aryal, 2020). The contribution from these sources varies from unit to unit, from time to time, and from place to place. This variation in financing has often created problems, such as a lack of funds and inconsistencies in designing and implementing TVET among different government agencies. With this context, this study explains patterns of TVET financing by

local governments. Specifically, this study also discusses where the funds for TVET come from and where it goes. Under the source we discuss internal and external sources and under the allocations we discuss in terms of areas and types. We begin, however, discussing the constitutional provision for inter-governmental fiscal transfer in Nepal.

Local Government and Intergovernmental Fiscal Transfer in Nepal

Nepal was declared a federal state in 2015, restructuring the unitary system into 753 local and seven provincial governments (Constitutional Assembly of Nepal [CAoN], 2015). The new federal governance system decentralized the unitary governance system and emphasized equitable distribution of resources at sub-national levels. The three levels of government (federal, provincial, and local) are ascribed roles and responsibilities with both self-governance and shared governance (NLC, 2015). They coordinate with other levels of government and are free to execute their jurisdiction according to constitutional mandate. The federal government is responsible for the national policy, standards, and framework at the national level. The provincial governments are responsible for executing these responsibilities at the sub-national levels, whereas local governments are at the municipal level. The constitution in Article 60 also directs the federal government to distribute revenue equally to the provincial and local governments on the basis of their need and capacity. Furthermore, Article 228 provides the authority to impose taxes and access loans at their level from other institutions prescribed by the law (NLC, 2015). This gives a basis for the local governments to plan, implement, and regulate the programs and activities in their jurisdiction. In the following paragraphs, we define main basis of our analysis budgetary allocation in TVET. We discuss allocations in terms of sources, areas, and types.

Sources for Budget Allocations

The local government raises the funds from internal sources within their jurisdiction. It includes the resources they generate through tax, revenues, and grants (donations from local organizations and individuals), and people's participation. The external fund is grants received by local governments from provincial and federal governments and non-government organizations. According to the provision of the Intergovernmental Fiscal Arrangement Act, 2017, federal and provincial grants to the local level come in four different forms: i) fiscal equalization grants, ii) conditional grants, iii) complementary grants, and iv) special grants. The other important source of resources is the local government itself, which may generate internal revenue and obtain the internal loan in coordination with federal and provincial governments.

Fiscal equalization grants are provided by the federal and provincial governments to local government "on the basis of their need for expenditure and revenue capacity" (NLC, 2017), and local governments are free to allocate it as their budget in different sectors within the national framework of budget allocation. Generally, the local governments do not return the amounts if they remain unspent within the fiscal year and transfer to the next fiscal year. Local government generally uses such transferred amounts as their internal source for the subsequent fiscal year. Similarly, local governments receive an amount in their treasury through conditional grants. The conditional grants come from the federal and provincial governments with "terms and conditions in relation to the implementation of the project" (MoF, 2017). All the local governments "shall abide by such terms and conditions" to spend the received grant (MoF, 2017). Hence, the local governments are obliged to return the grant or unspent amount to grant providing organizations/agencies.

A complementary grant is a third source, the local government, that receives funds in its treasury. Local government can get complementary or matching grants "to implement any project related to infrastructure development" (MoF, 2017). This grant is provided based on the local government's cost-sharing and need. However, the fourth source of the special grant does not demand such assurance and sharing from the local government. Generally, local governments

receive special grants from the federal and provincial governments to conduct specific projects to develop and deliver basic services such as education, health, and drinking water (MoF, 2017). The treasury of local government is also complemented by revenue sharing. Occasionally, local governments receive grants from external sources such as national and international non-government organizations through the federal government. Moreover, the District Coordination Committee, which coordinates the village bodies and municipalities within the district, can also contribute to the local government's treasury (NLC, 2015).

Areas of Budget Allocation

The local governments allocate their budget into five broader sectors: Administration and institutional development, economic development, infrastructure development, social development, and forest, environment and disaster management (National Planning Commission, 2021). The first area is related to managing regular administrative services that includes salary, allowances, and others. Economic development is the second category, which incorporates areas related to supporting income generation and engaging people in various sectors such as agriculture, industry, tourism, cooperatives, etc. Infrastructure development is the third area that covers physical facilities such as transport infrastructure, housing, urban development, energy, information, communication technology, science and technology, and cultural heritage. Similarly, the fourth area is social development related to the welfare of the people, such as social security and conservation, youth and sports, drinking water and sanitation, education, health, gender equity, and social inclusiveness. The final areas in which the local government allocates the budget are forest, environment, and disaster management.

Generally, in financing these five broader areas, local governments classify the source of their budget into two broad categories: internal and external. The internal is local government's revenue generation, while the external are grants from external sources, including federal and provincial governments. Local government is entitled to different types of grants from the federal and provincial governments. Federal fiscal laws such as the National Natural Resources and Fiscal Commission Act 2017, the Intergovernmental Fiscal Arrangement Act 2017, and the Economic Procedure and Fiscal Responsibility Act 2021 provide the legal base for resource sharing and generation at the local government level. The local government is responsible for planning the budget for every fiscal year. Nevertheless, local government mainly has two sources: internal and external funding, financing their programme and activities.

TVET Budget Allocations

A critical problem in carrying out TVET budgetary analysis is that Nepali public sector budgetary practice does not give a specific code or identification to budget allocation to TVET. It has added a challenge to arrive at the actual public investment that goes to TVET in a given fiscal year. The problem further compounds as investments in TVET go from five broad sector budgetary areas: education, health, labour, agriculture, industry, etc. In such a situation, the only option for us was deciding whether a particular budget item was a TVET budget based on the classification. For this, we first reviewed relevant literature to define the categories. However, we were aware that assumptions might lead us to faulty generalization and, thus, misrepresentation of data. To reduce the error in our estimation, we intensively interacted with professionals and practitioners of the relevant fields. Mainly, in the financial management part, we consulted with officials from three spheres of the government. Defining TVET-related terminologies, we consulted with officials from CTEVT and independent TVET researchers.

Nature of Budget Allocation: Direct and Indirect

After a careful study on the nature of TVET budget allocations, we categorized the budget allocation system as either direct or indirect. Direct TVET budget allocations are those used to conduct or develop facilities for conducting some TVET programs directly. For instance,

the budgets for establishing/constructing a vocational training center or a school, for carrying out some research as part of the preparation of beginning a training program, for curriculum development for a long-term program, or for organizing the training/degree programs, etc. are considered as direct TVET budget allocations.

The indirect TVET budget allocations are directly not related to TVET programs but somehow, they contribute to TVET activities indirectly. These programmes contribute to enhancing aspects like employability, entrepreneurship, etc., through loans, equipment, and infrastructure support. These include components of vocational skills/competencies enhancement related activities but are not named as training programs in the allocated budget.

Allocation of Budget according to Types: Formal and non-formal/informal

The Convention on Technical Education and Vocational Training agreed on the definition of TVET that all forms and degrees of education that involve the study of technology and other sciences for the practical skills and knowledge required for the different occupations (International Centre for Technical and Vocational Education and Training of the United Nations Educational, Scientific and Cultural Organization [UNESCO-UNEVOC], 1996). TVET encompasses both formal (secondary schools and technical colleges), non-formal (short-duration training which may not lead to academic qualification) and informal (learning at the workplace) (Maclean & Lai, 2011). TVET is embedded in education and training from the perspective of employment and lifelong learning (UNESCO & ILO, 2002).

To see the priority of local government in the types of TVET programs by examining their investment in different types of TVET, we categorized the TVET budget allocations of local government into two types: formal and non-formal/informal TVET programs. The formal TVET budgets are funds that are provided to educational institutions (schools and colleges) that offer degree-oriented long-term TVET programs that offer academic degrees. However, some of these schools, particularly, constituent schools under CTEVT, also receive fund for running non-formal short-term trainings. The main purpose of formal TVET programs is to prepare people for the labour market who, once in the employment sector, could work competently in their area of education or training. Secondary, pre-diploma, or diploma-level programs are the three-degree-oriented TVET programs offered in Nepal. Secondary-level programs (grades 9 to 12) are offered in some selected general schools but as a separate stream. So, they are known as TVET Stream in General School (TSGS). However, some TVET institutions, particularly, constituent and private, might also provide short-term non-formal courses.

Non-formal TVET budget goes to short vocational courses that are generally offered as short-term training programs that do not lead to some academic degree but lead to certification. Offered by various training agencies that are not necessarily education institutes, these programs are often less structured and might be flexible in their design, curricula, learning objectives, outcomes, etc. These programs are also offered to prepare people for the job market or to re-skill and up-skill those who already have some skills or knowledge in a particular trade.

Finally, Informal TVET budgets are funds allocated by local government to the informal type of TVET programs that are often run as very short-term programs and are referred to as experience-based learning. These types of programs aim to support the participants in acquiring or enhancing some skills so that their work efficiency could be improved and productivity raised. These programs often have no specific curricula, timing, learning objectives, outcomes, etc. There might not be any training agency involved, and even if there are some, they might only be in the background. There is generally a facilitator who might even be locally skilled or knowledgeable. However, it is difficult to distinguish between informal and non-formal TVETs clearly as the informal skilling process remains no longer informal once they enter the formal process of local

government. Hence, we consider both non-formal and informal TVET in a group.

Study Method

We used secondary sources to collect the data - the annual budget allocations of all 85 municipalities and rural municipalities of Gandaki Province. We obtained the data from Sub-national Treasury Regulatory Application (SuTRA), an online financial management system for budgeting, accounting, and reporting. The SuTRA was developed and managed by the Government of Nepal. Data on the budget sources/allocation, nature of municipality, geographical regions.

Three fiscal years were assessed to generate the results from fiscal year (FY) 2019/20 to FY 2021/22. We began with fiscal year 2019/2020 because this is the first year of the federalized budget system. In this study, the budget allocated to TVET encompasses different sectors within TVET that can directly enhance or indirectly support skill development, employment prospects, and income generation for individuals. Meanwhile, non-TVET is explained as all the remaining areas for which the budget is spent, such as admin expenses, development expenses, miscellaneous expenses, etc. So, here, non-TVET does not mean general education.

Descriptive statistical tools were used for data analysis. To ensure the quality of the data and analysis, appropriate data analyses tools were used, such as Microsoft Excel and Statistical Package for Social Sciences (SPSS). Research ethics were strictly maintained, ensuring confidentiality, not revealing any municipality's identity, and only using the data set for research purposes.

Findings and Discussion

The development of competent human resources is predicted by an efficient skills development programme that encompasses sustainable financing through sufficient and predictable sources to run. More importantly, it is also about how financing mechanisms are strongly linked to national policies for making TVET systems more accessible, equitable, and responsive (Palmer, 2017). We present the findings of our study and discuss them in the following sub-sections.

TVET at Local Level: Largely Financed through External Sources

This study found that the budget allocation on TVET is steady and gradually increasing. Overall, on average, about 5% of the local government's total budget was allocated to TVET-related programmes and activities in three consecutive fiscal years in Gandaki province. In the Figure 1, we present the share of the budget in total budget of local government.

Figure1

Share of TVET budget in total budget

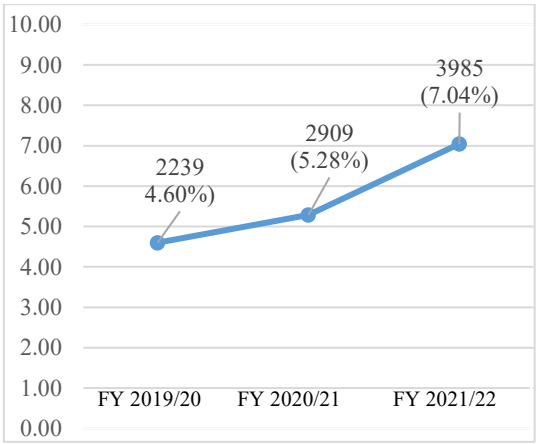


Figure 1 shows that the allocation inclined (4.60% to 7.04%) between the fiscal year 2019 and 2022. This indicate that TVET sector in local government remains similar priority as the federal government, as a study conducted by Parajuli et al. (2012) also found only about 3% of the education budget was allocated to the TVET sector. According to Busemeyer and Trampusch (2011), the public sector's commitment correlates with its financing readiness. In this context, local governments in the Gandaki province are gradually executing their roles in TVET governance. Nevertheless, there was no such variation in the rural and urban local government context.

Table 1

TVET Budget Allocated across Rural Municipalities and Municipalities/Metropolitan City

Share of TVET Budget Allocated in Total	Rural Municipality (%)	Municipalities/ Metropolitan City (%)	Total (%)
FY 2019/2020	4.56%	4.67%	4.60%
FY 2020/2021	5.23%	5.40%	5.29%
FY 2021/2022	7.00%	7.19%	7.04%

Table 1 shows the total budget allocated for TVET in the three fiscal years 2019/2020, 2020/2021 and 2021/2022 for both RMs and municipalities/metropolitan city. It reveals that the shares of these two categories are similar, and their increasement across the years is consistent during all three fiscal years. It also shows that the share of TVET in municipalities/metropolitan city are slightly higher constantly, but the differences are not notable. Meanwhile, the minor differences help analyse the fact that the share of municipalities is relatively low, considering their access to all the facilities compared to the RMs. The grave concern is raised for municipalities/ metropolitan cities because this category represents urban areas with greater facilities, awareness and access. Hence, consistency in the budget allocation mechanisms is alarming and highlights the need to promote TVET stream through direct budget allocation.

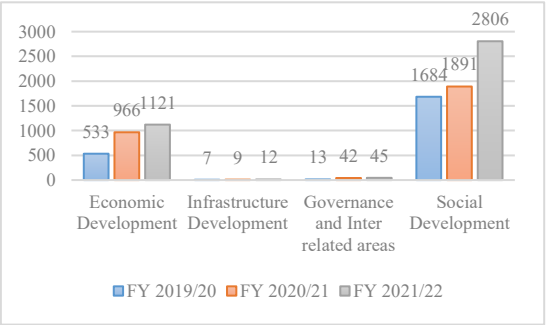
Social Development and Economic Development: Key Areas Receiving TVET Attention

Among the five areas, social development and economic development were identified as the areas where the major bulk of the budget for TVET were made available. These areas, for which the local government generally allocate TVET budget, received constantly higher budget sources than other areas, as shown in the figure 2.

Figure 2 displays two major areas in which budgets were available. It shows that, on average, the budget sources were above 10 million. Among them, the budget for social development was constantly higher than that for economic development. The figure illustrates that the highest budget available was about 30 million for social development in the FY 2021/22 while about 12 million for the economic development area in the same fiscal year. It reveals that for both areas, budget gradually increased with time, with the increase in the area of social development being relatively higher.

Figure 2

TVET budget across five areas (in million)



Local level Planning Guideline 2021 includes decent work and gainful employment under economic development. Similarly, social development includes education and programmes for target groups, among others. Practically, TVET schools are not yet in the governance of local government. In this case, the allocated budget in TVET under the social development area is for targeted groups, including women, youth, and other underprivileged groups. On the contrary, the related budget is allocated less to economic development than to social development. This also implies that both formal and non-formal/informal TVET in local government is linked with social aspects rather than economic ones.

Conditional Grants as the Major Grants for the TVET Budget

The conditional grants were ranked as the highest budget source in all the studied fiscal years.

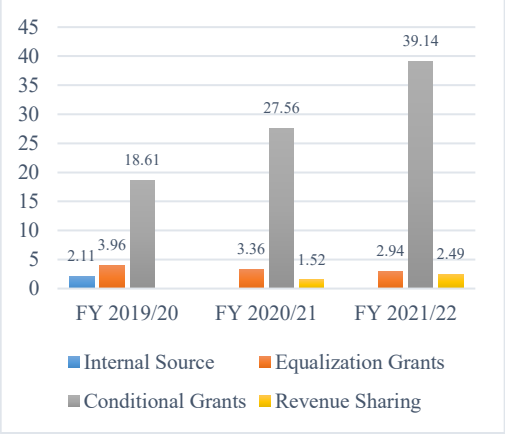
Figure 3 displays top three grants among all the identified grants. It shows that conditional grants have consistently been the highest budget sources in the three fiscal years.

Other grants looked petty compared to the conditional grants. Moreover, the figure provides insight into the fact that these grant amounts steadily rose yearly, meaning budget sources through conditional grants were the highlight for TVET financing.

Intergovernmental Fiscal Arrangement Act, 2017 defines local governments receiving conditional grants according to the basis of prescribed terms and conditions by either federal or provincial governments. It also indicates that the federal government directs TVET in local government as the primary budget in TVET is bounded by federal directives.

Figure 3

Budget Sources for TVET in the Three Fiscal Years (in Million)

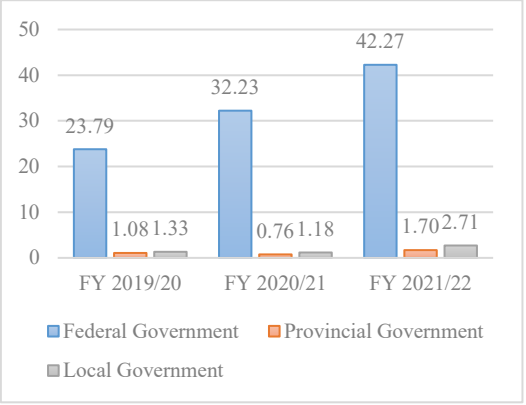


Federal Government: Major Source of Budget for TVET

Among various governments and agencies, the federal government, as the national level government, was the major budget source through which major grants were availed to the local governments.

Figure 4

Budget Sources for TVET in the Three Fiscal Years (in million)



The Constitution of Nepal has clarified the policy-level functions of the federal government (NLC, 2015), in which FG is responsible for transferring fiscal equalization grants to the sub-national governments (National Natural Resources and Fiscal Commission, 2018). Moreover, the provincial governments are responsible for coordinating the FG and the Local Governments (LG). Hence, the budget from PGs is expected to be lower comparatively. More to this, the exclusive powers of subnational governments are conditional to federal laws, and provincial governments were not fully functional in the studied years (Acharya et al., 2020).

Indirect Budget Allocation Prevails both in Rural and Urban Municipalities

While assessing the categorized data across Rural Municipalities and municipalities/ metropolitan cities, it was found that their budget sources and allocation, along with the channel and types, were similar to the total budget, as shown below. Despite the consistent rise in the share of TVET in the budget allocation, the allocation was still found to have followed indirect channels.

Table 2

Channel and Types of Budget Allocation in TVET in Three Fiscal Years

Fiscal Year	Channel of Budget Allocation	NRs. (in Million)	Percent
FY 2019/20	Direct Budget Allocation	2.43	9.21%
	Indirect Budget Allocation	23.93	90.79%
	Total	26.36	100%
FY 2020/21	Direct Budget Allocation	3.89	11.39%
	Indirect Budget Allocation	30.27	88.61%
	Total	34.16	100%
FY 2021/22	Direct Budget Allocation	6.27	13.35%
	Indirect Budget Allocation	40.69	86.64%
	Total	46.97	100%

Table 2 displays one of the channels of budget TVET budget allocation for direct and indirect budget allocation. The table reveals that in each fiscal year, the share of direct budget allocation has only remained around or a little more than 10 percent. Most notably, above 85% of the share is shown through indirect budget allocation. Besides, the means of budgeting were found to be carried out in formal/informal TVET, as shown in table 3.

Table3

Means of Budget Allocation in TVET in Three Fiscal Years

	FY 2019/2020				**FY 2020/21**				**FY 2021/2022**			
Channel→ Types ↓	**DBA**	**I-BA**	**Total**	**Percent**	**DBA**	**I-BA**	**Total**	**Percent**	**DBA**	**I-BA**	**Total**	**Percent**
	NRs	NRs	NRs		NRs	NRs	NRs		NRs	NRs	NRs	
Formal	0.63	8.44	9.07	34.41%	0.54	8.64	9.18	28.55%	2.82	12.85	15.67	42.44%

Non-Formal/Informal	1.80	15.22	15.29	65.59%	3.35	21.62	24.97	71.43%	3.45	27.85	31.30	57.57%
Total	**2.43**	**23.93**	**26.36**	**100 %**	**3.89**	**30.27**	**34.16**	**100 %**	**6.27**	**40.69**	**46.97**	**100 %**

DBA = Direct Budget Allocation; I-BA = Indirect Budget Allocation * Fiscal year 2076 to 2079 BS is adjacent to 2019 to 2022AD

Table 3 continues to extend the substantiation of the above theme. It shows that budget allocation in non-formal/informal TVET has been prevalent over three consecutive years. The displayed data shows that the share of budget allocation for non-formal/informal TVET has comfortably exceeded 50 percent in all the studied fiscal years. Another observation that can be made is that formal means of budget allocation had risen in the FY 2021/22 with a share of 42.44 percent, nearing half of the share. However, the growth is not steady, making it difficult to remark its inclination. Non-formal and informal TVET are usually clustered as the opposite polar to the budget allocation to formal TVET, making it necessary to bring the budget allocation process through direct channels.

