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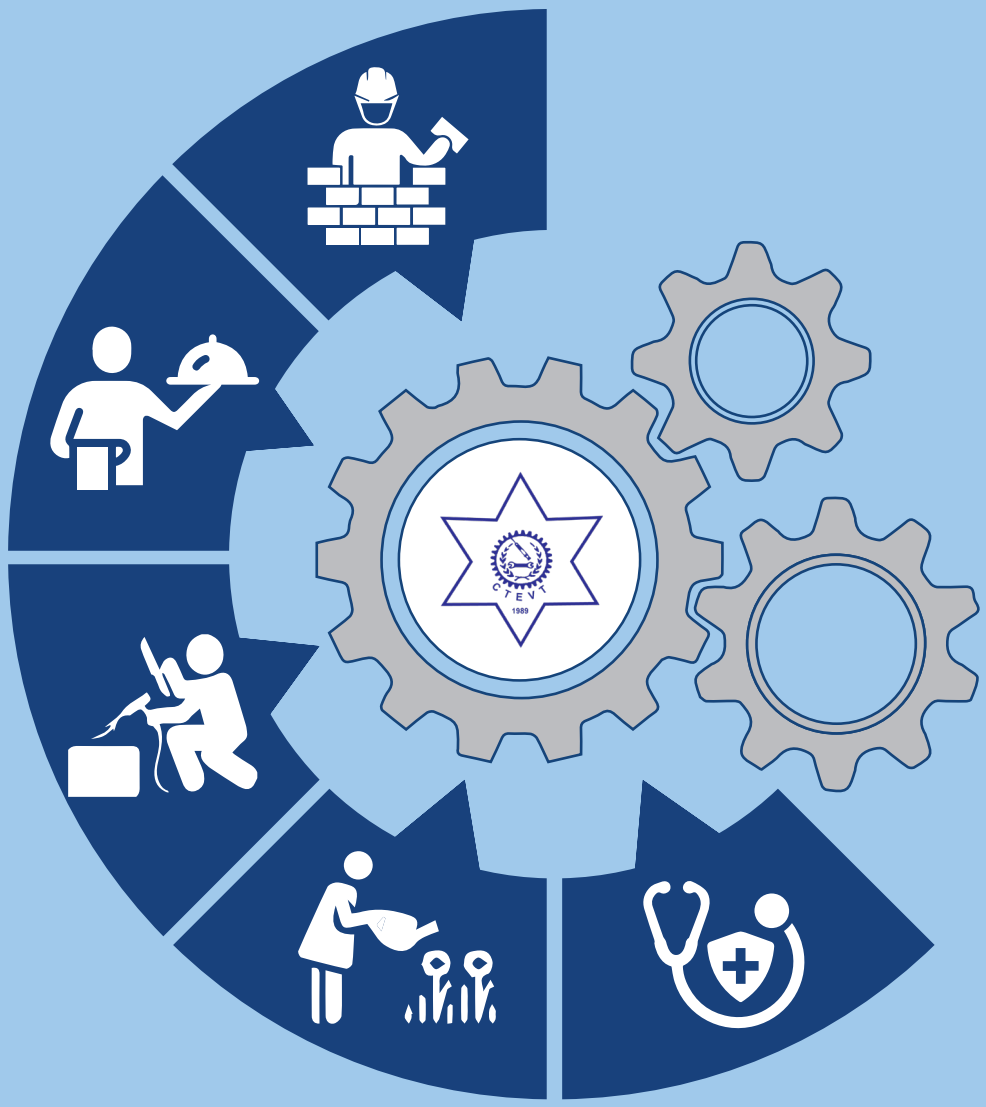

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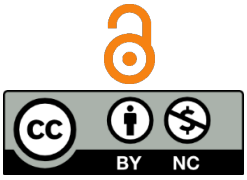

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Editorial

Speed Up TVET Reform

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The technical and vocational education and training (TVET) bear much significance in producing technically skilled workforce for the labor market. The Council for Technical Education and Vocational Training (CTEVT) under the Ministry of Education, Science and Technology (MoEST) has been serving as the national apex body of TVET in Nepal. CTEVT graduates have not only been fulfilling labor market needs but also fostering entrepreneurship and generating self-employment in the country. The graduates are functioning as the pillars of Nepalese industries. Some of them have opted for foreign jobs as well.