Conclusion

TVET financing has received the required attention of certain areas, such as economic and social development, among the five major areas where budget sources are to be provided to a local government. Conditional grants as the uniformly highest sources of TVET budget indicates that the budget flow is determined by their performance and related criteria for budget allocation on TVET. On the other hand, the federal government, as the primary source for TVET budget, indicates the predominant hands of the national level government in availing TVET budget, which is justified for it functions as the policy level government. However, the negligible share of provincial government among the three tiers of government and that of DCC raises questions about their effective functioning in promoting TVET.

TVET budgetary allocation have been uniformly rising in the three fiscal years studied. A share of above 7 percent of the total budget represents a fair share for the uplifting of TVET. However, budget allocation for TVET has been done more indirectly than directly. This issue is more pertinent for municipalities/metropolitan cities since non-formal/informal TVET budget allocations are prevalent. Therefore, it is also imperative that the budget for TVET is allocated directly and the allocation process is formally channelized in the mainstream, such as structured academic programs and programs that are recognized through certifications. In the limelight of federal contexts, the roles of local governments are paramount. Hence, sufficient funds for TVET and carefully carried out local-level TVET financing are the cruxes for increasing the reach and quality of TVET.

References

Acharya, M. R., Upadhyay, P., & Acharya, A. (2020). *The assignment of functions across levels of government in Nepal.* Australian Aid & The Asia Foundation.

Aryal, B. P. (2020). Financing of technical and vocational education and training in Nepal. *Journal of Education and Research*, *10*(1), 58–80. https://doi.org/10.3126/jer.v10i1.31898

Asian Development Bank. (2015). *Innovative strategies in technical and vocational education and training for accelerated human resource development in South Asia Nepal.* https://shorturl.at/gzNPV

Bhattarai, P. C., Baral, D. P., & Paudel, P. K. (2021). Technical and vocational education and training fund in Nepal: Present practice and way forward. *Journal of Training and Development*, 6(01), 35–

50. https://doi.org/10.3126/jtd.v6i01.41778

Bonvin, J. M. (2019). Vocational education and training beyond human capital: A capability approach. In *Handbook of vocational education and training: developments in the changing world of work* (pp. 1-17). Springer.

Busemeyer, M. R., & Trampusch, C. (2011). Comparative political science and the study of education. *British Journal of Political Science*, *41*(2), 413-443.

Centre for Education and Human Resource Development. (2022). *flash report*.

Maclean, R., & Lai, A. (2011). The future of technical and vocational education and training: Global challenges and possibilities. *International Journal of Training Research, 9*(1-2), 2-15.

Ministry of Federal Affairs and General Administration. (2017). *स्थानीय तहको वार्षिक योजना तथा वजेष तर्जुमा दिग्दर्शन, २०७४ (परिमार्जित)* (Directions on local level planning and budgeting, 2017; amended). https://shorturl.at/xADVW

Ministry of Finance. (2017). *Intergovernmental Fiscal Arrangement Act 2017*. Author.

https://mof.gov.np/uploads/document/file/An%20Act%20Made%20to%20Intergovernmental%20Fiscal%20Arrangement%20final%2011-15_20180305120026.pdf

National Natural Resources and Fiscal Commission. (2018). *Recommendations on the transfer of fiscal equalization grant from federal government to the province and local governments for the fiscal year 2018/19*. https://shorturl.at/DFMU0

National Planning Commission. (2018). *स्थानीय तहको योजना तर्जुमा दिग्दर्शन (Directions on Local Level Planning).* https://shorturl.at/enuX7

Nepal Law Commission. (2015). *The constitution of Nepal.* Government of Nepal.

Nepal Law Commission. (1988). Council *for technical education and vocational training act 1988.* Author. https://lawcommission.gov.np/en/?s=Council+for+Technical+Education+and+Vocational+Training+act

Nepal Law Commission. (2017). *स्थानीय सरकार सञ्चालन ऐन* (Local government operation act). https://shorturl.at/btzDG

Palmer, R. (2017). *Financing TVET in the East Asia and Pacific Region*. https://www.tvet.ps/files/file/library/world/Financing_TVET.pdf

Parajuli, M. N., Renold, U., Bhandari, U., & Lamsal, H. P. (2020). Financial flow in TVET in Nepal: Transiting from the old to the new constitution. *LELAM-TVET4Income Working Paper*, *10*. https://shorturl.at/akvKR

United Nations Educational, Scientific and Cultural Organization and International Labor Organization [UNESCO & ILO]. (2002). *Technical and vocational education and training for the twenty-first century*. UNESCO and ILO.

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95890

Bridging the Skill Gap: Abhyangakarta (Ayurveda Massage Therapists) Training in Nepal's Health and Wellness Sector

Nirmal Bhusal*, Bikas Raj Ghimire, Sunita Acharya, Shiv Mangal Prasad

Abstract

Nepal's Ayurveda and wellness sector faces a lack of a formally trained workforce of Abhyangakarta *(Ayurveda oil massage therapists). Abhyangakarta are employed across central, provincial Ayurveda hospitals, district Ayurveda centers, naturopathy centers, private wellness spas, and tourism resorts. Employing a qualitative approach, including stakeholder interviews and observational audits, the study addresses the human resource gap resulting from the lack of formally trained Abhyangakarta. The existing Abhyangakarta training is not sufficient for national Ayurveda healthcare delivery and wellness tourism. The study also identifies key lacunae as absence of a standardized curriculum, the lack of integration with the labour market, and no clear career pathway. Basic health service is the responsibility of local government and the Abhyangakarta have a scope of getting appointed as therapists in health centers as it is a component of basic health service package. The analysis identifies a need for a nationally accredited, competency based vocational training program integrating core Ayurveda principles, biomedical safety, standardized technical skills, and client management to uplift Ayurveda and wellness services. Initiating the process to formalize Abhyangakarta training is the necessary step to bridge the skill gap and unlock the full potential of Nepal's Ayurveda health sector and wellness tourism economy.*

Keywords: Abhyangakarta, Ayurveda, Wellness Tourism, Vocational Training, Human Resource Development

Introduction

An *Abhyangakarta* is a practitioner of *Abhyanga* Ayurveda warm oil massage (Shaikh & Gadge, 2022). Ayurveda is deeply interwoven with cultural and spiritual practices since the Vedic period and plays a vital role in Nepal's health care delivery system (Nirmal et al., 2025). Ayurveda health system faces challenges of skilled manpower, limited research and training. The *National Health Policy* (2019) emphasizes the integration of traditional medicine into the primary healthcare system to address the growing burden of diseases where *Abhyanga* is profoundly indicated. *Abhyanga* (medicated oil massage) is a core therapeutic and wellness procedure delivered across Ayurveda hospitals to private resorts and spas and naturopathy centres. Abhyanga is not only a simple procedure of oil application and maneuvers rather it maintains the excellence of body tissues (Madhukar *et al.,*

* Corresponding email: bhusalnirmal7@gmail.com

2018). *Abhyanga* is not a luxurious spa treatment but a core *Dinacharya* (daily routine) practice for health maintenance (Agarwal et al., 2021) and a vital preparatory procedure of *Panchakarma*. Tourism provides employment opportunities and helps in economic growth of the country (Shrestha & Shrestha, 2012). Nepal's identity in the global marketplace is linked to its majestic Himalayas and profound spiritual heritage, which has successfully attracted tourism and hospitality for decades. On the basis of their purpose of visit, tourists are categorized into holiday/pleasure, pilgrimage, trekking and mountaineering and other. (Kunwar & Sharma, 2020). Wellness tourism is one of the most well-known types of tourism (Lokesh & Jaya, 2025). The tourism markets forecast a further growth of health tourism, mainly due to changes in people's lifestyle (Khanal & Shimizu, 2019). Internationally, destinations like Kerala (India) (Patil et al., 2025) and Bali (Indonesia) (Utama & Krismawintari, 2025) have built robust wellness economies by professionalizing such traditional roles. There are about 1100 Ayurveda doctors, about 5000 Ayurveda health workers, registered in Nepal Ayurveda Medical Council. Ayurveda spa, massage, meditation, herb tourism and other forms can attract high-spending international tourists, which contributes to the integrated development of tourism and health sectors. *Abhyangakarta* currently enter the system through different pathways. Nepal, despite possessing huge potential, has yet to systematically develop this sector. *Abhyangakarta* are the frontline ambassadors of this therapeutic experience. Their skill, knowledge, and professionalism directly determine therapeutic outcomes, client satisfaction, and the perceived authenticity of Nepal's Ayurveda sector. However, this critical human resource exists in an informal, unstructured, and largely unregulated space. The purpose of this paper is to analyze the current training and practice landscape for *Abhyangakarta* in Nepal to identify the critical skill gaps and propose a framework for formalizing their vocational training.

Methodology

This study utilizes a qualitative, exploratory design, including a review of literature, government documents, secondary data and semi-structured interviews. The study also includes a brief analysis of relevant training provisions for developing *Abhyangakarta*. Individual Semi-structured interviews were conducted with 15 *Abhyangakarta*, 5 Ayurveda physicians, working at government Ayurveda institutions, college faculty, individual practitioners and 5 center managers at private sector. A review of existing short-course syllabi from private institutes, training module content, and policy documents was done. Data was analyzed using thematic analysis to identify key themes and patterns.

Results

Current State of *Abhyanga* Service Delivery: A situational analysis reveals that *Abhyangakarta* are deployed across Ayurveda, naturopathy, wellness and spa sector. There is no nationally recognized curriculum, no certification body, no defined career ladder, and consequently, no quality assurance for the end-user be it a patient requiring therapeutic intervention or a tourist seeking rejuvenation. They are formally appointed in government Ayurveda centers as office helpers or *Abhyangakarta*. *Abhyangakarta* are employed in central and provincial Ayurveda hospitals and a significant number out of the 305 local-level Ayurveda dispensaries and even in few Nagarik Arogya Kendra which are expected to reach all local level by this year. Private Ayurveda clinics, wellness centers, spa facilities within star-rated hotels, and dedicated tourist resorts in key hubs like Kathmandu, Pokhara are increasing the intake of *Abhyangakarta.* Data taken from purposive sample of 15 Ayurveda centers, spas, and hospital *Panchakarma* units from Kathmandu Valley (n=10), Pokhara (n=3) and Janakpur(n=2) found that majority of practicing *Abhyangakarta* had at least one year of experience. Most of the *Abhyangakarta* learned through informal "on-the-job" training at their first workplace, few learnt through short (1-4 week) private courses of variable quality. Auxiliary Ayurveda Health Workers were also working as *Abhyangakarta* but were not satisfied with the work which vary with what they have learnt from CTEVT. 90% possessed no certificate recognized by any national

educational or medical body. The observational views of *Abhyangakarta* revealed significant deviations from classical and safety protocols.

Training Landscape and Quality: *Abhyangakarta* start job as administrative assistants receiving brief in-house training, as recruits from private spa institutes with variable curricula, or through short-term modules offered by provincial health training centers. Provinces Gandaki and Bagmati have developed training manual of 6 days training for *Abhyangakarta* working in their Ayurveda hospitals and centers and provided training to some working in their province. The National Ayurveda Training and Research Centre is in line to start 7 days training for working *Abhyangakarta* to enhance skill. None of the institutions has started training for new participants who desire to learn in this sector. In private Ayurveda clinics, wellness centers, and hotels, practitioners typically come from short-term (2week to 3month) courses offered by private institutes with no national accreditation. The curriculum varies wildly, often prioritizing relaxation massage over authentic Ayurveda therapeutic principles. Only 1 center in Kathmandu has taken the CTEVT based massage training but the core competencies are not focused to Ayurveda base and the center is currently providing mostly massage based training to international students rather than Nepalese learners. Private centers offer certificate after onsite learning where curricula are commercially driven, often blending Ayurveda *Abhyanga* with Thai, Swedish, and other massage forms, diluting therapeutic specificity. Certification from these institutes holds no national validity. However, priority is still given for those who had been working in such centers. Significant number of Abhyangakarta were unaware of key contraindications for *Abhyanga* (e.g., acute fever, skin infections, certain hypertension stages). There was a wide variation in stroke sequences, pressure application (often either too superficial or excessively forceful), and total duration. The durations of training and curriculum vary and there is lack of standardization.

Gaps and Challenges from Stakeholder Perspectives: The managers, owners and physicians of these therapy centers reported difficulty in recruiting readily skilled therapists. They stated that they would pay a higher salary to a therapist with a nationally recognized, competency-based certification. Among the 5 Senior Ayurveda Physicians from different institutions all emphasized the need for training and recognized the economic potential but cited the lack of a "responsible agency" and a standardized curriculum. 5 international wellness clients asked particularly expressed a strong desire for authenticity. Among 10 Patients in Ayurveda hospitals and centers who were asked also stated the uniformity and quality issues changing according to center or therapist. *Abhyangakarta* also reported low job security especially in the tourism sector, with many seeking better-paid spa work abroad. Due to lack of recognized training or certificate even in Ayurveda centers the job description **is o**ften viewed as unskilled labor rather than therapy professionals. The Ayurveda Auxiliary Health Worker (AAHW) working as *Abhyangakarta* felt more secured and professional than the ones who started working as onsite trainee but Ayurveda Auxiliary Health Worker were not satisfied with the job of *Abhyangakarta* which vary with what they had expected during study of AAHW CTEVT training.

In cities there is also demand from international tourists seeking authentic, cultural, and wellness experiences. In tourism trekkers also seek post trek recovery massage / *Abhyanga.* In healthcare the role is centered on healing, and improving patients' well-being. In wellness sector the role can be as spa / massage therapist within the nation and abroad. The profession is labor-intensive and can lead to physical strain and fatigue for the therapist, impacting long-term sustainability. Although *Abhyanga* is basic health service but still many may not always view it as essential healthcare, potentially limiting the domestic customer base to a higher-income segment. The opportunities of *Abhyangakartas* are increasing. Basic health service is the responsibility of local government and the *Abhyangakarta* have a scope of getting appointed as therapist in health centers as it is a component of basic health service package. At least 753 local levels should appoint at least 2 *Abhyangakarta* immediately to implement the

basic health service which is legal right of individual. There is an opportunity to integrate and propagate Ayurveda and *Panchakarma* as brand in wellness tourism. Collaborating with hotels, luxury resorts, and trekking agencies to offer in-house or packaged services can attract a steady stream of wellness tourists. Growing middle-class awareness about preventive health, stress management, and natural therapies opens up the local market. Also, Nepal can provide the skillful manpower (therapists) in global hospitality and wellness sectors. But the unfair competition exists not only from other Ayurveda centers but also from numerous spas, and unqualified massage providers may offer less authentic services. Unqualified individuals offering poor services under the Ayurveda label can damage the reputation of the entire profession. International clients may have misconceptions about the therapeutic nature of the treatment or may be uncomfortable with the traditional methods or attire, requiring careful communication and education. Intense competition among regional countries in attracting health tourists like India, Sri Lanka, and Thailand**.**

Discussion

This study finds a growing demand for *Abhyanga* services exists alongside a complete lack of standardized human resource development for the *Abhyangakarta* who deliver them. While India offers structured courses for *Panchakarma* therapists, Nepal lacks a nationally recognized, accredited training program specifically for *Abhyangakarta*. More importantly, the current informal model is lacking to meet the needs of public health, the tourism industry, and the workforce itself. The knowledge gap and inconsistent practice are not failures because of lack of formal educational infrastructure. The informal onsite training prevents standardization and quality assurance. Ayurveda health resorts contribute significantly to the medical tourists' satisfaction (Arachchi & Kaluarachchi, 2019) India has started skill-based trainings (Nesari, 2023) integrating them into various sectors of Ayurveda health and wellness. Sri Lanka and Thailand have similarly developed certified training programs for traditional massage therapists, ensuring quality and safety for tourists. The consequence of using formally untrained *Abhyangakarta* is a matter of serious patient and client safety, as the widespread unawareness of contraindications poses risk during procedure. In the present scenario, Nepal being a tourism country along with rich ancient health culture, skillful therapists are much more needed and must to address the Ayurveda hospitals and wellness hospitality sectors. The Assistant Massage Therapist course curriculum by CTEVT is not able fulfill the gap because of lack of implementation from its own constituent schools/ training centres and many *Abhyangakarta* are unaware of the training. As wellness center managers are willing to pay higher salary for certified therapists demonstrates that formalization is not a burden but a market-driven demand for quality assurance as human capital investments have high economic returns (Deming, 2022). The disappointment of public-sector physicians over therapeutic performance highlights that the public health system is equally compromised by this skills deficit of *Abhyangakarta.* Despite the presence of competent doctors, problems sometimes may persist due to attitudes displayed by the staff (Bhusal, & Sharma, 2025).

Development of a national curriculum is needed with **c**ore Ayurveda knowledge of simplified principles of *Tridosha*, *Prakriti*, the role of *Abhyanga* in *Dinacharya*, *Panchakarma*, focused anatomy/physiology of the musculoskeletal system, mandatory protocols for contraindications (e.g., hypertension, diabetes, acute inflammation). Special skills in dealing with children and elderly people must be added. The professional practice of hygiene and sanitation standards, client consultation and record-keeping, and ethics need to be included. The proposed curriculum must be validated by a committee including senior hospital physicians, private spa managers, and hoteliers to ensure job-market relevance. Formal partnerships with leading Ayurveda hospitals (e.g., Ayurveda Teaching Hospital, Kirtipur, central Ayurveda hospital, Naradevi) and wellness resorts are required to provide mandatory clinical internships, ensuring hands-

on experience and direct employment pathways.

International wellness tourists spend considerably more per trip than average tourists (Dubey & Pattanayak, 2025). The integration of wellness services presents an opportunity to attract high-spending tourists, enhancing revenue potential. Despite its potential, Nepal's health tourism sector faces several challenges, including inadequate infrastructure, limited marketing, and inconsistent quality standards (Sharma & Pant, 2022). Trained manpower can enhance clinical efficacy in healthcare settings and enable branding in tourism. The current designation "*Abhyangakarta* " is a functional title, not a professional qualification. There is an urgent need for the National Skill Testing. CTEVT, in collaboration with NAMC should define a national occupational skill standard for *Abhyangakarta* (Certified *Abhyanga* Practitioner). Without this formal identity, standardization is impossible. The results show that most of the public health authorities, private sector, and the practitioners themselves are dissatisfied with the status quo and are aligned in their demand for change. The public sector needs effective para-clinical staff; the tourism industry needs a quality-assured product; and workers need dignified careers. CTEVT offers three levels of TEVT programs namely Diploma, Technical SLC and Short-term Vocational Trainings and also conducts skills testing and standardization of skills learnt from formal or informal means (Ghimire, 2011). Thus, *Abhyangakarta* training is required through CTEVT affiliated technical schools.

Rather than current three day-based trainings National Ayurveda Research and Training Centre should start a new training dedicated for fresh enrolled candidates who desire to work in the sector as a *Abhyangakarta* in coordination with CTEVT. For the health system**,** developing trained certified *Abhyangakarta* means safer, more effective therapeutic support for preventing and managing diseases. For the tourism industry**,** it creates a marketable Nepal certified brand of authenticity. The primary challenge is inter-ministerial inter-institutional coordination. The findings provide a mandate for the Council for Technical Education and Vocational Training (CTEVT), Department of Ayurveda & Alternative Medicine (DOAA), Nepal Ayurveda Medical Council (NAMC), and industry stakeholders to collaborate in building this human resource and transform the potential to sustainable economic development through skilled employment generation. The purposive small sample of stakeholders and facilities primarily from the Kathmandu, Pokhara, and Janakpur limits the generalizability.

Conclusion

The existing *Abhyangakarta* training is not sufficient for national Ayurveda healthcare delivery and wellness tourism. There is a need for the systematic development of *Abhyangakarta* with certified accredited courses. The Council for Technical Education and Vocational Training in collaboration with the Department of Ayurveda & Alternative Medicine and the Nepal Ayurveda Medical Council must officially recognize *Abhyangakarta* as a distinct occupation within the skills testing framework. Like the record of Ayurveda Health workers NAMC can start making a special record of *Abhyangakarta* human resources so that they become more responsible with professional ethics. In policy reforms a directive from the Ministry of Health, NAMC, DOAA requiring certified therapists in all registered Ayurveda health facilities and wellness resorts, spa providing Ayurveda based services within a defined timeframe (e.g., 3-5 years), would create immediate demand and justify investment. Future research should employ a nationwide survey and include in-depth case studies of training implementation.