CTEVT is continuously working to produce a basic- and mid-level skilled workforce. Now, graduates need to have adequate skills to succeed in a world shaped by the Fourth Industrial Revolution. In this connection, the national apex body of TVET in Nepal, CTEVT, is still governed by the old law, CTEVT Act 1988. Voices have been raised over the relevance of the law, especially in view of the federal context. As the existing act is insufficient to address the present confusion prevailing over TVET governance, the need for reform with the introduction of a new TVET law is stressed from various sides. However, the TVET Sector Strategic Plan (TSSP) 2023-2032 is currently being implemented. The plan is expected to make TVET further effective and relevant with its quality enhancement. The honest enforcement of this plan helps achieve the goal of TVET reform.

The issues and need for TVET reform are highlighted even during the national debates and policy dialogues from time to time. In the wake of digital disruption, and lately the age of artificial intelligence (AI), breaking barriers on multiple fronts - legal, procedural, structural, policy-level and practical - is stressed for TVET reform in Nepal. It is further reinforced by CTEVT along with its annual publication – the *Journal of Technical and Vocational Education and Training (TVET)*. The publication appreciates the role of TVET in building necessary workforce and presses for changes as per time. Present edition includes eight articles and a book review.

'Exploring Stakeholders' Insights into TVET Curriculum in Nepal: A Qualitative Inquiry on Relevance and Practice' penned by Durga Prasad Baral, PhD, and Lekha Nath Paudel, PhD, brings to light the insights of multiple stakeholders into the relevance and practice of the TVET curriculum.

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It has presented unique way - the poetic expressions with key informant interviews to evoke deeper emotional and contextual understandings, where the findings show that the graduates perceive the curriculum as an overburden, while industry sector awaits meaningful ties between curricular contents and actual job requirements.

Hari Pradhan, PhD, proposes integration of TVET and general education for ensuring increase in TVET enrolment. His article, **'Augmenting Enrolment through Integration of TVET and General Education'**, incorporates the issues like social stigma and systemic disarray in the existing TVET system, compares policy efforts in the national and international practices, and suggests restructuring the education system.

Usha Bhandari, PhD, argues it is essential to continue effective engagement with industry stakeholders and adaptability in curriculum design to empower learners and foster sustainable development within society. Her article, **'Chasing Quality TVET Curricula'**, evaluates three distinct curriculum types - traditional, outcome-based, and competency-based - highlighting the relevance of the competency-based approach for TVET. This model, as the author says, emphasizes practical skills, real-world applicability, and alignment with industry standards positions as the most effective method to prepare students for the workforce.

'Preparing TVET Instructors in Nepal: Challenges and Way Forward' co-authored by Ms. Pratima Kunwar, Mr. Zinsou Cosme Odjo and Dr. Durga Prasad Baral explores the challenges and considerations in preparing TVET instructors in Nepal. Their findings revealed several challenges, such as a lack of industry-relevant curriculum to address the need of real-world scenarios, absence of instructors' contribution in curriculum designing, inadequate professional development opportunities to the instructors, particularly beyond the constituent schools, insufficient practical knowledge of emerging technologies, a lack of proper training needs assessment for instructors, dearth of industry experience among the instructors, absence of systematic performance management and low motivation among instructors.

In the article, **'Strengthening TVET through Private Sector Engagement in Nepal'**, Er. Anoj Bhattarai, PhD, shows urgency of effective collaboration among government, TVET providers, and private sector employers, and calls for reform in legal and policy frameworks along with the adoption of strategies to encourage meaningful private sector engagement in TVET. The author argues it not only helps Nepal maintain a balanced relationship among key stakeholders but also enhances quality and relevance of TVET programs, leading to better employment opportunities for graduates and a more competitive national economy.

In the article, **'Identification of Labors' Role Transition Processes: From Traditional to Electric Vehicles in Nepal'**, Er. Chandra Kumar Galaju shows the transformative potential of education and institutional determination in transitioning labor's role from the traditional to electric

vehicles. His research examines labor's role in the transition process from traditional vehicles to electric vehicles. Despite having potential, Er. Galaju, however, cautioned, the experience of the role transition is not flawless.

Ms. Asmita Pandit argues the vocational training has developed a good level of self-esteem in women along with decision-making skills and participation in household and community decisions. In the article, **'Role of Training in Women Employment: A Thematic Study'**, she underlines the need of quality instruction, closer alignment with industry, and improved support mechanisms to guarantee that the vocational training on women empowerment are long-term and effective. Follow-up mentorship, financial literacy, and networking platforms are also suggested to assist women in transitioning from training to stable job or self-employment.

Mr. Ishwor Rimal evaluates effectiveness of instructional skills training offered by the Training Institute for Technical Instruction (TITI), Nepal by using the Kirkpatrick Model in his article '**Effectiveness of Instructional Skills Training for TVET Instructors in Nepal: Evaluation through the Kirkpatrick Model'**. With the application of quantitative method of research, he concludes the training impacted positively to improve quality of the instruction in the teaching learning process.

This time, the journal has a new dimension that it contained a book review. Mr. Eka Raj Adhikari reviews a book named, **'Teaching with AI: A Practical Guide to a New Era of Human Learning'**. The book, co-authored by Mr Jose Antonio Bowen and Mr C. Edward Watson, is divided into three parts, each containing four chapters. These three sections focus on thinking with AI, teaching with AI, and learning with AI, respectively. Mr. Adhikari explains that the book introduces basic ideas about AI, and establishes the point that while AI is a powerful and influential tool, it cannot replace human intelligence or creative teachers. At present, the technical instructors, too, have no option but to gradually internalize the technological changes and challenges brought forth by AI and advancements in education and instruction, Adhikari underlines.

The editorial team expresses gratitude to the CTEVT management and employees for their constant coordination and encouragement, which helped realize this publication. The authors are sincerely thanked much for their contributions and cooperation. We look forward to receiving such cooperation in the days to come so that knowledge on TVET would be built and transferred continuously and necessary change made accordingly.

We welcome feedback on the publication, which we believe would help whet the academic rigor. The opinions and ideas expressed in these articles are solely those of the respective writers and do not reflect the views of CTEVT, nor of the institutions they represent. Happy reading!

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Journal of Technical and Vocational Education and Training (TVET)
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Article

Exploring Stakeholders' Insights into TVET Curriculum in Nepal: A Qualitative Inquiry on Relevance and Practice

Durga Prasad Baral* and Lekha Nath Paudel
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Abstract

This study explores the insights of various stakeholders into the relevance and practice of the Technical and Vocational Education and Training (TVET) curriculum under the Council for Technical Education and Vocational Training (CTEVT) in Nepal. How TVET stakeholders see the existing situation of TVET curricula in Nepal, and how they see the solutions were major two research questions to capture the perspectives to assess the appropriateness of existing curricula in relation to labor market demands. This qualitative study integrates poetic expressions with key informant interviews to evoke deeper emotional and contextual understandings. Findings reveal that graduates perceive the curriculum as an overburden, while industry representatives highlight a significant disconnection between curricular content and actual job requirements. Similarly, TVET providers advocate for a balance between theoretical knowledge and practical application. This study stresses the urgent need for a TVET curriculum that not only aligns with labor market needs but also integrates relevant educational theories and streamlines educational processes. By addressing the concerns of diverse stakeholders through a creative lens, this research contributes to enhancing the effectiveness and relevance of TVET curricula in Nepal, thereby supporting the country's economic growth and development.

Keywords: TVET, curriculum relevance, labor market demand, poetic inquiry, stakeholder's perspectives

Background

The Technical and Vocational Education and Training (TVET) is a vital component of educational system worldwide which encompasses education, training, and skills development across various occupational fields. It focuses on equipping individuals with practical skills and knowledge necessary for specific trades and occupations, thereby playing a crucial role in enhancing employability and fostering economic development (UNESCO, 2016; Lamsal, 2021). In the underdeveloped contexts, the significance of TVET is amplified because it addresses the urgent need for skilled labor

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which is essential for driving industrial growth and reducing poverty. It is equally important to address the globalized labor market (Acharya, 2023). In Nepal, the evolution of TVET has been marked by various reforms aimed at improving the quality and relevance of training programs (Dakshata, n.d).