References

Agarwal, A., Madan, P., Kumar, R., Khundia, M., & Watel, V. R. (2021). A review study on role of Abhyanga in Dincharya. *World Journal of Pharmaceutical Research*, *10*(3), 1774-17780.

Arachchi, D. E., & Kaluarachchi, I. P. (2019). Ayurveda medical tourism in Sri Lanka: Service quality & tourists' satisfaction. *Journal of Tourism Economics and Applied Research*, *3*(1), 1-7.

Bhusal, N., & Sharma, D. (2025). Evaluation of patient satisfaction with Swedana therapy at Ayurveda Teaching Hospital, Kirtipur, Nepal. *International Journal of Ayurveda360*, *1*(4), 190-196.

Bhusal, N., Sah, M. K., Thapa, M., Thakur, S. K., Maharjan, R., Shrestha, B., Ghimire, B. R., KC, P., & Upadhaya, V. (2025). Geospatial analysis of Ayurveda healthcare facilities in Kathmandu Valley, Nepal. *Journal of Ayurveda Campus*, *6*(1), 12–17. https://doi.org/10.51648/jac152

Deming, D. J. (2022). Four facts about human capital. *Journal of Economic Perspectives*, *36*(3), 75-102. https://doi.org/10.1257/jep.36.3.75

Dubey, P., & Pattanayak, S. K. (2025). Policy gaps in promoting wellness tourism in India: An economic perspective. *Sanatanodaya*, 596-612.

Ghimire, S. S. (2011). Nepal. In *Emerging challenges and trends in TVET in the Asia-Pacific Region* (pp. 163-171). Sense Publishers.

Khanal, B. P., & Shimizu, T. (2019). Potential of health tourism development in Nepal: Literature review and future view. *Journal On Tourism & Sustainability*, *2*(2), 14-29.

Kunwar, R. R., & Sharma, N. P. (2020). A preliminary study of yoga tourism and its prospects in Nepal. *Journal of APF Command and Staff College*, *3*(1), 1-20.

Lokesh Kumar, K. N., & Jaya Bharath Reddy, G. K. (2025). A study on development of wellness tourism market in Asia. In *Wellness tourism in Asia: Emerging destinations to rejuvenate, relax and retreat* (pp. 21-38). Springer Nature Singapore.

Madhukar, L. S., Nivrutti, B. A., Bhatnagar, V., & Bhatnagar, S. (2018). Physio-anatomical explanation of abhyanga: An ayurvedic massage technique for healthy life. *Journal of Traditional Medicine & Clinical Naturopathy*, *7*(1), 252.

Ministry of Health and Population, Nepal. (2019). *National health policy 2076 (2019)*. Government of Nepal. http://climate.mohp.gov.np/downloads/National_Health_Policy_2076.pdf

Nesari, T. M. (2023). Skill development and Ayurveda sector: Bridging the gap of workforce in India. *International Journal of Ayurveda Research*, *4*(3), 113-117.

Nirmal, B., Kumar, S. M., & Bijendra, S. (2025). The legal and educational status of Āyurveda in Nepal: Challenges and prospects. *Journal of Indian Medical Heritage*, *4*(Suppl 1), S17-S23.

Patil, A., Raj, M. P., Shankar, R. G., & Lakshmi, R. B. (2025). *Cultivating wellness: Synergy of emerging technologies in spiritual and wellness tourism*.

Shaikh, M. F., & Gadge, I. S. (2022). *Therapeutic importance of Abhyanga in today's era*.

Sharma, L. K., & Pant, I. (2022). Health tourism in Nepal: Opportunities, challenges, and strategic directions. *Journal of Development and Administrative Studies*, *30*(1-2), 1-12.

Shrestha, H. P., & Shrestha, P. (2012). Tourism in Nepal: A historical perspective and present trend of development. *Himalayan Journal of Sociology and Anthropology*, *5*, 54-75.

Utama, I. G. B. R., & Krismawintari, N. P. D. (2025). Revitalizing Bali: Exploring the growth of health and wellness tourism. *International Journal of Current Science Research and Review*, *8*(3), 1405-1417.

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95891

Aligning Sustainable Development Goals With TVET: Evidence from Policy and Practice in Nepal

Baikuntha Prasad Aryal*

Abstract

Nepal has committed to achieving the targets of the Sustainable Development Goals by 2030, and, in line with this, all policies and programs are developed and implemented. Technical vocational education and training (TVET) is also seen as a means to enhance employability, income generation, and entrepreneurship by developing competent human resources with the required skills and competencies. This paper examines TVET policies and practices, specifically their implementation modality, as they relate to SDG4 and SDG8, using a qualitative approach to identify further strategies for the effective implementation of TVET policies in line with the SDG targets. In the same way, the paper highlighted to what extent TVET policies and practices aligned with SDGs and what gaps remain in achieving SDGs targets, with major issues and challenges in the implementation and governance of existing TVET programs. Finally, the paper explored an appropriate way forward for achieving the SDGs, along with ways to address the challenges. It is expected that the paper will help to identify the strategies for TVET in Nepal to achieve the SDG targets by 2030.

Keywords: Sustainable Development Goals, Technical and Vocational Education and Training, employability, income generation

Context

The Government of Nepal has prioritised an inclusive, equity-based policy since the promulgation of the Constitution in 2015. Driven by this principle, the country aims to graduate from the least developed country (LDC) status by 2022 and become a middle-income country by 2030, guided by the spirit of a welfare state and the vision of Prosperous Nepal: Happy Nepali (National Planning Commission [NPC], 2017). These visions and missions align with the Sustainable Development Goals (SDGs), which seek to reduce poverty and enable people to enjoy peace and prosperity by improving their lives sustainably. Among the SDGs, SDG 4 advocates for inclusive and quality education for all, recognising Technical and Vocational Education and Training (TVET) as a key driver of the nation's economic development; this is reflected in the formulation of national policies and programmes. Similarly, SDG 8 aims for inclusive and sustainable economic growth, employment, and decent work, emphasising

* Corresponding email: baikunthaparyal@gmail.com

TVET to develop competitive, high-quality human resources for the labor market and sustainable livelihoods.

National policies and plans such as the TVET Policy 2012, the Comprehensive National Education Policy 2019, the School Education Sector Plan (2023-2028), and the TVET Sector Strategic Plan (2023-2032) are also being implemented, emphasizing the importance of skilled human resources, employability, and alignment with national development. Despite all these efforts, SDGs outcomes remained limited (Aryal, 2018). Although all SDGs support the promotion of sustainable economies and overall prosperity (Chola & Kiplagat, 2025), SDG4 and SDG8 are key goals for ensuring TVET opportunities and providing the skilled workforce needed in the labor market by enhancing employability, decent jobs, and entrepreneurship, challenges persist in governance and quality in TVET program implementation. Therefore, in this paper, I explored how these policies and programs contribute to achieving the SDGs by 2030 by reviewing the development trend of Nepal's TVET system and analysing its efforts. Additionally, the paper examined further ways to implement TVET programs in realizing the SDGs by 2030.

Methodology of the Study

This study employed a qualitative research design because the study aims to analyse the policy framework and institutional practices and their alignment with the SDGs, with a systematic desk review of the policy documents, academic literature, and institutional reports related to the TVET and SDGs in Nepal. Literature is retrieved from academic databases and systematically reviewed for national and international reports, peer-reviewed literature, and program documents for ongoing government TVET projects. Relevant documents on SDGs 4 and SDG8 related to TVET and skills development were subjected to thematic content analysis to identify persistent challenges and gaps for strengthening the TVET system in the country. To ensure reliability and credibility of the data, peer-reviewed articles, government official reports, and international publications are selected and analysed. Thematic content analysis and open coding approaches are applied for data analysis and reflection. To strengthen the analysis, the study integrated the theoretical framework of three theories, human capital theory, social justice theory and employability theory to interpret how TVET policies and practices contribute to achieving SDGs targets.

TVET Development in Nepal

Nepal has a long history in the development of Technical Vocational Education and Training. TVET was practised from ancient times, though there was no formal system of TVET. It was practised in the form of a caste system, occupations, and transmission of knowledge from the senior to the junior. The development of TVET in Nepal can be categorized into three different phases: the Silpa Samhita phase - Vedic period to before Jayasthiti Malla (vedic period – 1332), family apprenticeship phase – Jayasthiti Malla to the first technical school of Nepal (1332 – 1931) and formal TVET development phase - first technical school to now (1931- to date).

In the Silpa Samhita phase, evidence of ancient architectural structures and wood carvings indicates that the ancient people of Nepal practised some forms of vocational education through occupational skills, as documented in social tradition (Shrestha, 1991). People acquired skills and knowledge (known as silpa) within caste-based rules and responsibilities (Chouhan, 2016). The career orientation from father to his sons and the mother's mentoring of her daughters in household jobs were traditions in ancient Nepal (Shrestha, 1991). The skill transformation from one generation to another was reflected in the *Lichhabi* regime across occupations such as woodwork, sculpture, craftwork, construction, and art (Shrestha & Singh, 1972), though there was no formal system of vocational education and training. However, vocational skills were fostered during that time, even in the Malla period. Arniko, the great 13th-century architect of Nepal and a profound contributor to Chinese art and architecture, can still be seen today.

During the family apprenticeship phase, the seniors taught the juniors in the family to follow

in their footsteps into a career, a long-standing tradition in Nepal. But the occupation-based society began during the period of Jayasthiti Malla (1332-1395) and defined such practices as caste-based occupations (Shrestha, 1991). People from each occupational group were produced as the certified skilled workforce, through which they were recognised. In the long run, practices in their generations were transferred into the caste system based on their profession (Sharma, 2043 BS). Malakar, Tamrakar, Ranjitkar, Kamsakar, Kundakar, Marikar, Darukar, and Lohakar etc. were named after their professions, which numbered more than six dozen at the time.

Although vocational training was not a priority, it was reflected in the divine instructions of King Prithivi Narayan Shah, who emphasized the need to develop vocational skills in the country for industrialisation, the production of essential minerals, agricultural development, and economic development. During the Rana regime, by influencing Gandhian philosophy, Prime Minister Chandra Samsher (1863-1929) established Chandra Kamdhenu Charkha Prachar Mahaguthi in 1927 and provided skill development training for orphans and marginal people (Sharma, 2043 BS).

The formal TVET development phase in Nepal can be divided into three periods: the multipurpose schooling (First technical school, 1931 - to NESP, 1971) period, the technical school's development period (NESP, 1971) to before CTEVT,1989), and the structured TVET expansion period (CTEVT, 1989 to date). Each has its own characteristics in Nepal's TVET development. The first technical school was established in 1931 in Basantapur, Kathmandu, to realise the importance of technical vocational education and skills, which was later transferred and developed as the Institute of Engineering under Tribhuvan University in 1972. Based on the recommendation of Nepal National Educational Planning Commission (NNEPC) in 1956, the first multipurpose school was initiated in Kaski in 2015 BS and started vocational stream courses on wood work, agriculture, home science in school education which was seemed as a successful practice on vocational education and thus the multipurpose school were expanded and all together 29 secondary schools were transferred into the multipurpose school before National Education System Plan (NESP) (Sharma, 2043 BS).

In 1971, the Government of Nepal disclosed a new education plan, the National Education System Plan (NESP), which was one of the major initiatives for vocational education in the school system. To fulfil the vocational aspect of NESP, the Technical and Vocational Education Directorate, responsible for developing technical schools and technical-vocational curricula, was established in 1978. Following the directorate's recommendation, the technical schools: Karnali Technical School (1980), Jiri Technical School (1982), Lahan Technical School (1982), Uttarpani Technical School, Dhankuta (1980), and Butawal Technical Institute were established (Sharma, 1986). The main objectives of these technical schools were to make education more life-oriented and more conducive to economic productivity, and to provide apprenticeship training in specific skills to create opportunities for self-employment.

The Centre for Technical Education and Vocational Training (CTEVT) was established in 1988 for the firm and quality expansion of TVET, with policy and program development authority. After that, a structured, systematic TVET development initiative was initiated in Nepal. In 2007, TVET policy was endorsed for the first time, focusing on the expansion of TVET, access and inclusion in TVET, and the integration of skills training with market demand. In line with the policy, the technical stream secondary education program was implemented from 2012. In the same year, the revised TVET policy 2012 was enacted to address the skill development program run by other ministries. Similarly, periodic plans (14th plan, 15th plan), other sectoral policies on youth mobilization, agriculture, labor etc. have also been taken as the policies for TVET development in Nepal.

During this phase, TVET institutions: CTEVT, an apex and autonomous body, Training Institution for Technical Instructor (TITI) to provide training for teachers and instructors, and National Skill Testing Board (NSTB) for national-level skill testing and certification, are

established. Similarly, polytechnic institutes, partnership schools, Technical Education in Community Schools have been established by CTEVT (Council of Technical Education and Vocational Training [CTEVT], 2025). Similarly, the secondary schools that have been developed as technical stream secondary schools under the Centre for Education and Human Resource Development (CEHRD) program (CEHRD, 2025).

Universities also conduct technical higher education in medicine, agriculture, engineering, forestry, and Animal science through their constituent and affiliated campuses. In medical education, there are five academic institutes, including deemed universities, and 147 other campuses have been established for technical subjects in higher education (UGC, 2018). In total, nine universities are directly involved in technical higher education. Kathmandu University has established itself as a specialised institution for TVET by offering a Master's degree in TVET, and the National Academy of Tourism and Hotel Management (NATHM) under the Ministry of Tourism has also started offering both short-term vocational training courses and academic courses. For vocational training and skill development, there are 639 private training institutes under CTEVT, and the Vocational Skill Development Training Centre under the Ministry of Labor and Employment is operational. Moreover, there are 119 regular skill testing centres in existence (CTEVT, 2025). Similarly, apart from the Ministry of Education, Science and Technology, 14 other ministries and their departments are directly involved in skill development training (Aryal, 2020).

Initiatives and Reforms in Nepal's TVET Sector

Nepal has been making remarkable progress in reforming the TVET sector through policy priorities, program interventions, and structural reforms. All these initiatives are aligned with the national priority, the planning process (through periodic and annual plans), and national and international commitments, such as the SDGs. The approaches taken to strengthen countries' TVET systems are categorised as follows.

Legislative and policy strategies

The constitution of the nation is the main legislative foundation to strengthen TVET system of the country. It has envisioned a prosperous nation through socialism-oriented economic and social development, with inclusiveness, social justice, good governance, partnership, coordination, and sustainable development (NLC, 2015). Education, including TVET, is recognised as the driving force for the employability and income generation, which is assumed to support economic development. The revised TVET policy 2012, the comprehensive national education policy 2019, both have highlighted the expansion of TVET opportunities to prepare capable, efficient, competitive and efficient human resources for the economic development of the country (MOE, 2012, MOEST, 2019), which are also the legislative backbone to reengineer the TVET system of the country. The education policy (2019) emphasizes the importance of a quality and sustainable TVET system in the country through inclusion, a national vocational qualification framework, and the identification, protection, promotion, and development of traditional skills (MOEST, 2019). Based on the policy, a national qualification framework has been developed and approved by the government, and the level descriptors are also defined for each qualification.

The 16th periodic plan of Nepal has also recognized the importance of TVET, as it produces competent, innovative, and entrepreneurial human resources to fulfil the nation's requirements (NPC, 2024). The plan also emphasized access, quality, and sustainability in TVET and its development; for this, the engagement of the private and business sectors is equally important (NPC, 2024). The SDGs provision in this regard, by 2030, all women and men will have access to quality technical and vocational education, and all adults will have access to relevant vocational knowledge and skills, has also provided policy guidance for the development of the TVET sector in Nepal (UN, 2015). In addition to this,

the sectoral national policies such as the National Agriculture policy (2004), the Labor and employment policy (2005), etc. are equally important to implement the TVET programs and activities. The education sector plans of the country, School Education Sector Plan (SESP, 2023-2032), School Sector Development Plan (2016-2022), School Sector Reform Plan (2009-2016) include other policy initiatives to strengthen TVET in school education to facilitate the school-to-work transition by emphasising the access, quality and sustainability of the TVET programs.

Governance and management

For the governance and management of the TVET system in the country, the Council of Technical Education and Vocational Training (CTEVT), an apex and primary body, operates under the provisions of the CTEVT Act. The CTEVT assembly and CTEVT council, both chaired by the education minister, are mainly responsible for policy formulation, coordination with TVET stakeholders, and resource management (NLC, 1989). Apart from this, the Policy Coordination Committee, representation from the concerned ministries and the private sectors is also functioning for the coordinating roles among the TVET implementors.

Department of Cottage and Small Industries (DCSI) under the Ministry of Industry and Commerce, Nepal Academy of Tourism and Hotel Management (NATHM) under the Ministry of Tourism and Civil Aviation, and National Academy of Vocational Training (NAVT) under the Ministry of Labor and Employment are other institutions for the implementation of TVET activities beyond the Ministry of Education. Similarly, the Federation of Nepal Chamber of Commerce and Industry (FNCCI), the Federation of Nepal Cottage and Small Industries (FNCSI) and other independent training providers are also involved in skill-based training in the country. Likewise, Swiss Development Cooperation (SDC) supported projects: Enhanced Skills for Sustainable and Rewarding Employment (ENSSURE), National Vocational Qualification Framework (NVQF), and Quality Technical and Vocational Education and Training (TVET) for Youth (QualiTY) are also in the TVET sector, aiming to develop competent human resources for better employment with the required skills. Other I/NGOs are also providing vocational training to supplement the skilled workforce in the labor market. A total of 15 ministries are involved in implementing the TVET program in Nepal.

Recognising the importance of TVET from the school level, during the period of SSRP, a technical stream in community schools from grade nine was initiated as outlined by the TVET policy (2012) for the equitable access to TVET opportunities. The purpose of introducing such schools was to prepare the students to respect the work culture from the school level. To date, 537 community schools offer TVET streams from grade nine, and about 60,000 students are studying (CEHRD, 2025). For the management of these schools, the school management committee and the local governments are made responsible.

Training Institute for Technical Instruction (TITI) for training to the trainers working at technical institutes and polytechnics, National Skill Testing Board (NSTB) for the testing of the skills of all levels, based on the National Occupational Skills Standard, from the elementary level to level four, are also in place for the governance of TVET. In addition, technical higher education institutions within universities are providing technical education on cost-sharing and cost-recovery approaches (Aryal, 2018). The Social Development Ministries are made responsible for governing the TVET functions at the provincial level.

Programmatic approaches

Various TVET programs are being implemented to strengthen the country's TVET system, which is also influenced by technological development and globalisation. In Nepal, two main types of TVET programs are currently run: short-term vocational skill development training and long-term academic courses. Short-term training is mainly offered by training institutes, NGOs, and some technical institutes. But long-term academic courses are offered by Polytechnique, technical schools, and higher education institutions. In

short-term training (generally a week to three months), the training offers skills that support self-employment and income generation, based on national occupational skill standards. The long-term courses (diploma and pre-diploma programs, technical stream secondary courses, B.Tech, M. TVET, etc.) aim to develop competent human resources and provide academic certification, with avenues for higher study as well. Equity and inclusion, quality and relevance, and the lifelong learning approaches are basic principles for the development of these programs.

To ensure access for all in TVET, the scholarship is also provided to economically poor, marginalized, and disadvantaged groups, thereby increasing enrollment in TVET programs. These programs are mainly offered by CTEVT and constituent polytechnics. Furthermore, recognition of prior learning is provided for those from informal and lifelong learning, implemented by the Skills Testing Board (CTEVT, 2025). Other ministries, beyond MOEST, are also implementing TVET programs from their field-level organizations. For example, the National Academy of Vocational Training (NAVT), under the Ministry of Labour, Employment and Social Security (MoLESS), offers short-term training (CTEVT, 2025). Similarly, the Ministry of Industry, Commerce and Supplies offers skill development training through short-term courses at private institutions, and some businesses are also providing such training in coordination with government institutions. Altogether, about 150,000 youth are receiving opportunities through these program interventions (MOE, 2017). The Nepal government has recently endorsed the TVET sector strategic plan (TSSP, 2023-2032). Based on the TSSP, CTEVT and the provincial social development ministries have practised to develop their annual program and budget.