The Council for Technical Education and Vocational Training (CTEVT) is an apex body to oversee all major functions of TVET, including the development of curricula that caters to a wide range of sectors. Despite numerous efforts, the existing curricula often fail to meet the skill demands of the labor market, both nationally and for foreign employment opportunities. The research conducted by Adhikari et al. (2023) indicates that a significant number of employers in Nepal believe that workers require additional training to enhance their workplace performance. Besides, there is a need for improvements in various aspects of TVET education, including industrial attachments and on-the-job experience. This misalignment has led to a persistent issue of unemployment and underemployment among graduates with the curriculum frequently blamed for these outcomes. Understanding the relevance of existing curricula in formal long-term TVET programs (such as pre-diploma and diploma courses), non-formal short-term training programs (generally up to six months duration), professional training (extended duration with more practical opportunity), and apprenticeship schemes (training in the workplace) is critical because research in TVET serves as a foundation for developing relevant curricula that align with labor market needs (Colombo Plan Staff College [CPSC], 2024).

This research identifies gaps in the current curriculum and assesses its alignment with job market demands based on diverse TVET stakeholders' insights. It addresses the following questions: 1) How do TVET stakeholders see the existing situation of TVET curricula in Nepal? and, 2) How do they see the solutions? By investigating these aspects, the study contributes to the ongoing discourse on enhancing the effectiveness of TVET in Nepal and ensuring that it meets the evolving needs of the economy.

Literature Review

In this section, first, we present some curriculum development approaches in TVET sector together with their merits and limitations. Then, we focus on curriculum development approaches and review process in CTEVT. We conclude the section with a brief discussion on quality control in curriculum development.

Curriculum Development in TVET: Prevailing Approaches

The development of TVET curricula has evolved significantly over the years with various approaches emerging to address the dynamic needs of labor market. The most commonly adopted methods are competency-based, modular, and outcome-based approaches (Boahin, 2018; Mulder & Winterton, 2017; Saha et al., 2023).

The *competency-based approach* focuses on developing specific skills and knowledge essential for successful job performance. It emphasizes mastery learning, allowing learners to progress at their own pace until they demonstrate proficiency in each competency (Mulder & Winterton, 2017). This approach is particularly well-suited for TVET, as it aligns with the practical and industry-oriented nature of vocational training. The advantages of this approach include ensuring that graduates possess necessary skills for employment, allowing for flexible and self-paced learning, and promoting collaboration between TVET institutions and industry stakeholders. However, it also presents challenges such as the need for extensive resources to develop competency standards and assessments, difficulties in maintaining consistent quality across different TVET providers, and the potential for overemphasizing specific skills at the expense of broader knowledge and critical thinking (Bajracharya, 2022).

In contrast, the *modular approach* divides the curriculum into smaller, self-contained units or modules, each focusing on a specific set of skills or knowledge. This structure allows learners to progress through the program at their own pace while earning credits for completed modules (Boahin, 2018). Advantages of this approach include providing flexibility for learners to customize their learning paths, enabling TVET providers to offer targeted training based on industry needs (Ministry of Education, Science and Technology [MoEST], 2023), and facilitating the recognition of prior learning and credit transfer. However, it also requires robust systems for credit accumulation and transfer, poses risks of fragmentation in learning if modules are not well-integrated, and presents challenges in ensuring consistent quality across different TVET providers.

The *outcome-based approach,* on the other hand, lays emphasis on defining clear learning outcomes that learners should achieve by the end of their programs. It emphasizes demonstrating knowledge, skills, and attitudes through performance-based assessments. This approach ensures alignment of learning with industry expectations and standards while promoting learner-centered teaching strategies and facilitating the measurement of program effectiveness (Saha et al., 2023). Nevertheless, it requires extensive planning and resources for developing learning outcomes and assessments, faces challenges in ensuring consistent interpretation across different providers, and may lead to an overemphasis on measurable outcomes at the expense of broader educational goals.

In the context of Nepal, CTEVT has primarily adopted a competency-based approach in developing its TVET curricula of short-term, professional and apprenticeship programs. Perhaps, this is also one of the reasons why curricula of short-term training programs are criticized less than long courses (i.e. academic technical education). For long-term programs, an expert driven mixed approach has been adopted. Mainly, implementation of curricula faces significant challenges such

as outdated curricula, insufficient industry involvement, and inadequate resources for training delivery (Bajracharya, 2022; Baral, 2024). Addressing these limitations could contribute to enhance the relevance and effectiveness of TVET curriculum development in Nepal.

Curriculum Development Practices in CTEVT

The development of TVET curricula in CTEVT follows a process established by the guidelines to ensure relevance and quality. TVET curricula are developed by the Curriculum Development and Equivalence Division of CTEVT. The personnel involved in developing the curriculum include technicians, supervisors, and experts from business and industry associations, academia, instructors, and representatives from professional councils on the related fields. The curriculum standards are based on competencies and abilities that graduates should develop during their course of study. In long-term programs, assessment methods include formative and summative evaluations for semester and yearly programs and external final examinations that separately assess theoretical knowledge and practical skills (CTEVT, 2024).

The Curriculum Development and Equivalence Division of CTEVT is responsible for designing all types of TVET curricula. A team of subject matter experts is formed based on the specific trade or occupation being addressed. This team determines the subjects to be included in the curriculum while considering references from other institutions. They also allocate weekly hours for theoretical instruction, practical classes, and on-the-job training components. Once a draft curriculum is prepared, it is submitted to the concerned committee for review. The first draft is shared with the subject committees for review. After refining the first draft from the subject committee, it is shared with the Technical Sub-Committee (TSC), composed of experienced experts in the relevant fields who give final shape to the curriculum. Following review, the curriculum is presented to the Curriculum Development Committee chaired by the Vice Chairperson of CTEVT for approval.

Diverse types of TVET curricula in Nepal reflect the country's efforts to address the skills gap in the labor market and enhance employability among youths. While formal long-term programs (diploma and pre-diploma) provide comprehensive training opportunities focusing on both skills and knowledge, the non-formal short-term programs offer skills for immediate employment. Similarly, professional courses contribute specialized training and hands-on experience necessary for various occupations. Understanding the characteristics and features of these curricula is essential for assessing their relevance to current labor market demands and identifying areas for improvement within the TVET system. CTEVT's curriculum development practices are characterized by a systematic approach that involves stakeholder engagement, needs assessment, and continuous review processes

although the practice is being blamed as "cosmetic" to some extent (Bajracharya & Paudel, 2021). It indicates the vitality of mobilizing business and industry support in reality.

CTEVT claims that the institution collaborates with various stakeholders, including industry representatives and government agencies, to ensure that curricula are relevant and responsive to market demands. Industry advisory boards (known as Sector Skills Committees) are established to facilitate ongoing dialogue between CTEVT and employers, allowing for the integration of real-world insights into the curriculum development process (Caves & Renold, 2024). This collaborative engagement is crucial for aligning educational outcomes with the skills required in the job market, thereby enhancing the employability of graduates. As highlighted by a recent research, effective curriculum development requires not only stakeholder input but also a commitment to praxis - an informed and committed action that integrates theory and practice to empower students (Mahon et al., 2020). This is vital in developing TVET curriculum. However, generally, till now, industry representatives are "just invited for their inputs into the curriculum" (Bhandari, 2023). It means obtaining full potential from business and industry sector is yet to improve.

A critical component of CTEVT's curriculum development, theoretically, is conducting thorough needs assessments to identify skills gaps in the labor market. This process involves analyzing current employment trends, consulting industry experts, and gathering feedback from employers about the competencies they seek in potential employees. By understanding the specific skills and knowledge required by various sectors, it is possible to design curricula that better prepare students for the workforce. The application of methodologies such as the Develop-A-Curriculum (DACUM) process in short-courses curriculum allows for a structured approach to identify competencies and develop relevant training programs. Furthermore, addressing how industries have evolved over time is essential; questions regarding changes in occupations over the last five years and anticipated future changes help inform curriculum relevance (Boahin, 2018). Thus, frequent needs assessment is imperative.

Similarly, CTEVT employs a systematic periodic review process to ensure that its curricula remain current and effective. This involves regular evaluations of existing programs and curricula to assess their relevance and effectiveness in meeting job market demands. The review process incorporates feedback from stakeholders - including students, graduates, and employers - to identify areas for improvement. Additionally, CTEVT conducts research to stay informed about emerging trends and technological advancements that may impact the skills required in the labor market. This proactive approach to curriculum review helps maintain the quality and relevance of

TVET programs in Nepal (Lamsal, 2021; MoEST, 2023). However, it is happening less frequently in practice.

Quality assurance is essential in CTEVT's curriculum development practices (Sharma, 2021). CTEVT establishes criteria and standards for program accreditation, ensuring that institutions offering TVET programs meet defined minimum quality standards. However, Baral (2024) examined the decreasing numbers in long-term engineering programs offered under the CTVET framework and identified several underlying factors contributing to this decline and offered recommendations, including curriculum revision, strengthening connections with industry, and enhancing the overall perception and quality of TVET programs.