TVET and 2030 agenda

The end of the Cold War in 1991 marked a shift towards liberal ideologies globally, emphasizing capitalism and human rights. In Nepal, international organizations promoted economic liberalisation and human rights, aligning with the global agenda to reduce intersectional inequality. By the 2000s, Nepal had incorporated the Millennium Development Goals (MDGs) into national plans, impacting the TVET sector, but the 10th periodic plan gave them lower priority. The focus on MDGs also led to increased investment in primary education, but challenges arose in meeting ambitious targets for secondary education enrollment.

Globally, challenges such as high youth unemployment, socio-cultural disparities, environmental degradation, economic fluctuations, and rapid technological changes threaten human security and social cohesion (Majumdar & Rein, 2018) and thus the global agenda Sustainable Development Goals (SDGs). Among SDGs, mainly the SDG4: Education 2030, focusing on inclusive and equitable education, and SDG8, promoting sustainable economic growth and decent work are directly linked with SDGs. The SDGs explored the global agenda, with specific targets for TVET by 2030, including target 4.3: access to quality education; target 4.4: skills, employment, decent work, and entrepreneurship; target 4.5: eliminate gender disparities; target 8.5: productive employment and decent work; and target 8.6: reduce unemployment. To achieve the target, it is necessary to expand and transform TVET opportunities and to articulate qualifications within the education system and the world of work (Majumdar & Rein, 2018).

The National Planning Commission of Nepal has set specific targets to achieve the SDG goals, including reaching 75 per cent of youth and adults with relevant skills and reducing underemployment to less than 10 per cent (NPC, 2017). For SDG4: Education 2030, the Ministry of Education, Science and Technology has developed the Nepal National Framework to achieve the SDG4 targets, in line with the government's mission to become a middle-income country by 2030.

Approaches for strengthening TVET

Various approaches are being applied to strengthen TVET system in Nepal. The first is the market-oriented academic-vocational blended approach, which includes long-term courses for diploma and pre-diploma programs,

as well as short-term training courses for vocational skill development aligned with national occupational skill standards to address market requirements. All these programs are run by 67 constituent institutes, including polytechnics, 439 affiliated training institutions, and 1850 affiliated short-term training-providing institutions (CTEVT, 2025). The second approach is the school-integrated technical education approach, in which TVET programs are run by community schools through the technical education community school (TECS) program and by separate technical stream schools, as parallel programs of CTEVT. There are 639 technical schools with TECS programs, and 537 technical stream schools are now in operation. The purpose of such programs is to prepare students for the world of work and to explore opportunities for advanced education in their field of study.

The next approach is a sector-specific social inclusion approach, which includes training programs run by other ministries, particularly for income generation and self-employment. The Ministry of Labour, Employment and Social Security, the Ministry of Women, Children and Senior Citizens, and the Ministry of Industry run various short-term skill-training programs across different occupations to address the needs of the skilled workforce. Apart from these, the academic approach to TVET programs is also found in academic courses on TVET for bachelors and masters in different subjects, run by universities and campuses, which also operate to supply competent human resources and develop the foundation of skills and knowledge for higher education. Ultimately, all programs under these approaches will support achieving the SDG targets by 2030.

SESP, TVET, and Skills Testing

The sectoral periodic plan for education, the School Education Sector Plan (SESP: 2023-2030), has also recommended that TVET programs be delivered through technical stream schools to provide training and academic courses in technical skills and knowledge (MoEST, 2022). Mainly, such programs are offered only in five different areas: agriculture, animal science, electrical engineering, civil engineering and computer engineering. The SESP further envisions strengthening the technical and vocational stream of secondary education (grades 9-12) to improve the quality of TVET services for secondary school students.

To date, 714 of 753 local levels have at least one TVET institution, making TVET opportunities easily accessible. Only 338 local levels manage long-term training programs (CTEVT, 2025; CEHRD, 2025). Under CEHRD, 537 community schools are running 9-12 technical streams courses. Currently, the National Skill Testing Board (NSTB) has developed 314 National Occupational Skill Standards to test informally or formally acquired occupational skills (CTEVT, 2025). However, the current statistics show that the number of graduates from CTEVT's diploma-level programs is about 40000, and the corresponding numbers for TSLC programs and technical stream schools are about 60000 (CTEVT, 2025; CEHRD, 2025). Similarly, as of the date, the number of candidates who have completed the skill test is 512000 (CTEVT, 2025).

For a sustainable TVET system in the country, the Nepal Government has reformed its policies, updated its plans and programs, and developed a new strategic plan aligned with SDG targets, but there are still challenges to achieving the targets by 2030. Particularly, the involvement of the business and private sectors, reducing unemployment, clarifying roles across levels of government, and managing resources for TSSP are major issues. Therefore, equitable opportunity in TVET for all, governance reform, adoption of new conceptual approaches such as greening TVET and utilisation of technology in TVET, as well as a new funding model for sustainable financing in TVET, might be the major interventions that can facilitate the achievement of SDG targets.

Discussion

TVET has now emerged as a strategic instrument for addressing socio-economic and developmental challenges embedded in the SDGs worldwide. TVET is mainly articulated through SDG4, quality education and SDG8

decent work and employability, guided by the theories: human capital theory i.e. education and training increase productivity and economic growth, social justice theory i.e. equitable distribution of opportunities, resources, and outcomes and employability theory i.e. education enables learners with skills relevant to the labor market.

The commitments on SDGs of the government of Nepal are centralized more on education and skill development to address the challenges such as poverty, unemployment and labor migration and aimed for the LDC graduation (NPC, 2020) by 2026 by taking TVET as a critical policy departure. The Education Policy (2019) and SESP (2022) recognised TVET as a pathway to address these challenges. According to the human capital theory, investment in TVET enhances individuals' skills and productivity, thereby supporting increasing returns for both individuals and nations (Becker, 1993). Based on this core thrust, TVET in Nepal is funded to improve the nation's economic efficiency, equip youth with occupational skills, and enhance productivity and employability, as mentioned in SDG 8. It is also assumed that strengthening the quality and relevance of TVET promotes productive employment for youth and ultimately supports the nation's sustainable economic growth (Wickramasinghe & Wickramasinghe, 2025).

SDG 4.3 emphasizes the inclusive and equitable distribution of the TVET opportunity that can be supportive for social justice, and remove the structural barriers that make certain groups based on race, caste, ethnicity, geography, gender and socioeconomic status, as said by social justice theory (Wheelahan, 2015). TVET policy has provisioned targeted scholarships, flexible entry from both informal and nonformal learning to the formal education system with provisions in NQF, a focused skill development programme for the disadvantaged population (MOE, 2012).

Again, SDG4.4 focuses on relevant skills for employment and SDG 8 for decent and productive employment is aligned with the employability theory, as TVET develops individuals with the skills and competencies to fulfil the requirements of the labor market (McQuaid & Lindsay, 2005). Industry-linked training, apprenticeships, and competency-based curricula are now being promoted to strengthen the nation's TVET system and enhance employability, in line with employability theory. Many efforts and initiatives have been undertaken to align policies and programs with the SDGs and to strengthen Nepal's TVET sector. Still, there are some issues in access and equity, quality and relevancy, mobility and permeability, curriculum and accreditation, funding, etc. Furthermore, we have been facing multiple challenges (Aryal, 2018) on the way to enhancing TVET as a major vehicle for the nation's economic transformation, as follows.

Equity and Justice: An Overarching Agenda in Nepali TVET

Despite the government's reform initiatives to build a strong TVET system in the country, the coverage of TVET facilities remains insufficient. Still, some local governments lack a TVET institution to provide skills training. About 700,000 youth annually go abroad to seek better jobs and improve their employability, but most of them are unskilled (MOF, 2024), consequently, they must engage in 3D (Difficulty, Danger, and Dirty) jobs. In school education, 4.9.7% of children aged 5-9 years never attended school (CEHRD, 2025). In addition, 11% of youths are neither in school nor working; most of them are from the marginalised groups and economically poor families (CBS, 2016). Although the TVET facilities are made available to ensure access for all, they are serving only in the areas that are accessible: district headquarters and urban areas only, which cannot serve the youth of remote areas and economically poor areas. The labor market's requirement for competent human resources cannot be met by the supply mechanism. To ensure the participation of marginalised people and the economically poor, the government has provided significant scholarship opportunities, but they are insufficient to address youth from economically poor families, though some provisions are made for this (ADB, 2015).

Thus, ensuring access to TVET for all youth with relevant skills, equipping them to compete

in the labor market, and engaging them in gainful employment are major challenges in Nepal. This is a common challenge in developing countries: providing need-based skill-development opportunities for youth who lack access to schools and training centres (Kiplagat & Maiba, 2025). Thus, in developing countries like Nepal, the expansion of TVET institutions to address these challenges is another challenge due to the economic and political factors that may obstruct the achievement of the SDG target by 2030.

Curriculum and Accreditation: Anticipated Intervention for Quality

To address contemporary labour-market needs, CTEVT has developed and updated a wide range of curricula across both skill development and academic fields in TVET. To date, 50 curriculum areas have been prepared and updated for diploma courses, 34 for pre-diploma courses, and 179 for short-term vocational training courses (CTEVT, 2025). In addition to these, the National Academy of Tourism and Hotel Management (NATHM) have prepared curricula for Bachelor's and Master's levels in hospitality and hotel management, in accordance with the university's curriculum development process. Similarly, universities themselves have prepared and launched TVET courses in different disciplines, as Kathmandu University has offered the B. Tech and M. TVET courses.

Despite these efforts, the gap has existed in curriculum design and accreditation. Market-oriented curriculum development across different occupations is found lacking (Aryal, 2018), resulting in the underemployment of the trained human resources, and, thus, the majority of the youth are employed abroad as non-skilled workers. Similarly, the gap has existed in engaging the business and industry sector in the curriculum development process, particularly in the skill development curriculum process. Consequently, the production based on the prepared curricula could not address the human resource requirements of the business and commerce sector. Again, there are two types of curriculum practised by the two organisations under the MOEST, as CTEVT developed TSLC and diploma curriculum in their own way. Similarly, the Curriculum Development Centre (CDC) for the technical stream school under CEHRD has prepared the curricula for grades 9-12. The assessment framework, the credit hours of the courses, and even the learning outcomes differ across these curricula. As a result, there is a mismatch in the assessment, recognition, and equivalence processes for the qualification and accreditation, which demands a common framework for curriculum development.

Human Resources: Attention Needs to Bridge Skills in Demand and Skills in Supply

Of the 700,000 youths entering the labor market every year, most are abroad in search of better jobs and further study, bringing the total to 5.96 million youths in foreign employment (MOF, 2024). In-country unemployment is 12.6% among the youth population, whereas the youth aged 15-24 underemployment rate is 22.7% (National Statistics Office [NSO], 2024). According to the Nepal Living Survey 2022/23, 13.7% of the employed population is engaged in agriculture as self-employed, whereas only 86.3% are employed in wage-earning non-agricultural activities (NSO, 2024). Among employed human resources, most are unskilled and semi-skilled. To fulfil labor market demand, on the one hand, skilled human resources are sourced from abroad; on the other hand, the country has high unemployment and underemployment. This scenario explores the huge gap between the production and supply of human resources in the competitive labor market. Such gaps certainly pose challenges to achieving the SDGs targets in both the social and economic sectors. Thus, integrating youth into social and economic life, analysing both the supply and demand for skills, and promoting relevant programs are quite necessary (Aryal, 2018).

Infrastructure and Equipment: Common Felt Gap

It is recognized that the existing physical facilities of TVET institutions are insufficient to meet the requirements for TVET-related SDG targets, and thus the expansion of TVET facilities with sufficient infrastructure and necessary equipment is required. Ensuring

quality and relevancy of TVET services is necessary with a quality curriculum, quality human resources, and well-equipped physical infrastructure. Currently, there are 67 constituent institutes, including polytechnics, 639 technical schools with TECS programs, and 439 affiliated training institutions and 1850 affiliated short-term training providing institutions are under CTEVT (CTEVT, 2025), and other school-based technical streams in 537 community schools (CEHRD, 2025). The facilities provided to the institutions should obviously meet the functional requirements of the planned educational programmes both qualitatively and quantitatively (Pitanilubut, 1979). But, the facilities available in most of the technical and vocational education providing institutions are very week. The community schools, both offering the TECS programme and the technical stream, do not yet have sufficient physical infrastructure and equipment to ensure the programme runs smoothly (DOE, 2017). These evidences indicate that there is a gap between the available facilities and the requirements for a quality, relevant TVET system in the countries, which may impact the SDGs targets.

Financing: Needs Careful Attention for Achieving TVET Goals

The financing in TVET covers two issues: at the micro-level, it concerns the sources and mechanisms of funding; at the macro-level, it deals with the overall funding levels, and their distribution between the public and private sources (Dohmen, 2009). Given the level of demand for skills development, TVET funding seems a challenge for governments and other stakeholders, including donors. According to a study by Parajuli and Shakya (2012), the Red Book (the government budget allocation book of Nepal) showed that the government budget for TVET was Rs. 9.6 billion in 2011/12, scattered across 34 different budget headings. This was just 0.617 per cent of GDP and 2.5 per cent of the national budget (Parajuli and Shakya, 20112). The report further explores that the TVET budget share has a slightly increasing trend in later years; but it is more donor dependent, as nearly 60 per cent of the total TVET budget is from the development partners' support, out of which the share of loans is about 40%, almost loan is in the project basis.

The TVET sector strategic plan (TSSP) 2023-2032 is a long-term strategic plan for the development of Nepal's TVET sector, which requires a substantial amount of resources, equivalent to NPR 426 billion (approximately USD 3.47 billion) has been estimated for the implementation of TSSP (2023-2032) and distributed into four components: a) equity and access, b) quality and relevance, c) governance and management, and d) coherence and transferability (MOEST, 2022). To implement TSSP, government funding has been identified as a primary source of TVET financing, with contributions from students' fees, the business and commercial sectors, and training institutes also being supplemented. Apart from this, financial assistance received from development partners and INGOs has also provided an external source of funding for TVET development in Nepal. However, the internal source, i.e., government budget allocation to the TVET sector, has been gradually declining, from 78.21% of the total TVET budget in 2015/16 to 42.42% in 2021/22 (MoF, 2022). While analysing the existing allocation, it can be concluded that there may be significant funding challenges in TVET to achieve SDG targets, as available financial resources cannot address the new vision for the TVET sector. Thus, at least two sets of policy issues need to be addressed in this regard (Aryal, 2018): first, exploring and identifying ways to ensure adequate funding across all TVET institutions, and second, examining the roles of government and other TVET stakeholders and beneficiaries in addressing these challenges.

Governance of TVET: Clarity in Inter-Governmental Roles and Responsibilities

TVET programs are implemented in Nepal by a variety of institutions, including government and private institutions, as well as universities, in different modalities. However, program and resource duplication have been found during program implementation (Aryal, 2020; ADB, 2015). The governance system, including TVET governance, has also been reoriented in line with the federal setup. In the functional analysis of the level of government based on the

constitution, the implementation of the TVET program falls primarily under the jurisdiction of local and provincial governments, whereas policy and national standards are under the jurisdiction of the federal government (OPMCM, 2016). Despite their current strengths, subnational governments still lack implementation and financing capacity to meet national requirements. Moreover, the implementation arrangement with clear terms of reference has not yet been established. For example, based on the CTEVT act, the CTEVT has engaged in long-term and short-term training, but for the same purpose, particularly for the training of NAVT under MOLES, is also established under 'Operational Formation Order'. Such parallel institutions under parallel legal foundations may create duplications and contradictions for implementation of the programs. The same condition is also found for the technical stream in the community school and the TECS school managed by CEHRD and CTEVT, respectively. The functional analysis of the authorities at the levels of government shows that TVET functions principally under the authority of the local government; however, it is not ensured that local governments can exercise all their authorities because they lack the appropriate structure and adequate human and financial resources. Thus, the implementation arrangement, with an appropriate structure, roles and responsibilities, and adequate resources, for the governance of TVET functions is to be clearly defined (Aryal, 2018).

Implication and Conclusion

Nepal has committed towards achieving the SDG goals by 2030. TVET has been identified as one of the key instruments for achieving the SDG targets. There are about 15 ministries of the government, and other private and business sectors are rigorously engaging to strengthen the system through the implementation of different academic and skill development programs. But the duplications in programs and resources have posed a significant challenge to efficient and effective system development. Consequently, it may influence the achievement of the SDGs' targets by 2030. A consolidated legal foundation with clearly defined roles and responsibilities for the levels of government and their institutions is essential to addressing the challenge. Sufficient funding arrangements, well-defined and market-driven curricula, harmonisation among levels of government and the private sector, and adequate resource management are the basic requirements for moving towards the SDGs.

In addition, a human resource projection and development plan, a robust and comprehensive TVET management information system, mobility and permeability through the national qualification system, and the development of the work culture and youth attraction are further essentials for achieving the SDGs' commitments. Permeability is one of the best strategies for attracting youth to the TVET world (Wahab et al., 2025) as the well-defined level of qualification with descriptors and recognition of the prior learning helps to specialise their knowledge and skills to pursue higher education. Although the study was based only on the secondary source of data, the findings of the study have policy implications, as MOEST, CTEVT and other concerned authorities will take further action for efficient and effective policy development, aligning SDGs and then program development for its implementation. Similarly, it has opened the research implications as based on the findings of this study, further research in this area to find out the appropriate measures to achieve SDGs targets by 2030.

While Nepal has made commendable progress on some SDG targets, the expansion and institutionalization of TVET facilities are potential drivers of inclusive and sustainable development. Achieving the SDGs by 2030 will require not only the expansion of TVET facilities but also emphasis on structural transformation, governance reform, curricular interventions, and effective resource management. A consistent national qualification framework, strong private-sector partnerships, and well-defined intergovernmental roles and responsibilities are equally essential. Ultimately, TVET must be governed and positioned as a key development strategy to empower youth, enhance employability, and foster a resilient, inclusive, and prosperous Nepal.

References

Asian Development Bank. (2015). *Background paper on options for establishment of skills training fund in Nepal*. (TA 8521 Nep Supporting Education and Skills Development).

Aryal, B. (2018). Gravity of TVET towards achieving SDGs in Nepal. In R. E. Echaveria (Ed.), *Transforming TVET in the Asia-Pacific region for the future: Innovation and ideas of socio-economic development (2018)*. Columbo Plan Staff College for Technician Education.

Aryal, B. P. (2020). Financing of technical and vocational education and training in Nepal. *Journal of Education and Research*, *10*(1), 58–80. https://doi.org/10.3126/jer.v10i1.31898

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.

Central Bureau of Statistics. (2016). *Annual household survey 2014/15.* Government of Nepal.

Center for Education and Human Resource Development. (2025). *Flash I report, 2024/25*. Government of Nepal.

Chola, R. M., & Kiplagat, H. (2025). The contribution of TVET to sustainable development. *Africa Journal of Technical and Vocational Education and Training*, *10*(1), 58–63. https://doi.org/10.69641/afritvet.2025.101178

Chouhan, K. (2016). Education system in Ancient India. *International Journal of History and Research, 6*(2).

Council of Technical Education and Vocational Training. (2025). *CTEVT annual report 2024/25*.

Department of Education. (2017). *Status Report of 2015/016*. Government of Nepal.

Dohmen, D. (2009). *Financing of technical and vocational education and training (TVET) in Bangladesh*. FIBS consulting GbR.

Kiplagat, H., & Maiba, S. F. (2025). Global challenges affecting TVET in its quest towards sustainable development. *International Journal of Advanced Multidisciplinary Research and Educational Development, 1*(3).

Majumdar, S., & Rein, V. (2018). TVET and academic education: A blurring distinction: New opportunities for the future. In P. Calogiannakis, N. Papadakis & A. Ifanti (Eds), *Socio economic, political & cultural challenges*. HM Studies & Publishing.

McQuaid, R. W., & Lindsay, C. (2005). The concept of employability. *Urban Studies, 42*(2), 197–219. https://doi.org/10.1080/00420980420003161 00

Ministry of Education. (2012). *Technical and vocational education and training policy*. Government of Nepal.

Ministry of Finance. (2022). *Economic survey 2021/22*. Government of Nepal.

Ministry of Finance. (2024). *Economic survey 2023/24.* Government of Nepal.

Ministry of Education. (2017). *A comprehensive TVET annual report, 2072/73*. Government of Nepal.

Ministry of Education, Science and Technology. (2019). *Sustainable development goal 4: Education 2030. Nepal national framework.* Government of Nepal.