Existing CTEVT Curricula: Types, Durations, and Main Features

The TVET system in Nepal incorporates a diverse range of curricula designed to meet the varying needs of learners and the labor market. Similarly, the CTEVT curricula are divided into three main categories: Diploma programs, Pre-diploma programs, and short-term vocational training (including professional and apprenticeship courses). Each category has distinct characteristics, durations, and features that cater to different segments of the population (CTEVT, 2024). Diploma programs are structured educational pathways that typically lead to recognized qualifications in specific vocational fields. These programs range from 18 months to 3 years in duration, depending on the level of the diploma and entry criteria. Major features of diploma programs include a curriculum that combines theoretical instruction with practical training conducted in both classroom and workshop settings. Graduates receive certificates that enhance their employability in the formal labor market.

Pre-diploma programs focus on providing foundational education and practical training for students who may not yet meet the requirements for diploma-level study. These programs typically last from 18 months to 2 years, depending on the specific curriculum and entry criteria. The structure of pre-diploma programs emphasizes skill development through a combination of theoretical learning and hands-on practice (CTEVT, 2024). Graduates from these programs are prepared for entry-level positions or further education at the diploma level programs.

Short-term vocational training includes various courses designed to provide quick skill development for individuals, seeking immediate employment or skill enhancement. The duration of these programs ranges from 40 hours to 1696 hours, allowing for flexibility based on the specific skills being taught. These courses are characterized by their practical focus, targeting unemployed youths, women, and marginalized groups who require immediate skills applicable in the workplace.

Research Gap

Literature review highlighted the industry-practice gaps in TVET, emphasizing the importance of transversal skills and the need for curriculum development to align with industry demands (Abd Samad et al., 2018). It is also found that the integration of technology in TVET education significantly impacts current trends in industry demand, which is crucial for enhancing student participation and access to quality education (Tshong & Yasin, 2023). Similarly, the studies also identified several challenges in the TVET sector, including the need for regular updates to the curriculum to keep pace with technological advancements and market needs (Rijal, 2021).

The curriculum development process in TVET involves diverse conceptualizations and approaches aimed at ensuring that the TVET courses meet the needs of both learners and the labor market. For this, different phases of curriculum value chain (including needs assessment to curriculum development and implementation) should function well (Renold et al., 2015). Various scholars have identified four primary approaches to understanding curriculum: as a body of knowledge to be transmitted, as a product to be achieved, as a process involving interactions in the classroom, and as praxis - an informed and committed action that empowers students (Smith, 2000; Mahon et al., 2020). In the context of TVET, the narrower view often equates curriculum with a document outlining content and objectives, while a broader perspective recognizes it as both planned and implemented practices. Competency-based curricula are particularly relevant in this field, focusing on equipping students with the necessary skills and knowledge to perform effectively in their respective occupations. This approach emphasizes outcomes over inputs, requiring curriculum developers to define competencies clearly and align them with industry needs (Boahin, 2018). Despite these established frameworks, there remains a notable gap in understanding stakeholder perspectives on CTEVT's curriculum and its implementation, particularly in the changed global context, including extensive dimension of foreign employment of Nepali youths and adults (Acharya, 2023). Engaging stakeholders such as graduates, industry representatives, and educators is essential for assessing the relevance of the curricula and identifying areas for improvement. This study aims to address this gap through qualitative research methods, specifically utilizing a poetic inquiry, as provided in the next section, to capture the nuanced experiences and insights of these key stakeholders.

Methodology

The research methodology for this study is based on a qualitative approach, which includes poetic inquiry. The poetic inquiry is particularly suited for exploring the complex and nuanced perspectives of various stakeholders involved which “recognize, acknowledge and appreciate diverse ways of knowing, being and doing” (Cooms & Saunders, 2023; p.1). Particularly, this

approach is suitable in this research to obtain research participants' views, grievances, and their recommendations.

The research utilized both primary and secondary data sources, ensuring a comprehensive understanding of the subject matter. Main component of the data collection process was a thorough literature review. This review encompassed existing academic articles, policy documents, and reports related to TVET in Nepal, providing a foundational context for the research.