Ministry of Education, Science and Technology. (2022). *School education sector plan: 2022/23-2031/32*. Government of Nepal.

Ministry of Education, Science and Technology. (2023). *Technical and vocational education and training sector strategic plan (TSSP) 2023-2032.* Government of Nepal.

National Planning Commission. (2020). *The fifteenth plan (2019/20–2023/24)*. Government of Nepal.

National Planning Commission. (2024). *The sixteenth plan (2024/25–2028/29)*. Government of Nepal.

National Statistics Office. (2024). Nepal Living Standard Survey 2022/23. Government of Nepal.

Nepal Law Commission. (1989). *Technical Education and Vocational Training Act, 1989.* Government of Nepal.

Nepal Law Commission. (2015). *Constitution of Nepal.* Government of Nepal.

National Planning Commission. (2017). *Nepal's Sustainable Development Goals Status and Roadmap: 2016-2030.* Government of Nepal.

Office of the Prime Minister and Council of Ministers. (2016). *Functional Analysis. Based on the Schedule of the Constitution of Nepal*. Government of Nepal.

Parajuli, M., & Shakya, R. (2012). *Resource needs assessment for technical and vocational education and training (TVET) sub-sector in Nepal.* Ministry of Education.

Pitanilubut, A. (1979). *Guidelines for planning for facilities for technical and vocational education.* UNESCO.

Rather, Z. A. (2015). Relevance of Vedic ideas of education in the modern education system. *Journal of Humanities and Social Science, 20*(1), 30-36.

Sharma, G.N (2043 BS). *Nepalma Shikshako Itihas (Educational history of Nepal Part I).* Makalu Books and Stationers.

Shrestha, D. B. and Sing, C. B. (1972). *The history of ancient and medieval Nepal in a nutshell with some comparative traces of foreign history.*

Shrestha, S. M. (1991). *Historical analysis of vocational education in Nepal* [Doctoral Dissertation]. Virginia Polytechnic Institute and State University.

United Nations [UN] (2015). *Transforming our world: The 2030 agenda for sustainable development.*

University Grants Commission. (2018). *Education management information system. Report on higher education 2017/18.* Government of Nepal.

Wahab, A., Isaac, G., Ojo-Fafore, E., Babalola, O., Mohammed, S., Mozu-Simpson, M., Adu-Poku, J., & Brakwah, I. (2025). The role of TVET in green skills development for achieving sustainable economic growth in Ghana. *Journal of Latin American Sciences and Culture*, *7*(11), 89–108. https://doi.org/10.52428/27888991.v7i11.1461

Wheelahan, L. (2015). Not just skills: What a focus on knowledge means for vocational education. *Journal of Curriculum Studies, 47*(6), 750–762. https://doi.org/10.1080/00220272.2015.1089942

Wickramasinghe, G. L. D., & Wickramasinghe, V. (2025). Education 2030—Achievements of TVET in Asia and the Pacific along with the Fourth Industrial Revolution. *Journal of Technical Education and Training*, *17*(3). https://doi.org/10.30880/jtet.2025.17.03.012

TITI

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95897

Factors Influencing Students' Choice of Bachelor of Hotel Management Program in Nepal

Richan Shrestha*, Prakash Chandra Bhattarai

Kathmandu University

Abstract

The choice of academic programs for higher education is a crucial decision after school for students. It is one of the difficult decisions they make as they face dilemmas for choosing a right program which is influenced by different factors. Similar is the case with Bachelor of Hotel Management (BHM) students. Remarkably, little is known about the reasons behind the BHM choice in Nepal. With this consideration, a survey was conducted among 251 Bachelor of Hotel Management students in Kathmandu, Nepal. For this, exploratory factor analysis was used for data analysis. The result revealed four components: i) self-interest, ii) career development perception, iii) outcome expectations, and iv) social pressure. The findings of this study can help students and their parents to understand dimensions of BHM choice. The result can also benefit hotel management schools to counsel the students during the admission process.

Keywords: Academic program choice, Higher education, hotel management

Introduction

Students choose academic programs for their higher education after schooling. However, it is not easy for them to choose academic program. They often face the biggest dilemmas and challenges in choosing the right program. The right choice can lead to a successful career and satisfaction. However, the wrong choice may lead to dissatisfaction and college dropout (Donnelly, 2015). In this connection, some factors influence choosing the right program for them. With this consideration, many researchers have suggested many factors influencing academic program choice. For example, Ouano et al. (2019) explored that location, educational facilities, cost, and employment opportunities influence the course choice decision. For the authors, students' interest, the reputation of the program, prospects in the labor market, parents' pressure, teachers' advice, following the friends' circle, tuition fee, financial situation, social background, location, and students' expectations provide different weights in choosing the course.

The choice of academic program is influenced by intrinsic, extrinsic, and subjective norms (Awadallah & Elgharbawy, 2020). Intrinsic factors like self-interest, career aspiration, and self-efficacy are self-motivating factors of

* Corresponding email: richan.shrestha@kusoed.edu.np

course choice. Researchers like Owino and Odundo (2016) and Awadallah and Elgharbawy (2020) suggested intrinsic factors as influential factors in students' choice of academic program. The study of Owino and Odundo (2016) revealed that one of the factors in the choice of History as an undergraduate was personal interest. Like intrinsic factors, researchers suggested the influential role of extrinsic factors on students' choice of academic program. Extrinsic factors like good career prospects and anticipated future earnings externally influence students in their choice of academic program (Ouano et al., 2019). Good career prospects and anticipated future earnings are examples of extrinsic factors (Awadallah & Elgharbawy, 2020). The study by Awadallah and Elgharbawy (2020) claimed that students choose the accounting major in Qatar because they perceive accounting as a distinctive qualification that makes them qualify for better job prospects after their degree. Many researchers like Eremie and Chiamala (2019) and Awadallah and Elgharbawy (2020) revealed subjective norms as influential factors parallel to intrinsic and extrinsic factors. Subjective norms like family members, peer groups, and teachers are social influence on choice of academic program (Awadallah & Elgharbawy, 2020). The study of Eremie and Chiamaka (2019) on Obio/ Akpor local government area of River State suggested that family influences students' choice of study.

Hotel management is one of the higher education courses running in Nepal. Nepal Academy of Tourism and Hotel Management (NATHM) is first institution to initiate a planned effort to produce human resources in the hospitality sector in 1972 (Thapa & Panta, 2019). A formal three-year bachelor's program in hotel management was started in 1999 by Tribhuwan University, and other bachelor programs in hospitality management from 2003 (Thapa & Panta, 2019). Many Nepali universities like Tribhuwan University, Purbanchal University, Mid-Western University, Kathmandu University, and Pokhara University offer the BHM program.

The students choose BHM for many reasons. According to Qie et al. (2017), some factors influencing the student to choose a career in hotel management in Guangzhou, China, are student occupational aspiration, support from parents, cultural values, and career guidance and consultation. Similarly, the study of Lee et al. (2018) suggested six motivational factors influencing hospitality and tourism management choices among U.S. undergraduates. The factors are self-actualization, ease of study, job possibility, abroad experience, attractive field, and external influence. In the case of hotel management, intrinsic factors like personal choice (Briones & Bueno, 2019), extrinsic factors like good career prospects or occupational aspiration (Qie et al., 2017), and subjective norms like parents, faculty members, and advisors (Lee et al., 2018), influence students' choice of an academic program.

Objectives

In the case of Nepal, the recent growth of hotels due to increased investment (Hotel Association of Nepal [HAN], 2022) might increase the demand for hotel management graduates. This leads to a promising career prospect for BHM graduates. However, career prospects might be one of many factors influencing students' choice of hotel management in their higher studies in Nepal. But there are limited studies on factors determining students' choice of BHM in Nepal. Thus, the study's main purpose is to identify different factors motivating students to choose BHM in Kathmandu. To meet the purpose, the research question is "What factors influence students' choice of hotel management in Kathmandu, Nepal?

Conceptual Framework

Choice refers to the selection of best possible options and is based on individual decision making. Choice is determined by many factors. The context of determinants of the choice of higher education can be best described by Social Cognitive Career Theory (SCCT) and Theory of Reasoned Action (TRA).

Social Cognitive Career Theory

One of the most used theories on higher education choice is Social Cognitive Career Theory. This theory was proposed by Lent et al., which is based on Bandura's Social

Cognitive Theory (as cited in Carrico et al., 2017). SCCT helps to understand how individuals decide on a career, including academic program choice. SCCT is the expanded version of Social Cognitive Theory. SCCT provides cognitive mediators like interest and abilities to influence choice.

SCCT provides contextual factors like interests, values and abilities to influence person for their career choice (Lent et al., 2002). SCCT is used by previous studies which suggest career choice is done based on self-efficacy, outcome expectations, and personal goals (Carrico et al., 2017; Nguti et al., 2019; Qui et al., 2017). SCCT provides a higher education choice decision based on self-efficacy, outcome expectations, and personal goals. Self-efficacy represents the beliefs held by students that they can perform better with skills they have if they choose certain course. Outcome expectations represent the extrinsic reward in the future, such as a good salary from their choice of course. Personal goals represent students' commitment for doing relevant work.

SCCT suggests that academic program's choice is determined by the perception of student to succeed and their self-efficacy. Students who have high self-efficacy belief in particular field, they are supposed to choose program in line to such fields (Lent et al., 2002). Students believe that such programs are good fit for their career. In alignment to self-efficacy, SCCT purposes that outcome expectations play major role in determining choice of academic program among students (Nguti et al., 2019). Students are motivated to choose courses which lead them to high paying job.

Theory of Reasoned Action

Another prominent social psychological theory on students' choice of higher education or career decision is the Theory of Reasoned Action. According to this theory performance behavior of certain individual is influenced by their attitude towards that behavior and subjective norms (normative component or social norms surrounding the individual) (Muhamad et al., 2020). This theory suggests if student have a positive attitude (belief and willingness to succeed) towards certain course for example BHM and if their surroundings like family members, teachers or peers want them to do that course then they become highly motivated to choose BHM course. It gives basic motivation behind choosing certain action (normative action).

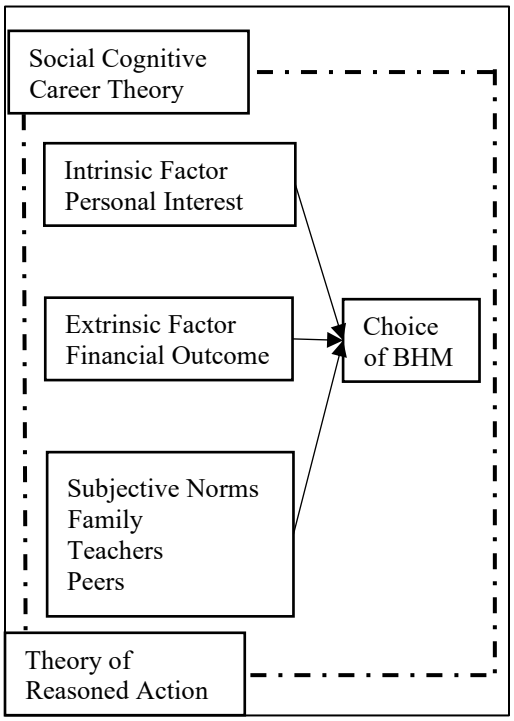
Apart from normative component, subjective component can contribute on the choice of individual's action. The TRA helps to analyze individual's behavior based on their motivation to carry out action (Awadallah & Elgharbawy, 2020). Recently Awadallah and Elgharbawy (2020) and Muhamad et al. (2020) used this model to explain the students' choice of higher education.

For academic program choice, TRA suggests that students' attitude towards the certain program influences them to enroll in such programs along with the influence of their surrounding social norms (Awadallah & Elgharbawy, 2020). If students believe that certain program will provide them better outcomes, including knowledge and skills and a good career with greater earning opportunities, they will develop positive attitude towards such a program. Thus, they are more likely to choose such a program. In alignment to attitude, as suggested by Awadallah and Elgharbawy (2020), TRA also suggests that social norms play important role in the students' choice of academic program. If their family, friends or teachers want them to pursue certain academic program, they are more likely to choose such programs.

Thus, this study adopted combined model of SCCT and TRA in the context of this study. The conceptual framework of this study is illustrated in Figure 1. Figure 1 suggests intrinsic factors such as personal interest and self-efficacy, extrinsic factors like financial outcome (good salary expectation) and non-financial outcome (career growth opportunities) and subjective norms like family, teacher, and peers influence students to choose hotel management in their higher education. Intrinsic and extrinsic factors develop the motivation to choose hotel management. Similarly, subjective norms like family, teachers, and peers can influence students to choose hotel management in their higher education.

Figure 1

Conceptual Framework



Methodology

This study used a survey approach (Creswell, 2009). With the literature review, factors influencing hotel management choice were identified. Questionnaires was adopted and contextualized for understanding each variable of cause and effect for the survey purpose (Shehadeh, 2020). To contextualize the questionnaire in this study, researchers first discussed it with the principals and program coordinators of colleges. Researchers also performed a focus group discussion with three students to understand their choice. The overall Cronbach alpha value of scale is 0.889 ensuring the reliability. Likewise, this study checked content validity, construct validity, and criterion validity. The questionnaire was adopted and localized in Nepal's context. Also, related literatures were reviewed and many experts were consulted while creating the questionnaire. This ensured the content validity. This study has adopted the questionnaire from Awadallah and Elgharbawy (2020). Furthermore, for this research the theory of reasoned action and social career cognitive theory was considered while developing the construct of third year students' choice of hotel management. This ensured construct validity. In order to ensure criterion validity, the result of this study was compared and contrasted with other similar type of studies.

Respondents and Data Collection

The survey was done among first year students of Bachelor of Hotel Management in universities in Kathmandu. The total population was 701. And sample size was determined as 249 using formula $n_0=\frac{Z^2pq}{e^2}$ and $n=\frac{n_0}{1+\frac{n_0-1}{N}}$ where, N= total population, n_0 is sample size without finite population correction factor, n=corrected sample size (Cochran, 1977). This study used cluster sampling method where colleges are treated as cluster. Researchers of this study visited different academic institutions and collected data from first year students by providing informed consent. Underlying variables were identified using factor analysis. The data were collected from 270. However, there were missing cases. Thus, final 251 data were analyzed.

Data Analysis: Exploring Factors Determining BHM Choice

To explore the factors influencing students' choice of hotel management, this study performed exploratory factor analysis (EFA) because this study adopted others' scale and modified it. EFA should be performed when researchers adapt or adopt previous scale or modify previous scale with deletion or addition of new items (Yahaya et al., 2018). All the assumption of EFA was fulfilled.

Results

After all the assumptions have been addressed and factor extraction method and rotation method have been selected, 21 items were retained under four factors (dimensions) by using the scree plot and Eigen value greater than 1 rule (i.e., K1). Table 1 shows the factors and their eigen values.

Table 1

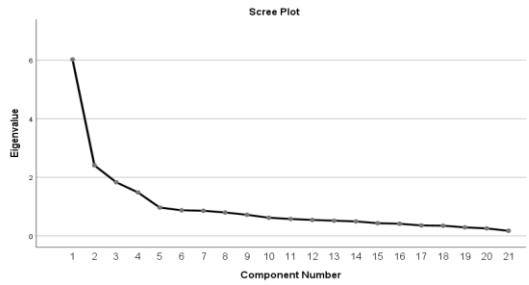
Factors and their Eigen value

Components	Initial Eigen Value
1	6.019
2	2.408
3	1.831
4	1.484

Similarly, the scree plot of these four factors is shown in Figure 2

Figure 2

Scree plot



Nomenclature of Factors Influencing BHM Choice

The structure matrix of four factors from the varimax rotation is shown in Table 2. The matrix presented Factor 1 contains seven items, Factor 2 contains six items, Factor 3 contains five items, and finally Factor 4 contains three items. These combine four factors explain 55.92% of the total variance. One of the major tasks of the factor analysis is to give an appropriate and meaningful name to the factor, which should cover all the issues of listed items (Cohen et al., 2018). So, with proper analysis four factors were named. The names of the four factors are as follows: i) Self-interest, ii) Career Development Perception, iii) Outcome Expectations, and iv) Social Pressure.

Self-interest was loaded with seven items. The factor loading ranges from 0.608 to 0.762. These values are above the minimum factor loading value of 0.5. It has been named Self-interest because items in this factor are related to self interest in pursuing the hotel management in their undergraduate. The four items are related to liking and interest towards hotel management jobs, feeling proud to work in hotel industry, and suitable personality towards hotel management jobs. Similarly, the other two items are about liking to get information and watch hotel-related programs. Finally, the last item is about interest to continue their career in hotel industry. These items concern students' interest (Awadallah & Elgharbawy, 2020) towards joining hotel management. Thus, this factor was named self-interest.

Career development perception was loaded with six items. The factor loading ranges from 0.572 to 0.774. These values are above the minimum factor loading value of 0.5. It has been named Career Development Perception because this factor relates to career development after pursuing hotel management in their undergraduate. The first item shows students' belief in developing their careers in the hotel industry. The second item offers the belief of students in good career opportunities in the hotel industry.

Similarly, the third item relates to students' satisfaction with working in the hotel industry. The fourth item shows students' perception of fun working in the hotel industry. The fifth item shows students' belief in succeeding in the hotel industry job. And finally, the sixth item shows students' belief on utilizing their capacity fully in the hotel industry. These items are concerned with the perception of student on their career development (Twumasi et al., 2018) in hotel industry. Thus, this factor was named career development perception.

Outcome expectation was loaded with five items. The factor loading ranges from 0.640 to 0.776. These values are above the minimum factor loading value of 0.5. It has been named "outcome expectations" because items in this factor relate to job-finding opportunities after pursuing hotel management in their undergraduate. The first item shows students' belief that they can go abroad easily with a hotel management degree. The second item shows

students' belief that they may get a job quickly and easily after graduation. Similarly, the third item is related to easy job opportunities abroad for hotel management graduates. The fourth item shows students' perception of getting a job easily in the hotel industry. And finally, the fifth item shows students' belief in high demand of BHM graduates. These items concern student perception of career opportunities (Twumasi et al., 2018) in hotel industry. Thus, this factor was named as outcome expectations.

Social pressure was loaded with three items. The factor loading ranges from 0.698 to 0.829. These values are above the minimum factor loading value of 0.5. It has been named Social Pressure because items in this factor relate to pressure from others in pursuing the hotel management in their undergraduate studies. The first and third items show the influence of peers in joining the hotel management. The second item offers the influence of school-teachers in entering the hotel industry. These items concern others' influence (Awadallah & Elgharbawy, 2020) in joining hotel management. Thus, this factor was named social pressure.

Additionally, internal consistency of the four factors identified from the PCA was assessed by Cronbach's alpha. Table 4 presents the Cronbach's alpha value for all four factors.

Table 2

Factors Influencing BHM Choice.

Items	Factors			
	1	2	3	4
I like jobs relating to hotel management.	**0.76**	0.22	0.13	0.01
Continue my career in the hotel industry.	**0.74**	0.11	-0.05	0.09
I am interested to work in the hotel industry.	**0.73**	0.31	0.07	-0.09
I feel proud to work in the hotel industry.	**0.67**	0.24	0.17	0.01
I like to get information about hotel management.	**0.66**	0.06	0.02	0.04
My personality matches to hotel management jobs.	**0.65**	0.12	0.18	-0.13
I like to watch hotel related program.	**0.61**	0.16	0.08	-0.03
I believe I can develop my career in the hotel industry.	0.36	**0.78**	-0.01	0.04
Good career opportunities in hotel industry.	0.07	**0.72**	0.26	-0.08
I get satisfied working in the hotel industry.	0.37	**0.66**	0.01	-0.10
It's fun to work in the hotel industry.	0.03	**0.65**	0.10	0.06
I believe I can succeed in the hotel industry.	0.33	**0.61**	0.21	-0.09
I can fully utilize my capacity in the hotel industry.	0.33	**0.57**	0.11	0.05

Easy to go abroad with BHM degree.	0.01	0.22	**0.77**	-0.03
BHM graduates easily get job.	0.21	0.05	**0.76**	0.13
I can easily get a job abroad with BHM degree.	0.08	0.30	**0.75**	-0.12
It's easy to get job in the hotel industry.	0.10	-0.12	**0.65**	0.11
High demand of employees in the hotel industry	0.05	0.17	**0.64**	-0.06
Peer pressure	0.10	0.05	0.10	**0.82**
School teacher encouragement	0.16	0.02	-0.11	**0.72**
Following friends	-0.09	-0.10	0.05	**0.69**
% Variance	**28.66**	**11.47**	**8.72**	**7.07**

Extraction method: principal component analysis

Rotation method: varimax

Using cutoff value 0.50

The bolded number within each component gives practically significant coefficients with effect sizes larger than .5

Table 3 shows the internal consistency among the items of each factor identified by EFA. The table also presents the mean score and standard deviation of all four factors. The Cronbach's alpha ranges from 0.607 to 0.845 with a cutoff value 0.7. The factor self-interest has Cronbach's alpha value of 0.845, indicating very good reliability. Likewise, factor career development perception has Cronbach's alpha of 0.814, indicating reliability. Similarly, factor outcome expectations have Cronbach's alpha value of 0.788. This indicates good reliability. Finally, the last factor, social pressure, has a Cronbach's alpha value of 0.607, less than 0.7. However, Hair et al. (2014) suggested that there may be the possibility of low Cronbach's alpha of factors with a smaller number of items. Thus, the fourth factor has moderate reliability and can be used in exploratory analysis (Hair et al., 2014; Hinton et al., 2014).

Table 3

Cronbach's Alpha and Descriptive Statistics of Factors

S. N	Factors	No. of items	Cronbach's alpha	Mean	SD
1	Self-interest	7	0.845	5.303	0.889382
2	Career Development Perception	6	0.814	5.191	0.876356
3	Outcome expectations	5	0.788	4.368	1.306522
4	Social Pressure	3	0.607	1.745	1.08074

SD= Standard Deviation

Discussion

This study identified four determinants of the students' choice of hotel management. The four identified determinants are: i) Self-Interest, ii) Career Development Perception, iii) Outcome Expectations, and iv) Social Pressure.

Many researchers have agreed on the role of self-interest of students on their choice of higher education. For example, the study of Qie et al. (2017) on students of Guangzhou suggested that students choose hotel management for their self-interest. With the factor analysis, they identified the self-interest of students as one of the main factors for choosing BHM. Most of the students in their study agreed that they chose hotel management independently. Likewise, the study on factors on undergraduate students' choice of business major by Stock and Stock (2019) confirmed that personal interest is a leading factor. Because of their self-interest, students choose business majors in their undergraduate degree. Similarly, the study by Lamichhane et al. (2022) on undergraduate and postgraduate students of business administration at Pokhara University revealed personal interest as one of the influencing factors of business administration choice in higher education. Students choose such a program where they have high personal interest. Lamichhane et al. (2022) agreed that the students chose business administration because of their interest. Similar findings were presented by Abe and Chikoko (2020). In their Science, Technology, Engineering and Mathematics (STEM) study, more than 55% of students agreed that they chose STEM based on their personal interest. The passion and desire to work in a certain industry leads student to choose courses related to industry in which student have desire and passion. Likewise, the students of Vehari, Pakistan choose their course because of personal interest as one factor (Humayon et al., 2018). With multiple regression analysis, they claimed that personal interests greatly influence their course choice.

If students choose the higher education of their interest, they become happier (Wright, 2018). The study of Wright (2018) suggested that personal interest needs to fit in the choice of major in higher education. Their study revealed that students tend to be happier and work in the same field if they choose the major that fits their personal interests. Similarly, they also revealed that students choose a major in which they want to do the job or are interested in working. In this study, many students agreed that they are interested in hotel-related jobs and willing to work in the hotel industry. Likewise, the work of Twumasi et al. (2018) also revealed that personal interest is an influential factor in students' career choices. They contended that student from Switzerland and USA choose courses because of their interest. They choose courses because of their individual desired goals. This study also found that students' passion and desire to work in the hotel industry made them choose BHM for their undergraduate degree. Likewise, personal interest of serving people was the main factor in Nepali medical students choosing medical courses (Hayes & Shakya, 2013). However, in the collectivist country family influence is important in the choice of course (Humayon et al., 2018). But in BHM choice personal interest is greater influencing factor. This suggest growing career opportunities in Nepal which is visible with increase investment in tourism and hotel sector (Adhikari, 2024).

Like self-interest, many researchers confirmed in their study that students choose courses where they aspire to develop their careers. Like, the survey of Qiu et al. (2017) on students of Guangzhou claimed that students choose hospitality management because of their aspiration to develop a career in the hotel industry. Students tend to choose courses where they believe they can develop their career and attend the higher possible position. In the study of Qiu et al. (2017), most students agreed that they aspire to attend top positions in five to ten years if they join hotel management. Similarly, the study of business administration students in the bachelor and master programs of Pokhara University revealed that career advancement is one-factor influencing students' choice of business administration course (Lamichhane et al., 2022). Most students in their study agreed that they chose business administration because they believe there is a career advancement

opportunity by doing business administration courses.

Likewise, the study of Twumasi et al. (2018) also suggested that professional development opportunity as one of the factors of career and their college major choice. They found out career development perception influences Chinese student in the choice of academic program, and American students were motivated by strong career maturity (career development process). Similarly, they claimed that Students of Indonesia were also influenced by career development aspirations for their course choice. Students choose courses that enhance their knowledge and skills and help their career development. The study of Abe and Chikoko (2020) claimed that students choose Science, Technology, Engineering and Mathematics (STEM) subjects because they believe in STEM courses since they can acquire knowledge and skills that help them in their potential development and career development. Students choose courses in which they can unlock their potential and believe they can do well in their future careers. Similarly, the findings of study of Srikanth et al. (2020) claimed that students choose an MBA because of the excellent career development. Students analyze the courses and get enrolled, which have good career growth. A study of Srikanth et al. (2020) revealed that career growth influences student for MBA selection. Most students agreed that they analyzed the course properly and chose MBA as they saw good career growth after doing it. Likewise, the study of Suhi et al. (2022) also revealed that career quality (provides an opportunity to implement creativity and career development) is one factor that influences students to choose careers in social science. They claimed that career development perception positively impacts course selection. If students see good career growth in certain sectors, they are more inclined to choose courses related to them. In India, many choose online courses because of the perceived benefits of career growth in online and digital industries, as online courses add value for career growth (Ray et al., 2019). But in many cases instead of career growth opportunity, the perception of hotel industry as glamorous job may influence student for the choice of BHM. The study of Coman et al. (2025) also suggested the perceived lifestyle influence students for shaping their professional values.

Numerous studies suggest that students choose such courses where they expect positive outcomes after graduation. The study of Abe and Chikoko (2020) on students at a university in South Africa claimed that output expectancy is one-factor influencing students to choose STEM. Because of the more career opportunities and prospects in STEM, they chose STEM subjects. Similarly, the systematic review study by Twumasi et al. (2018) suggested that output expectations influence students to choose their courses and careers. They claimed that American student chose their career based on output expectations as one of the factors. Similarly, one of the factors students choose an MBA is career opportunities after MBA (Srikanth et al., 2020). Their study claimed that students analyze different subjects and choose courses that can provide them with jobs easily after an MBA. In this study, many students also agreed that they choose hotel management because of the expectation of getting job easily.

Likewise, the study by Awadallah and Elgharbawy (2020) claimed that students choose an accounting major in Qatar because they perceive accounting as a distinctive qualification and makes them qualify for better job prospects after the degree. They suggested outcome expectations of a job after an accounting degree significantly influence accounting choice as a major. Similarly, the study of Suhi et al. (2022) also claimed that one of the factors that Bangladeshi students choose social science is job prospects with good financial incentives. They suggested that the relationship between output expectation of job and course choice is significant. A similar kind of finding was revealed by Pratiwi et al. (2020). They claimed that output expectation influences Indonesian students' choice of dentistry. Students believed that they would get jobs easily after dentistry. Thus, they choose dentistry. Similarly, the study of Najam and Ghazal (2022) on Pakistani students claimed that output expectations significantly influence them to choose their careers. They suggested

students believed financial stability through a job was one of the outcome expectations for their choice.

Unlike this study, the students of Vehari, Pakistan, chose their course because of family influence as one factor (Humayon et al., 2018). Using multiple regression, they claimed that families greatly influence their course choices. Similarly, the study by Awadallah and Elgharbawy (2020) argued that students choose accounting majors in Qatar because of their family members. They suggested parental pressure significantly influences accounting choice. Similarly, family influences students' STEM choices in South Africa (Abe & Chikoko, 2020). They claimed that many students agreed that their family strongly influences their STEM choice. Similarly, the study of Qiu et al. (2017) on students of Guangzhou suggested that students choose hotel management by little influence of parents. With the factor analysis, they identified support from parents of students as one of the factors for choosing BHM. Most of the students in their study agreed that they choose hotel management independently. Students choose courses because their families have expectations of them. The findings of Twumasi et al. (2018) also revealed that students from collectivist cultures choose courses because of their family expectations. Their study suggested that parental influence significantly influences the students' choice of higher education and career. Likewise, the study of Ngussa and Charles (2019) on students at secondary schools in Meru District, Tanzania revealed that parents' significant role in students' career choice preparedness. Similarly, the study of Eremie and Chiamaka (2019) suggested a significant influence of family on students' choice of study. But in case of BHM in Nepal, hotel management is still not preferred career among parents. Thus, family influence is not significant in BHM choice.

In line with this study, many researchers suggested the peers or friends influence on the students' choice of course in higher education. The study of Awadallah and Elgharbawy (2020) claimed that many students choose accounting major in Qatar because of the peer pressure. They suggested peer pressure significantly influences accounting choice. Similarly, the study of Mtemeri (2020) suggested that peers significantly influence students' career choice. However, some researchers claimed that friends and peers do not influence students' choice of course. The study of Eremie and Chiamaka (2019) suggested there is no significant influence of peers and best friends on students' choice of study. Similarly, in line to this study, many researchers claimed that choice of higher education is influenced by teachers. The study of Abe and Chikoko (2020) claimed that teachers significantly influence students' STEM choices in South Africa. They claimed that many students agreed that their teacher strongly influences their STEM choice. Similarly, the study of Nagireddy (2021) suggested that teacher and student relationships play a major role in students' choice of course and career. Nagireddy claimed that teachers' observation of students' attitudes and behavior helps them properly guide students in their higher education choices, leading to a promising career. Likewise, the study of Ngussa and Charles (2019) on students of secondary schools in Meru District, Tanzania suggested that teachers are influential on students' course choice. Thus, the findings of this study is similar with most of the existing literature like Nagireddy (2021), and Ngussa and Charles (2019), which suggests that peers and teachers have significant influence on students' choice. Some researchers claimed the insignificant role of peers for career growth. Unlike the result of this study, many researchers such as Twumasi et al. (2018), Qiu et al. (2017), Awadallah & Elgharbawy (2020), and Humayon et al. (2018) found that family members influence on course choice. In the case of Nepal, hotels and hospitality jobs are not considered socially prestigious. Thus, parents are not influenced to choose hotel management.

Conclusion and Implications

Academic program choice is a complex process. Many factors influence students to choose academic programs. BHM is one of the academic programs running in Nepal to produce graduate for hotel industry. The objective of this paper was to identify factors

influencing BHM choice in Kathmandu, Nepal. This study identified self-interest, career development perception, outcome expectations, and social pressure as determinants of BHM choice.

There are certain limitations of this study. First, survey was conducted among students doing their BHM in Kathmandu District only. This hinders the generalizability of this study. Second, this provides the factors quantitatively. But this does not provide how such factors interact for their final decision. Thus, this study lacks subjectivity. Finally, this is cross-sectional study which does not provide the cause-and-effect relationship.

The result of this study can be implied by students planning to do hotel management, parents of the student, academic institutions providing BHM, policy-makers, and future employers. Firstly, the conclusion of this study is applicable to prospective students willing to join hotel management. They can analyze four identified factors and their items, and reflect on whether they are willing to do hotel management. This enhances their chances to make them ready for their undergraduate program. Secondly, the conclusion of this study can be helpful to parents as well. Parents understand that many students joined BHM because of career development perception and outcome expectancy, as a result of this study. They can support their children in choosing hotel management and guiding them properly. Likewise, the findings of the study are helpful to academic institutions that provide BHM. Educational institutions understand the influential factors for the student's choice of BHM. Academic institutions can focus on the needs of existing and future students. They can play a role in developing student's interest in the hospitality industry. They can expose students to their career in the hotel industry and highlight its benefits and positive aspects. The conclusion of this study can help academic institutions advertise and attract students to pursue BHM at their institutions. This result helps academic institutions develop appropriate strategies for promoting their institutions by focusing on the key factors that influence students' choice of BHM. Similarly, the hotel employer can benefit from the findings of this study. They can understand what students want in the hotel industry career. To attract good human resources, they can get prepared accordingly. Further, the results of this study are helpful for labor market policy-makers. Policy-makers can create collaboration between academic institutions and the hotel industry to expose students more to hotel industry careers and they can design the BHM course, which connects industry through internships, apprenticeship programs, and field visits. Finally, future researchers can use this study to cover larger geographical areas for better generalizability. Likewise, future researchers can utilize mixed methods research for better understanding how and why students choose BHM.

Funding: This research received no grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Data Availability: The dataset will be provided on request.

References

Abe, E. N., & Chikoko, V. (2020). Exploring the factors that influence the career decision of STEM students at a university in South Africa. *International Journal of STEM Education, 7*(60). https://doi.org/10.1186/s40594-020-00256-x

Adhikari, S. R. (2024). Analyzing the Financial Dynamics of Tourism and Their Economic Impact in Nepal. *The Gaze: Journal of Tourism and Hospitality*, *14*(1), 1-12.

Awadallah, E., & Elgharbawy, A. (2020). Utilizing the theory of reasoned action in understanding students' choice in selecting accounting as major. *Accounting Education,* 1-21. https://doi.org/10.1080/09639284.2020.1811992

Briones, E. R., & Bueno, D. C. (2019). Factors affecting the decision of first year students in choosing their degree program and

school. *Institutional Multidisciplinary Research and Development Journal.* https://doi.org/10.13140/RG.2.2.25060.01921

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons.

Cohen, L., Manion, L., & Morrison K. (2018). *Research methods in education* (8th ed.). Routledge.

Coman, C., Dalban, C. M., Pitea, I., Iordache, M., & Bucs, A. (2025). Influence of mass media on career choices of final-year high school students in Brașov County, Romania. *Journalism and Media*, *6*(3), 126.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mixed methods approaches* (3rd ed.). Sage.

Donnelly, K. (2015, August 15). *Wrong course choice by half of drop-outs.* Independent.ie. https://www.independent.ie/irish-news/education/wrong-course-choice-by-half-of-drop-outs-31475552.html

Eremie, M. D., & Chiamaka, O. (2019). Factors affecting career choice among senior secondary school students in Obio/ Akpor local government area of Rivers State: (implication for counseling). *International Journal of Innovative Social Sciences & Humanities Research, 7*(1), 46-58. https://seahipaj.org/journals-ci/mar-2.

Hayes, B. W., & Shakya, R. (2013). Career choice and what influences Nepali medical students and young doctors: A cross-sectional study. *Human Resource for Health, 11*(5). https://doi.org/10.1186/1478-4491-11-5

Hotel Association of Nepal. (2022). Major infrastructures added to target "Visit Nepal Year 2020". https://www.hotelassociationnepal.org.np/pdf/Hotel%20Data.pdf

Humayon, A. A., Raza, S., Khan, R. A., & ul ain Ansari, N. (2018). Effect of family influences, personal interest and economic considerations on career choice amongst undergraduate students in higher educational institutions of Vehari, Pakistan. *International Journal of Organizational Leadership, 7*, 129-142.

Lamichhane, S., Gurung, S. K., Chapagain, R., Baral, R. P., & Adhikari, S. (2022). Factors influencing career choice among business administration students of Pokhara University. *The Batuk: A Peer Reviewed Journal of Interdisciplinary Studies, 8*(2), 14-31. https://doi.org/10.3126/batuk.v8i2.47011

Lee, P. C., Lee, M., & Dopson, L. R. (2018). Who influences college students' career choice? An empirical study of hospitality management students. *Journal of Hospitality & Tourism Education,* 1-13. https://doi.org/10.1080/10963758.2018.1485497

Mtemeri, J. (2020). Peer pressure as a predictor of career decisions-making among high school students in Midlands Province, Zimbabwe. *Global Journals of Guidance and Counseling, 10*(3), 120-131. https://doi.org/10.18844/gjgc.v10i3.4898

Nagireddy, S. (2021). Teacher and student relationship for students' career choice. *International Journal of Advance Research, Ideas and Innovation in Technology, 7*(3). https://www.ijariit.com/manuscripts/v7i3/V7I3-1294.pdf

Najam, B., & Ghazal, S. (2022). A qualitative exploration of the outcome expectation in determining career choices of college students. *Pakistani Journal of Humanities and Social Science, 10*(1), 162-171. https://doi.org/10.52131/pjhss.2022.1001.0183

Ngussa, B. M., & Charles R. K. (2019). Perceptions of students regarding the role of teachers and parents on career choice preparedness: a case of secondary schools in Meru Districts, Tanzania. *Integrity Journal of Education and Training, 3*(4), 60-72. https://doi.org/10.31248/IJET2019.049

Ouano, JV. J. G., Torre, J. F. D. L., Japitan, W. I., & Moneva J. C. (2019). Factors influencing on grade 12 students' chosen courses in Jagobiao National High School - Senior high school department. *International Journal of Scientific and Research Publications, 9*(1). https://doi.org/10.29322/IJSRP.9.01.2019.p8555

Owino, J. O., & Odundo, P. A. (2016). Factors influencing bachelor of education arts students' selection of history as career subject: Case of University of Nairobi, Kenya. *Universal Journal of Educational Research, 4*(10). https://doi.org/10.13189/ujer.2016.041002

Pratiwi, F., Syakurah, R. A., Yuliana, I., & Siburian, R. (2020). Relationship of self-efficacy, outcome expectation, career intention, and career exploration in nutrition science student's career choice. *Advance in Health Science, 25.* 10.2991/ahsr.k.200612.042

Qie, S., Dooley, L., & Palkar, T. (2017). What factors influence the career choice of hotel management major students in Guangzhou? *Independent Journal of Management and Production, 8*(3), 1093-1114. https://doi.org/10.14807/ijmp.v8i3.618

Ray. A., Bala, P. K., & Dasgupta, S. A. (2019). Role of authenticity and perceived benefits of online courses on technology-based career choice in India: A modified technology adoption model based on career theory. *International Journal of Information Management, 47*, 140-151. https://doi.org/10.1016/j.ijinfomgt.2019.01.015

Shehadeh, A. (2020). Contextualizing your research project. In C. Coombe, N. Anderson, & L. Stephenson (Eds.), *Professionalizing your English language teaching* (pp. 327- 335). Springer.

Srikanth, B., Madhavi, N.B., & Babu, B. K. (2020). A study on students' perception and factors influencing in the selection of MBA programme. *European Journal of Molecular & Clinical Medicine, 7*(6).

Stock, P. A., & Stock, E. M. (2019). *Factors that influence a college student's choice of academic major and minor*. https://www.researchgate.net/publication/330168717_Factors_that_Influence_a_College_Student's_Choice_of_an_Academic_Major_and_Minor

Suhi, S. S., Jabbar, M. A., Farjana, F., Nasrin, N., & Hossain, M. T. (2022). Factors affecting social science students' career choice: a web-based cross-sectional study in Bangladesh. *Education Research International.* https://doi.org/10.1155/2022/2765246

Thapa, B., & Panta, S. (2019). Situation analysis of hospitality management education in Nepal. In *Tourism education and Asia* (pp. 49-62). https://doi.org/10.1007/978-981-13-2613-4_4

Twumasi, P. K, Emeto, T.I., Lindsay, D., Tsey, K., & Aduli, B. S. M. (2018). A systematic review of factors that influence youths career choices- the role of the culture. *Frontiers in Education, 3*. https://doi.org/10.3389/feduc.2018.00058

Wright, C. (2018). *A study of college major choice and major switching behavior* [Doctoral dissertation, Pardee Rand Graduate School]. Rand Corporation. https://www.rand.org/pubs/rgs_dissertations/RGSD414.html

Yahaya, T. A. B., Idris, K., Suandi, T., & Ismail, I. A. (2018). Adapting instruments and modifying statements: The confirmation method for the inventory and model for sharing behavior using social media. *Medical Science Letters, 8,* 271-282. https://doi.org/10.5267/j.msl.2018.4.021

Annex

Respondents' Gender, Family Types, Locale, and Ethnicity

Category		Frequency	Percent
Gender			
	Male	134	53.4
	Female	117	46.6
	Others	0	0
Family Type			
	Nuclear	172	68.5
	Joint	79	31.5
Locale			
	Urban	153	61
	Semi-Urban	77	30.7
	Rural	21	8.4
Ethnicity			
	Brahmin	48	19.1
	Chettri	92	36.7
	Janajati and Aadibasi	85	33.9
	Madhesi	6	2.4
	Dalit	5	2
	Others	15	6

Journal of
Training and Development
2026, Volume 8
ISSN: 2392-456X (Print)
ISSN: 2392-4587 (Online)

https://doi.org/10.3126/jtd.v8i1.95900

Greening TVET for a Sustainable Future

Shiba Bagale*

Training Institute for Technical Instruction (TITI)

Abstract

There are several environmental challenges faced by the world, and providing green jobs for a green economy through Technical and Vocational Education and Training (TVET) is seen as a way forward. This review article on Greening TVET integrates skills for sustainable practices, green skills, green curriculum, and programs. The policies, curriculum integration, awareness, and industry institution linkage to share sustainable practices are an urgent need which needs to be planned and implemented. Some of the practices are seen in the context of greening TVET in Nepal. But the continuation of incorporating the gaps between what is and what needs to be is needed. The strategies focused on in this review article are: incorporating Greening TVET into all policies and governance, including the curriculum; increasing teachers' capacity development programs; fostering industry partnerships; practicing green practices by schools; and conducting research on greening TVET. So, reforms to institutions in terms of greening, policy support, partnerships, and linkages with industry to develop green skills and prepare graduates for the labour market are essential to fully realize the potential of greening TVET as an enabler of sustainable development and a sustainable future in Nepal.