Further, in-depth interviews with seven purposefully selected research participants (Table 1), including TVET practitioners, experts and graduates also played a significant role in this research. The major criteria for selection of these research participants under different category were their understanding of TVET curriculum development practices and its present status. This selection allowed for a rich exploration of their experiences and perspectives regarding the present status and desired conditions of TVET curriculum. The qualitative data collected from these interviews provided valuable insights into the challenges and opportunities within the current TVET framework.

All interviews and discussions conducted in Nepali were translated into English. This translation occurred concurrently with transcription, allowing for immediate contextual understanding and preserving the nuances of the original language.

The analysis of the qualitative data involved coding, clustering, and thematic analysis. These methods helped structure the findings and identify key themes that emerged out of the data. Furthermore, taking poetic inquiry as an established research method to capture

Table 1 : List of Research Participants

Research Participants (Pseudonym)	Description of the Research Participants
RP Sharma	Currently a high level official at Hotel Association of Nepal, was in influential positions at the Association in Gandaki Province for more than a decade.
Hari Prasad	A graduate of CTEVT diploma working as a Civil Engineering Instructor at a community technical institution located in Bagmati Province.
Chandra Mani	Working as a Program Coordinator at TECS (Technical Education in Community School) school, Bagmati Province.
Sashi	TVET Expert and Managing Director of a TVET institution running short-term training courses in Kathmandu Valley.
Umesh	Managing Director of a private institute running training in culinary arts and hospitality sector in the core area of the Kathmandu Valley.
Binayak	TVET practitioner and Project Coordinator at an NGO working in the sector of TVET in Madhesh and Koshi provinces.
Sunil	Principal of a constituent CTEVT school located in the Kathmandu Valley.

the feelings of research participants (towards TVET curriculum), we tried to compose poetic creations and presented them in the research report (Prendergast, 2009). While doing this, we made efforts to capture the emotional expression of the research participants.

Quality assurance of the research featured cross-checking information from multiple sources to enhance the credibility of the findings. The information obtained from the seven key research participants was also verified with the information obtained from another parallel study conducted by a Task Force formed by the Ministry of Education, Science and Technology (MoEST) to review the present status of TVET curriculum in which more than 150 stakeholders were met and discussed (MoEST, 2024) in CTEVT headquarters and five different educational institutions.

Ethical considerations were also strictly adhered to, including obtaining (verbal) informed consent from all participants, using pseudonyms to maintain confidentiality, and being considerate of participants' schedules when planning discussions. Approval of the venues and timing of the discussions were also sought to ensure a respectful and conducive environment for the participants.

Existing Situation and Necessary Actions: Stakeholders' Insights

The findings from different interviews conducted with seven research participants as TVET stakeholders reveal critical insights into the current state of the TVET curriculum (focusing on CTEVT programs) in Nepal. The perspectives of industry representatives and educators highlight existing problems and challenges, as well as potential solutions identified by these stakeholders.

Existing Situations: Problems and Challenges

It is found that TVET system of Nepal is facing significant challenges in the field of curriculum. The challenges included outdated curriculum that often failed to reflect present labor market needs and the lack of meaningful stakeholder involvement in curriculum reform (Rauner, 2009; Bajracharya & Paudel, 2021). One major issue is the disconnection between the curriculum and labor market needs. Multiple reasons were prevalent in such types of mismatches. RP Sharma (all participants' names are used as pseudonyms), a high-level official at Hotel Association of Nepal, noted that graduates from private training centres tend to perform better than those from CTEVT institutions. He emphasized that CTEVT graduates often seek certification primarily to work abroad, which creates high turnover and a lack of engagement with local industry. Additionally, he pointed out that there is a minimal interaction between CTEVT and industry representatives, leading to a lack of awareness regarding curriculum content and industry needs. During our interview he shared:

> *CTEVT graduates come and work in the organization for a very short*

period; they just try to acquire an experience certificate and go abroad. Additionally, CTEVT interacts very little with us and, resulting into a lack of clear understanding of the curriculum content.

From the statement of the representative from business and industry sector, it is clear that the leading government organization in the sector of TVET (in this particular case, CTEVT) has to strengthen its linkage with private sector (Shrestha, 2021) to reduce the gap on skills and labour market demand.