Keywords: Curriculum, Greening, Greening TVET, industry institute linkage, Sustainable practices

Introduction

Sustainable employment and long-term economic growth are essential to Nepal's progress. In the absence of a change to a greener economy, Climate change, resource scarcity, environmental deterioration, and economic instability will all persist in Nepal. To spearhead the development of green skills for the workforce of the future, Nepal's TVET sector must take the lead in the shift to green growth.

Greening TVET has drawn the attention of the world as it is taken as one of the enablers of a sustainable future. Incorporating sustainable practices, developing green competencies, and TVET policies that are environmentally conscious, UNESCO-UNEVOC (2017) focuses on the idea of incorporating sustainable practices, green competencies, and environmental consciousness into policies related to TVET, curriculum, teaching pedagogy, and the culture of the institution. Nepal, a nation that is particularly vulnerable to climate change, has determined that green growth is essential to its future development.

* Corresponding email: shiba@kusoed.edu.np

However, changing it into TVET circumstances is difficult (Bagale, 2021).

Literature Review

The literature review is based on the thematic review, policy review, and empirical review**.** Recent past studies were reviewed, and the theory related to TVET was highlighted. Based on the gap, some strategies were developed and the gap was analyzed.

Greening TVET

The green economy focuses on the transversal of green skills that basically align with systems thinking, problem-solving and environmental awareness. Not only this, it has some technical capabilities like solar installation, energy audits, and sustainable agriculture (Cedefop, 2022). Majumdar (2011), TVET offers a distinct comparative advantage since it directly matches training to the demands of the labour market, making it an effective tool for fostering sustainable development and green growth. UNESCO (2022) also focuses on the fact that trainers' inadequate preparation, having poor institutional capacity, lack of the nation's framework on developing green skills and competencies are the main issues.

Technologies are shifted from carbon intensive o carbon light, the process and behaviour of workers with the skills of greening is needed not only in present but also in the future. Integrating those technologies, skills related to greening, curriculum, and research based on the latest technologies incorporating greening should be developed in both the developing and developed nations.

Orienting TVET institutions in terms of curricula, procedure of providing training incorporating low carbon practices, behaviours related to environmental sustainability, low carbon emission, and green skills is the greening of TVET institutions. It focuses on incorporating clean and green technologies, sustainable and green practices, environmentally conscious workforce in the field of vocational education (Maclean & Fien, 2017). It helps to encourage awareness, change in behaviour, boost the resources in efficient and finally stimulates clean technology, which contributes to the green economy and green growth (Sharma, 2020).

Green technology is rapidly increasing across different industries and institutions. Most scholars believe that green technology helps reconcile the environment with basic human needs. Green technology refers to environmentally friendly technology (Sharma, 2020).

Green technology refers to the technology that reduces human impact and conserves natural resources by developing and utilizing systems, procedures, goods, and technologies. Green technology prioritizes long-term economic and commercial sustainability.

Green skills

In the framework of lifelong learning, which supports numerous SDGs, green skills development, or, more simply, greening of skills, goes hand in hand with climate change and environmental protection initiatives, inclusive economic growth, and decent work for all. Greening of the skills is one of the main objectives of technical and vocational education and training (TVET) in UNESCO's 2030 education agenda.

Greening TVET Policy in Nepal

The federalized TVET system in Nepal is being reformed to improve governance and match skill development to the needs of the labor market. Along with digitalization and corporate sector involvement, greening TVET was listed as a top goal in a 2024 UNESCO-UNEVOC national policy conversation (UNESCO-UNEVOC, 2024).

TVET Sector Strategic Plan (TSSP, 2023, 2032), the 16th five-year plan has talked about sustainable development, but the exact way of implementing the TVET policy is not discussed. Nepal does not have a unified Green Skills Framework, despite policy debates. Donor-supported initiatives like ENSSURE (Swisscontact, 2022) and Dakchyata (British Council, 2022), which function in priority industries like construction, agriculture, and tourism, are a major component of current policies.

Evaluation of Empirical Studies

There are several studies done on greening TVET. The findings of the empirical research are highlighted below:

Integrating Green TVET into Curriculum Design:

Pavlova (2018) has done research highlighting the incorporation of the concepts of sustainability. The results of the study show that the country which had adopted green skills in its curriculum had a higher rate of employment in the field of manufacturing and sectors like renewable energy.

In another study done by Okolie et al. (2020) in Sub-Saharan Africa, on the policy framework for creation of sustainable industries through work-based learning in TVET, focuses on the need for stronger linkage with the industry to align the training with the labour market needs, which supports sustainability. The main theme was that incorporating the market demand in the curriculum is most beneficial for sustainability.

In a study done by Ibrahim and Abdul Rahim, (2024) on integrating green skills into the Malaysian curriculum, it shows that the importance of incorporating greening skills in the curriculum is shown. It focuses on the best practices and sustainable practices in integrating green skills in the curriculum. The study has highlighted the need for training for teachers, constraints of resources and curriculum flexibility to integrate the latest and emerging issues. It suggests developing a green skills framework and integrating it with the TVET system, which helps to prepare the human resources as per the demand of the green jobs in the market.

Similar findings were made in research done by Lyu et al. (2025). The study was done on integrating green finance into education, which focuses on the curriculum design and implementation strategies for sustainable development. It has focused on incorporating green finance competencies in vocational education. It highlights the alignment of the curriculum with the industry standards and the mandate of fulfilling the green skills gap seen in vocational education through the curriculum. This study concluded with the enhancement of graduates' employability in sustainable financial roles.

Development of Green Skills and Preparedness for the Labour Market:

A study done by Fien and Guevara (2019) shows how green skills affect the employability of the graduates. The students who have green skills have a higher chance of being employed in business as the era of implementing sustainable practices. This study highlights the importance of green skills and their effect on workforce adaptation by graduates and employers.

The research done by Albertz and Pilz (2025) on Green Alignment, Green Vocational Education and Training, Green Skills, and Related Subjects focuses on existing green skills and green jobs, which have insufficient comprehensiveness in policy and conceptualization. The study highlights the general and broader concept of green in TVET. The main discourse in this research is about the policy and research practices.

The study of OECD (2025), on how the green transition reshapes vocational education and training, has found that the green transition has assisted in reshaping the labour market by creating the urgent need for skills that support a low-carbon economy and lead to a green economy. This further explores that VET is the key to the green economy, as sectors like construction, transportation, energy, and manufacturing are directly related to the green economy, and the green transition is very important. The need for green-driven jobs and youths with green skills is required. Several new high-skilled jobs have emerged in different occupations. The traditional jobs are being replaced by green jobs, and the demand for youths with green skills is increasing. So, VET programs should adopt the skills that lead the green transition.

Industry Cooperation and Institutional Change

The industry and institutions can have good relations and student participation with the

industry, which focuses on green skills and programs (Maclean & Wilson,2021). So, developing the green competencies and green certificates has a direct impact on employment and industries. This not only helps the students but also helps them to be environmentally responsible citizens. The study focuses on maintaining a green culture among the students.

A study done by the World Bank (2025) on industry engagement in TVET and skills development, it focuses on the industry as one of the co-leaders in TVET for green transformation. Industry can play the role of an active co-leader, having a positive impact on shaping the TVET by financing and coordinating, and helping to enhance the green competencies in teaching and training. Close coordination and collaboration can help in developing the occupational standards, curriculum, and training methodologies could be changed, and the alignment and linkage of the TVET with the industry and labour market needs can be enhanced. So, the industry can shape TVET as per the demand of the industry, which helps to maintain better linkage.

In a study done by Dhameja et al. (2026) on empowering regional sustainability and inclusivity through greening TVET, it shows that the regional Asia-Pacific countries' TVET systems are in the transitional stage. It focuses on the gap between the circular economy, green competencies, and innovative practices in greening. A clear pathway of implementing greening TVET by incorporating the initiatives, competencies in the curriculum, inclusive industry partnership, coordination, and collaboration is given in the findings of the study.

Theoretical Understanding of Greening TVET

Greening TVET is supported by several theories. The theoretical underpinnings are discussed below:

Ecological Modernization Theory:

Ecological Modernization Theory (Mol & Sonnenfeld, 2000) focuses on the reform of the industry and technological advancement of sustainable growth. It is the relation between the environment and the economic development of the nation; the importance of the training institutions is highlighted by this theory. So Lotz-Sisitka et al. (2024) argue that the current greening of TVET is to reform the institutions rather than a transformative approach. It helps in developing the human resources with the knowledge of sustainable and green practices, innovative and creative ideas for the environment and industry.

The basic idea of this theory is that the environmental problems are the problems created by humans, and they could be solved by making people aware by sharing the knowledge and skills through the institutions in society. Institutional changes are needed to solve the ecological problems caused by society itself. So, this theory shows that the one who has created the problem can solve the problem too. For this technological innovation, policy formulation and implementation are needed, and society can achieve economic prosperity without harming the environment (Mol, 1995).

Human Capital Theory

Human capital theory (Becker, 1964) emphasises investing in the skills that support economic growth, and green skills are one of them. This provided the rational of investing in education and training and its return on economic development. The workforce that is highly educated can perform the task quickly, absorb new technologies, and implement those with innovative solutions. So, the productive resources that are developed through the education of the individual are the main theme of this theory.

In the greening of TVET, the theory has significance in fostering the green talents related to green energy, sustainable agricultural practices, and clean and green technologies. The one who is educated can generate the workforce needed for green skills and green jobs. The development of human resources with the needed green skills has a direct impact on economic growth and the green economy (Khan et al., 2025). So, the term human capital can be coined as green human capital as it has a positive correlation with the organizational performance of humans and is linked with

sustainability.

Kholifah et al. (2025) focus on employability skills as a vital indicator to make the individual ready for the work. So, investing in human capital is adapting the platform for digitalization approach to education. Having greening skills has a direct impact on career development. So, skills in greening TVET are the capital of humans, which ultimately helps in employment.

Transformative Learning Theory

Transformative theory by Mezirow (1978) focuses on the learning of the individual on the basis of the assumptions, belief system, and the perspective on how they shape on interpreting the world.

Basically, it focuses on the disorienting dilemma, critical self-reflection, rational discourse, and action. So, in the context of greening TVET, it is not only adding the content but also it is the way of helping the learners shift themselves in the world. It is the education system that helps to encourage critical thinking, problem-solving skills and change in behaviour through sustainability (Mezirow, 1991).

The emphasis of this theory is on the necessity of the training programs, development of the curriculum based on environmental consciousness practices, problem-solving techniques and learning, developing sustainability educators. This helps to assess the sustainability in the workplace, forming green occupations and their identities. This theory not only equips learners with practical skills but also shapes environmentally responsible citizens who could contribute to sustainable community and industrial development. The main challenge is the readiness of developing the curriculum based on the latest technology and green skills, developing the pedagogical approaches, and developing teachers and instructors. (Singer-Brodowski, 2023) focuses on changing the meaning in terms of the sustainability learning process.

Existing Research Gap

Although there are several studies in the field of greening TVET, there is no significant research in the context of Nepal. The major gap is the understanding of greening TVET, as greening is understood as a tool, but it's a process to enable a sustainable future in the TVET institutions and the nation. The main gap is in the conceptual ambiguity of the generic green skills and sector-specific green skills. TVET, in the context of Nepal, has not developed a standardized definition regarding the concepts. Also, the next gap is distinguishing between the employees or the graduates who have green skills and those who do not have green skills. So, the measurable utilization of green skills demand of the green skills in the workplace is not clearly seen. This directly misaligns with how the institutions perceive the green skills and how industry perceives green skills (Persson Thunqvist, 2023).

Also, how the curriculum is developed regarding green jobs and green skills is not clear. With the rapid development of green technologies, the curriculum does not have a clear vision of developing graduates with green skills. So, only sensitization is done, but the policy, curriculum, vision, and demand and supply of green skills are not seen, which is the major gap. Regarding the curriculum, are the instructors ready for implementing greening TVET, what is the future prospects and job-related to greening that are still unclear. So green literacy, instructors' readiness, adaptation of greening components, implication of greening in the job, need and scope of green jobs and skills in the instruction and industry are the major gaps. To address the research gap, the empirical review is done, and findings and implications are developed.

Methodology of the study

This paper has applied the interpretive paradigm in my qualitative research. The nature of the research is an integrative literature review. This technique has helped to make sense of emergent research concepts. This research is based on a review of various research related to greening TVET. Descriptive analytical research was applied in this study, which has helped the researcher to critically evaluate the theme of greening and how it is conceptualized, implemented and utilized in the

context of TVET (Li et al., 2023).

This paper has been developed by using the thematic literature review. The academic sources related to the previous literature are the main ones. The related databases, relevant websites, and relevant literature on greening TVET were searched. Thematic synthesis was done based on the conceptual saturation regarding the theme on the greening TVET, green jobs, green skills, strategies for greening TVET and the challenges. Policy review was also done.

Mainstreaming Greening TVET in Practice

From the empirical studies and theoretical underpinnings, the challenges faced in mainstreaming Greening TVET in practice are as follows:

Resource Constraints

The main challenge is the resource constraints in terms of implementing greening TVET. (ADB & EdUHK, as cited in Maclean et al., 2018) focuses on the necessity of greening, but the main problem is funding. So, funding is the main way to develop and implement the course and programs.

Implementing green training facilities is also disturbed by financial and infrastructure constraints (UNEVOC, 2019). Not only this, but also many TVET teachers do not have the latest equipment based on clean and green technology. UNESCO, World Bank & ILO (2023) also focus on the outdated equipment and infrastructure seen in the TVET institutions, which is the urgent need to equip the institutions with the latest clean and green technologies. Bagale (2022) also focuses on the main hindering factors as resource-related barriers to implementing programs and other facilities. Also, in another study by Sharma et al. (2024), teachers have insufficient knowledge regarding the practical knowledge about emerging technologies in Nepal, and the instructors are having significant challenges with inadequate professional development opportunities.

Not only are there physical resources and equipment, but there is also a need for prepared human resources. International Labor Organization [ILO] (2023) emphasizes that many low and middle-income countries lack human resources who are prepared to meet the increasing demand for green and climate-responsive training. Colombo Plan Staff College [CPSC] (2026) also indicates that there is moderate integration of the greening skills and digital green competencies required for human resources.

Policy Gaps

In most of the countries, the mainstreaming of greening TVET is delayed by the lack of comprehensive national policies (Pavlova, 2020). If there are no national policies, then the planning and implementation of the programs cannot be effective. ADB (2025) has also documented that Nepal's TVET programs suffer from quality, capacity, and governance issues.

UNESCO (2026), in a study done in Nepals status of greening TVET, has found that there is a need to develop greening TVET guidelines and establish a comprehensive implementation framework based on the guidelines. The framework covers the institutional arrangements, capacity development of the human resources, development of the curriculum and competency, linking the industry and improving the training environments.

Nepal's TVET sector strategic plan (TSSP 2023-2032) signals that greening TEVT is Nepal's overarching issue. The Labour Act, Industrial Enterprise Act, and CTEVT Act are fragmented, and the concerns of greening TVET are not included, so an integrated act or guidelines on greening TVET are needed.

Industry Linkage: TVET is directly related to industry as the industry are the exposure to the graduates. The institutions develop the graduates, and the practice opportunity in terms of internship, on-the-job training, and apprenticeship training is provided in the industry. So, industry linkage is mandatory not only for the exposure but also for meeting the standard of the skill-based instruction program to industry standards and adaptation of the latest technology. If training and market demand are aligned, then there would be higher

chances of job placement for the graduates. But in Nepal, the linkage is seen as poor. In most of the cases, the involvement of the private sector is weak (Shrestha, 2021).

Minimal engagement of the private sector is seen in the curriculum development and policy formulation. Lack of cooperation between TVET institutions and industries has an impact on the market demand (Maclean & Wilson, 2021). Though Nepal's TVET is largely concentrated on internships and student placements in the industry, which is a strong participation of TVET in the industry, there is a weakness in research engagement, policy formulation and designing a greening curriculum with industry linkages (CPSC, 2026).

In a study by Bhatarai (2025) on strengthening TVET through private sector engagement, sufficient industry engagement is not seen. There's minimal involvement of the private sector, and the minimal engagement has adverse impacts on the employability of the graduates.

Findings From the Review

- Greening TVET is essential for preparing a workforce capable of supporting low-carbon, resource-efficient, and climate-resilient development. The following key findings summarize current progress and gaps relevant to Nepal's transition. The key findings are:
- Policy commitment is seen, but still the implementation is inconsistent, and the development of greening TVET policy and guidelines is seen as an urgent need.
- Framework on greening TVET, greening skills are lacking, so integrating with the National Qualifications Frameworks, the development is needed.
- Prioritize the high-potential sectors of greening TVET and make a plan of action as per the priority
- Develop effective models to standardized the curriculum, teaching learning strategies and assessment process, incorporating sustainable green practices.
- Embed green practices and sustainable practices in the Work-based learning platforms, including dual TVET and OJT, which are directly related to the implementation of the learning.
- Incorporating greening skills and competencies in all the curriculum with the green and clean technology as per the market need is seen.
- Capacity enhancement of the instructors and staff is needed in green skills, pedagogy, and assessment.
- Developing agreed indicators to implement and measure readiness of the programs, providers and implementers.
- Stronger industry engagement and incentive mechanisms are needed to accelerate enterprise adoption of green practices.
- Coordination with the government, local bodies, and development partners is essential to achieve system-level transformation in implementing greening TVET.

Discussion

From the findings of the review of the previous studies, policies and theories, some Strategies for the Greening TVET should be focused. TVET providers can begin implementing green practices by ensuring that school campuses promote resource conservation and sustainability. Greener ways can often be identified and the environmental impact assessed before investing in green employment, partnerships, and skills.

Physical and infrastructure improvements are necessary, as are innovative solid waste management strategies like recycling or composting, new water-saving facilities that collect grey water, and reducing consumption and boosting energy efficiency with the use of solar energy and more energy-efficient electrical equipment (Bagale, 2021). These changes are less expensive and more fundamental in nature. So, some changes need to be made to ensure the implementation of greening skills, cost, and carbon saving to implement greener practices for TVET providers.

- **Policy and Governance- Green Skills Integration in the National TVET Policy Framework**

The main aspect of implementing greening TVET is integrating green skills in the national policy frameworks. Without the integration of greening in the policies related to TVET, implementation and monitoring could not be done. Development of the curriculum integrating greening TVET, greening skills, teachers, instructors' training for making them aware about greening TVET, assessment standards based on the objectives, allocating resources sustainably, are some of the aspects of greening TVET that could be added to the policy framework (UNESCO-UNEVOC, 2017). Policy integration guarantees the national and international objectives of greening TVET that might be aligned with the Paris Climate Agreement and Sustainable Development Goals (UNESCO 2017, ILO 2019). So, integrating green skills in TVET policies enhances eco-friendly practices and enhances resource efficiency, which finally promotes innovation in economic sectors (UNESCO-UNEVOC, 2003; Leal Filho et al., 2018)

Policy-driven in Greening TVET rather than donor-led initiatives helps to ensure sustainability (UNESCO-UNEVOC, 2017). In the context of Nepal, the alignment between the three levels of government is necessary. National, provincial, and local level authorities should have a strong alignment for these initiatives (UNESCO-UNEVOC, 2024). Not only this, the competencies on the job alignment, green skills are needed for the institute and industry both to enhance the labour market in a more sustainable and friendly way (ILO, 2019). Nations that led with the national policy-driven strategies have more improvements in the vocational training systems, which help them prepare for green jobs (ILO, 2019; Wang et al., 2020). This helps to incorporate green skills in the policy framework, helps to improve accountability of institutions, helps with funding, and mainstream competencies related to environmentally friendly behavior which finally leads to enhancing green skills and the green economy.

- **Integrating Greening in Existing TVET Curriculum**

Waste management, renewable energy, and sustainable agricultural practices are some of the green competencies that should be incorporated into the curriculum. The training facilities and environment of the educational institution should have sustainable resources, its utilization, green building practices, waste management, and other sustainable practices should be included in the curriculum. Not only this, collaboration with the industries which prioritize sustainable practices, integrating green practices into existing courses, adding sustainability topics, including green modules in the curriculum, including the competency-based design, and implementing on a practical basis (UNESCO, 2017) are the aspects that need to be incorporated in the curriculum. Collaborating with companies that prioritize sustainability could provide students with practical exposure to eco-friendly technologies and best practices.

Developing different strategies helps to integrate the long-term green strategies into the curriculum. So, the curriculum should include all abilities where the teacher can teach the climate-resilient, energy-efficient techniques (UNESCO, 2018). The sector-specific and green curricula are needed to meet the local needs (British Council, 2022). The programs that create graduates would apply conscious and ecological solutions by coordinating the curriculum-related materials in real sectors. Developing greening practices and the staff's abilities in greening is necessary (CEDEFOP, 2021).

- **Increasing the Capacity of Teachers, Instructors and Other Staffs**

Education and making the teachers aware are the main aspects of increasing the capacity of the teachers. Because they translate and transfer the sustainable policies into classroom practices. They can incorporate it in the curriculum, including workplace skills.

Diep and Hartmann (2016) also focus on greening the capacity of the teachers. They

further explore that the understanding of teachers is enhanced and improved on sustainable development and the greening skills, which helps the teachers to teach those skills clearly. It also helps them to design the lesson, assessment, and training activities based on the greening skills and competencies, and it helps the teacher's ability to develop the greening behaviour and the skills in the workshop, classroom, lab and the surrounding. Also, in the teachers' training, it could be included. This helps the teachers to develop green entrepreneurship and helps the students with it.

A study done by Okeowo et al. (2024) shows that the problem with teachers' competencies is because of the lack of up-to-date infrastructure, not the availability of the latest teaching materials and the resources for greening and policy integration are needed, especially in the TVET curriculum.

- **Work-Based Learning and Industry Partnerships in Green TVET**

Work-based learning is the linkage between the academic understanding of the students and the real-world exposure, with the application of the academic understanding. This is essential in greening TVET to link and make connections between classroom-taught experiences and the real workplace expectations. Some of the projects have incorporated sustainable practices, and that has helped to adopt environmentally sustainable practices, such as energy-efficient processes and waste management, in their respective industries (Swisscontact, 2022). Incorporating some of the competencies of green skills helps the student not only gain the technical proficiency but also promotes the problem-solving abilities in the real-world that are needed to successfully use green technologies.

UNESCO-UNEVOC (2021) also focuses on the need for work-based learning as the learning objectives are achieved in the real workplace with the guidance and practical instruction of the related skills. They can apply the classroom teaching in the WBL, which makes it easier for the students to understand and apply their experiences of classroom teaching.

British Council (2022) also focuses on the collaborations of TVET institutions with the industries where green technologies and sustainability standards are applied. It helps to develop a sustainable curriculum and meet the training standards as per the industry needs. This also helps to minimize the skill mismatch between the academic institutes and industry for WBL. This ultimately develops the relation between the industry and academia and helps improve employability (UNESO-UNEVOC, 2021).

The environmentally conscious behavior helps for greening economy and builds a partnership between the industry and the institute through participation in business activities, training opportunities, and recognition of the programs with financial support (ILO, 2019).

- **Practices of Institutions in Greening**

Greening the institution is changing and shaping the greening behaviour. It aims to promote sustainable development concepts in the institutions, and the institutions are one of the best examples of greening. Basically, it focuses on the sustainable practices of the institutions and apply real world application of sustainability in practice (Bagale, 2021). This helps the academicians and the students in maintaining environmentally responsible citizens where energy efficiency, waste management, and water management are the basics (Majumdar, 2010).

There are several practices in Nepal's TVET institutions regarding the greening of TVET. Solar energy, cost-efficient resources, groundwater, rainwater harvesting, engaging students in activities that are clean and green, amendment of the curriculum based on the latest and greening technologies, and incorporating greening TVET in the curriculum are some of the aspects that are being practiced. UNESCO (2018) also focuses on the active participation and engagement in the awareness program, developing leadership, and creating cultural responsibility in the institutions and beyond them.

Engaging in participation activities raises awareness, develops leadership abilities, and creates a culture of environmental

responsibility that permeates the community beyond the campus. (CPSC, 2019) also focuses on greening TVET as one of the crosscutting issues. Adopting sustainable practices in energy and resource efficiency is needed. For this, planning is necessary. And finally, it becomes school culture to adopt and apply greening behaviour.

- **Innovation in TVET Institutions Through Research**

Innovation and creativity are always needed to generate new ideas, technology, teaching methodologies, and ways of thinking. UNESCO-UNEVOC (2019) explains that research is one of the key pathways of the TVET to act as a driver for greening TVET and developing green products and services. Not only this, but greening research helps to develop solutions with locally available community practices. CPSC (2019) suggests community engagement and practices in innovation, which only increases the impact of green TVET programs. This also helps the organization implement the unique and best community practices.

International Labour Organization (ILO, 2019) also focuses on innovative and creative jobs, is in demand in the market, leading to a green economy. TVET institutions can innovate some renewable energy practices, research on waste management can be done, and sustainable construction and sustainable farming help in low-carbon manufacturing. These types of content should be incorporated in the curriculum, and teachers/instructors could be made aware of implementing the greening practices with innovation. Organizing the workshops, research dissemination program, awareness on clean and green technology that are suggested by research, their importance, including such findings in the curriculum helps in better economic and academic results. Developing a research unit, linking institutions and industry, engaging students in the research, innovating greening in technology enhancement, supporting the students and staff on research, and building partnerships enhances the innovative ideas in research (UNESCO-UNEVOC, 2021).

Conclusion

From the various literature and the context of Nepal, greening TVET is one of the pertinent and emerging issues that is set as a main enabler of sustainable development. Achieving sustainability in the TVET sector is through the green skills, green practices, and ultimately leading to the green economy. The world is also in the transition phase of greening TVET, and green transformation is needed sustainably. The only way of incorporating those skills needed as per the market demand and meeting the industry standards is through the policy, curriculum, partnership, and awareness programs. So, there is a lag in institutional readiness (Bagale, 2021). Most of the literature focuses on the lack of pedagogical competence among the TVET instructors as the curriculum is not focused on green skills, and also green awareness is not seen among the TVET professionals (Sharma et al., 2024).

The greening practices, sustainable practices, green jobs and skills have reframed the mandate of the TVET globally (ILO, 2022). TVET is not limited to technical knowledge and skills, but also soft skills and green behaviour are needed in the job market. The contemporary literature also suggests that the integration of green skills, green finance and sustainable technologies in TVET curriculum is a must (UNESCO-UNEVOC, 2019; UNESCO, 2023). The literature has highlighted the green transition and green economy, which are directly connected with the sustainable future of human resources.

Implications

From the different reviews and the findings, there are some implications of the review on greening TVET.

1. The first is providing capacity-building programs to the teachers, as several studies have focused on the lack of awareness. So, providing capacity enhancement programs helps to develop the green competencies.
2. Also, the public-private partnership is seen as a major need which helps to scale up the innovative and sustainable practices programs in the national framework.

3. Apart from this, the curriculum update is also mandatory as the emerging green skills, technologies and competencies related to the occupation should be updated in the curriculum.
4. In the context of Nepal, the greening TVET framework has not been developed, which is an urgent need to apply the greening vocational standards in the institutions.

References

ADB. (2025). *ADB Unveils $2.3 Billion Plan to Boost Green, Job-Rich Growth in Nepal.* Kathmandu Post.

https://kathmandupost.com/money/2025/06/18/adb-unveils-2-3-billion-plan-to-boost-green-job-rich-growth-in-nepal

Albertz, M., & Pilz, M. (2025). Green alignment, green vocational education and training, green skills and related subjects: A literature review on actors, contents and regional contexts. *International Journal of Training and Development*. https://doi.org/10.1111/ijtd.12359

Bagale, S. (2021). Greening TVET: Isn't It Alarming? *Social Inquiry: Journal of Social Science Research*, *3*(1), 1–9. https://doi.org/10.3126/sijssr.v3i1.46014

Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. National Bureau of Economic Research.

Bhattarai, A. (2025). Strengthening TVET through Private Sector Engagement in Nepal. *Journal of Technical and Vocational Education and Training*, 19(1), 68–76. https://doi.org/10.3126/tvet.v19i1.75721

British Council. (2022). *TVET Driving Green Growth: Findings from Practical Partnership Pilots*. Kathmandu: British Council/Dakchyata.

British Council. *Greening Nepal's Economy: TVET as an Engine for Green Growth* (Information Brief).

Cedefop. (2021). *Green skills and environmental awareness in vocational education and training*. Luxembourg: Publications Office of the European Union.

Colombo Plan Staff College. (2019). *Training Manual on Greening TVET*. Manila, Philippines.

Colombo Plan Staff College. (2026). *Empowering regional sustainability and inclusivity through greening TVET*. CPSC Publications. https://www.cpsctech.org/2026/04/empowering-regional-sustainability-and.html

Dhameja, S. K., Yaqoob, N., Monge, A., & Rimas, S. (2026). *Empowering regional sustainability and inclusivity through greening TVET*. Colombo Plan Staff College (CPSC), Philippines. https://doi.org/10.5281/zenodo.19604556

Diep, P. C., & Hartmann, M. (2016). Green skills in vocational teacher education – A model of pedagogical competence for a world of sustainable development. *TVET@Asia, 6*, 1-19. https://www.tvet-online.asia/issue6/diep_hartmann_tvet6.pdf

Fien, J., & Guevara, J. R. (2019). *Green skills for sustainable futures: A review of TVET practices*. Springer.

Ibrahim, N., & Abdul Rahim, Z. (2024). Integrating green skills into the Malaysian TVET curriculum: A systematic review of literature. *International Journal of Academic Research in Business and Social Sciences,14*(11), https://doi.org/10.6007/IJARBSS/v14-i11/23671

International Labor Organization. (2019). *Skills for a greener future: A global view*.

International Labor Organization. (2022). *Greening TVET institutions: Guidelines for institutional reform*.

International Labor Organization. (2022) Greening TVET and skills development. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_emp/@ifp_skills/documents/publication/wcms_847095.pdf

International Labor Organization. (2023). *Improve Technical and Vocational Education and Training (TVET) to Meet Skills and Labour Mismatch.* https://www.ilo.org/resource/news/improve-technical-and-vocational-education-and-training-tvet-meet-skills

Leal Filho, W., Shiel, C., & Paço, A. (2018). Integrating sustainability in TVET: Challenges and opportunities. *Journal of Cleaner Production, 170*, 1351–1360.

Li, H., Khattak, S., Lu, X., & Khan, A. (2023). Greening the way forward: A qualitative assessment of green technology integration and prospects in a Chinese technical and vocational institute. *Sustainability*, *15*(6), 5187. https://doi.org/10.3390/su15065187

Lyu, J. Y., Lin, W. B., & Wang, P. S. (2025). Integrating green finance into vocational education: Curriculum design and implementation strategies for sustainable development. *American Journal of STEM Education*, *15*, 23-44. https://doi.org/10.32674/42dfnt47

Khan, N., Xing, K., & Mahmood, S. (2025). Economic growth through determinants of technical and vocational education and training in Pakistan: Mediating role of human resource development. *Journal of the Knowledge Economy*, *16*, 7061–7084. https://doi.org/10.1007/s13132-024-02135-0

Kholifah, N., Nurtanto, M., Sutrisno, V.L., Majid, N.W., Subakti, H., Daryono, R.W., & Achmadi, A. (2025). Unlocking workforce readiness through digital employability skills in vocational education: Graduates, A PLS-SEM analysis based on human capital theory. *Social Sciences & Humanities Open*.

Kumar, P. 2020). An overview of green technology. J. Gujarat Res.Soc., vol. 22, no. 1, pp. 1341–1347, Jan. 2020

Maclean, R., & Fien, J. (2017). *Education for Sustainable Development: Challenges for TVET in the Asia-Pacific Region*. Springer.

Maclean, R., Jagannathan, S., & Sarvi, J. (Eds.). (2018). *Skills and vocational training for inclusive growth in Asia.* Springer. https://doi.org/10.1007/978-981-10-6559-0

Maclean, R., & Wilson, D. (2021). *Transforming TVET institutions for sustainable development*. Routledge.

Mezirow, J. (1978). Perspective Transformation. *Adult Education*, *28*(2), 100-110.

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. Jossey-Bass.

Mol, A. P. J. (1995). *The refinement of production: Ecological modernization theory and the chemical industry*. Van Arkel.

Mol, A. P. J., & Sonnenfeld, D. A. (2000). Ecological modernization around the world: An introduction. *Environmental Politics*, 9, 3-16

OECD. (2025). *How the green transition reshapes vocational education and training: Understanding the impact* (OECD Policy Briefs, No. 33). OECD Publishing, Paris, https://doi.org/10.1787/4819bf34-en.

Okolie, U. C., Nwosu, B. O., & Igwe, P. A. (2020). Sustainability integration in TVET curricula: Evidence from Sub-Saharan Africa. *Journal of Vocational Studies, 12*(3), 45-60.

Pavlova, M. (2018). Greening TVET: Vocational education and sustainability challenges in Asia-Pacific. *International Journal of Training Research, 16*(2), 125-140.

Pecson, R. R., & Zabala, A. A. (2025). Green skills integration practices of student teachers and cooperating teachers among secondary schools: Basis for an enhanced instructional plan. *Journal of Environment and Sustainability Education*, *3*(1), 43–49. https://doi.org/10.62672/joease.v3i1.54

Persson Thunqvist, D., Gustavsson, M., & Halvarsson Lundqvist, A. (2023). The role of VET in a green transition of industry: A literature review. *International Journal for Research in Vocational Education and Training*, *10*(3), 361-382. https://doi.org/10.13152/IJRVET.10.3.4

Sharma, P. (2020). *Greening Skills: A Framework for Integrating Environmental Sustainability into TVET*. Asian Development Bank.

Shrestha, R. B. (2021). Practical partnership in the Nepali TVET system: Some innovative initiatives. *Journal of Technical and Vocational Education and Training, 1*(15), 1–13. https://doi.org/10.3126/tvet.v1i15.45161

Sharma, T.N. et al. (2024). Preparing TVET instructors in Nepal: Challenges and way forward. *TVET Nepal Journal.* https://www.nepjol.info/index.php/tvet/article/download/75720/58081/219514

Singer-Brodowski, M. (2023). The potential of transformative learning for sustainability transitions: moving beyond formal learning environments. *Environ Dev Sustain, 27*. https://doi.org/10.1007/s10668-022-02444-x

Okeowo, O. S., Ayeoribe, T. S., Okeowo, R. O., Ismaila, I. U., & Adebesin, I. L. (2024). Sustainable TVET practices for enriching the quality of technical teacher education in Nigeria. *Industrial Technology Education Research Journal*, *7*(2), 153–159. https://iterj.org/pub/article/view/51

Swisscontact. (2022). *ENSSURE II Programme Overview*.

UNESCO. (2015). *Transforming TVET for Meeting the Challenges of the Green Economy*.

UNESCO-UNEVOC. (2021). *Work-based learning as a pathway to competence-based education*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. https://unevoc.unesco.org/pub/wbl_as_a_pathway_to_cbe.pdf

UNESCO. (2023). *Meeting Skill Needs for the Green Transition: A Practical Guide for TVET Providers (Vol. 1)*.

UNESCO. (2026). *Greening TVET: The essential skills that protect Nepal's future.* https://www.unesco.org/en/articles/greening-tvet-essential-skills-protect-nepals-future

UNESCO-UNEVOC. (2017). *Greening technical and vocational education and training: A practical guide for institutions*.

UNESCO-UNEVOC. (2017). *Greening TVET: A practical guide for developing sustainable skills*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

UNESCO-UNEVOC (2019). *TVET for a sustainable future: Global trends and best practices*.

UNESCO-UNEVOC. (2024). *National TVET policy dialogue in Nepal: Future priorities*.

Wang, X., Zhang, L., & Li, J. (2020). Green skills development in TVET systems: Lessons from China. *International Journal of Training Research, 18*(3), 221–236.

World Bank. (2025, June). *Industry engagement in TVET and skills development* (Skills4Dev Knowledge Digest). https://documents1.worldbank.org/curated/en/099813506302531163/pdf/IDU-e89da132-8e31-45d9-9d91-79d3eda209cd.pdf

.

Training Institute for Technical Instruction (TITI)

Journal of Training and Development

Guidelines for Manuscript

The manuscript should be prepared in English using "Word Processing" with 1" margin on all sides (Top, Bottom, Left and Right side) of the page. "Times New Roman" font should be used.

Title: Times New Roman 16 Bold (Centered)

Names of Author(s): Times New Roman 12, Bold, Centered, Author affiliation (Times New Roman 12, Single column, Centered) needs to be given below author names in order of appearance.

Abstract: Times New Roman 12 italics (single column) Justified, maximum 250 words.

Keywords: Please provide 4 to 6 keywords,

Subsection title: Times New Roman 12 Small Caps bold after the subsection title (paragraph formatting) left aligned.

Other Text: 12 non-bold.

Tables need to have title above the table and figures need to have title below the figure.

(Times New Roman 10)

Each table and figure should be well descriptive so that it can be understood without description in text section accompanied by a legend below it. (Times New Roman 10) The manuscript should be 3000 to 6000 words excluding abstract and references.

Referencing style: American Psychological Association (APA). Reference citations should be given in ascending alphabetical order at the end of the manuscript.

Citations in the text: Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Avoid citation in the abstract. Unpublished results and personal communications should not be in the reference list, but may be mentioned in the text. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Review Policy: The journal follows double blind peer review policy. The paper is sent to two reviewers (the experts in respective field) to review the paper in the light of journal's guidelines and features of a quality research paper. For papers, which require changes, the same reviewers will be used to ensure that the quality of the revised paper is acceptable.

Publication Charges: No submission fees for this journal.

Key Dates (for Volume 9)

Manuscript submission date: September 15, 2026

Journal Publication date: FY 2026/27

For detail please visit https://www.nepjol.info/index.php/JTD.

Areas related to Education/TEVT for article/paper to publish in TITI journal:

- Instruction and Training
- Curriculum Development
- Management
- Community Development
- Human Resource Development (HRD)
- Institution/Organization Development
- Guidance and Counseling
- Monitoring and Evaluation
- Career Development/Entrepreneurship Development
- TEVT policy and planning
- Business/industry/employer's involvement in TEVT
- Labour/Job Market
- Research in TEVT

Subject: Call for article/paper for "Journal of Training and Development, Volume 9"

Dear Sir/Madam,

We are delighted to announce that TITI will be publishing a new journal titled the "Journal of Training and Development." This journal aims to feature research-based articles and innovations in Technical and Vocational Education and Training (TVET) from various sectors and esteemed experts.

We kindly invite you to submit an article along with an abstract of 200-250 words on relevant topics by September 15, 2026. The Editorial Board reserves the right to publish the submitted articles. If necessary, the approved articles/papers will be returned to the authors for revisions as suggested by the Editorial Board. Authors of approved articles will receive an honorarium in accordance with TITI guidelines.

We look forward to receiving your valuable contributions. Please send the article to editorial@titi.org.np; 4titi.official@gmail.com

Please feel free to ask us in case of any query.

With regards,

+977 1 6630187

Research & Development Department, TITI

Council for Technical Education and Vocational Training (CTEVT)

Training Institute for Technical Instruction (TITI)

Madhyapur Thimi-2, Sanothimi, Bhaktapur, Nepal
+977-1-6630187, +977-1-6630409
Web: http://www.titi.org.np
Email: info@titi.org.np; 4titi.official@gmail.com