Another challenge highlighted by Hari Prasad, a Civil Engineering Instructor working at a community technical institution located in Bagmati Province, is the declining enrolment in CTEVT institutions. He mentioned that many students are slow off the mark in foundational subjects like science and math, which are essential for their progression in technical fields. This situation reflects a growing disinterest among students, further exacerbating the challenges faced by the TVET system. During an interview, he expressed his anxiety this way:

It is challenging in deed to address the needs of students who have received low grades or no grades in the Secondary Education Examination (SEE). To take up the technical education, subjects like Science, Math, and English are necessary. However, my feeling is that CTEVT should concentrate more on providing practical skills. Some of these students might pursue higher education, while others can remain in the workforce, utilizing the practical skills they have acquired.

The insights shared by the civil engineering instructor indicate that there is a prompt need of addressing foundational subject related challenges in the TVET curriculum (Baral, 2024). Particularly, it is more critical to support students with lower academic performance. Addressing such challenges requires a dual focus on enhancing students' applied theoretical understanding while simultaneously prioritizing practical skill development.

Implementation issues also pose significant barriers to the effectiveness of the curriculum. Chandra Mani, working as a Program Coordinator at a TECS school, mentioned that while reforms are being initiated, there is a lack of monitoring mechanisms to ensure that the practical components of the curriculum are effectively implemented. He noted that cheating during examinations is prevalent, further undermining the integrity of the educational process. He expressed:

There is no monitoring mechanism to maintain the practical part of the curriculum, and there is a lack of sincerity towards examinations. Cheating is practiced much in almost all types of schools, which further undermines the integrity of the educational process.

The experiences shared by Chandra Mani highlight critical weaknesses in the

implementation of the TVET curriculum, particularly concerning the absence of effective monitoring system. (Sharma, 2021). In the similar tone, Sashi, Managing Director of a TVET institution running short courses, stressed that "*the curriculum itself is not the problem; the issue lies in its implementation."* Further, he mentioned that participation from the side of business and industry in providing suggestion on market needs is not genuine, and stated that *"although they claim they are not getting appropriate human resources, they rarely specify what they actually need."* These issues not only compromise the quality of TVET but also erode trust in the whole system, making it difficult for students to acquire the skills necessary for employment. It becomes essential to explore potential strategies for enhancing accountability and integrity within the educational framework in general and TVET sector in particular.

Umesh, Managing Director of a private institute running training in culinary arts and hospitality in the core area of the Kathmandu Valley raised concerns over the quality of training - compromised by profit-driven motives of some training institutions. He indicated that many instructors merely demonstrate practical lessons while students passively observe, which fails to develop essential skills. During our conversation, Umesh expressed his dissatisfaction in a high pitch:

The major problem in the hospitality sector is that short-term courses conducted by projects are becoming 'byapar' (business-

Box 1: Poem

Piles of Problems

In the corridors of learning-
Shadows intertwine,
Where aspirations blink like distant stars.
Yet, whispers of discontent wave in the air,
As dreams of skill clash with harsh realities.

A ravine widens-
Between need and creed,
The labor market's silent plea, unheard.
"I am a TEVT graduates," a youth cries,
"Chase certificates, then vanish in the thin air."
Attracted by a foreign dream and gleam,
Classrooms tell not to be dim,
Employers' call falls on deafened ears,
Uff!! Potential HR are in doubt and fears.

Struggles for foundational subjects-
Pressing heavily on young minds,
Science and math for them like demons.
Practical skills are taught on the boards,
Bridging skills gap in the words.
Yet amid hopeful plans,
Cheating thrives in unseen hands.
Without true checks to guide the way,
Integrity fades; trust slips away.

Profit-driven motives-
Shadow the skills development scene,
Where quality fades in pursuit of green.
Amid the crowd of stakeholders, a voice cries out,
"Training's lost in business intent."
Curriculum burdens those who strive,
With content too vast to truly thrive.

"We must condense," TVET leaders plead,
To spark a passion, to sow a seed.
So here we stand at this crossroad wide,
With voices echoing from every side.
To mend these gaps and heal these wounds,
A call for change everywhere sounds.

***

oriented). If we consider the number of trained youths, I think half of our people would already be trained, but there is no serious training. There is a very big problem in training implementation; however, on paper, everything seems fine. Even during the verification process, those training institutions cheat by arranging false candidates.

The concern mentioned by Umesh shows an upsetting trend in the hospitality training sector, where profit-driven motives takes a toll on quality of TVET programs. The emphasis on short-term business-oriented motives can lead to a superficial approach to training, where students receive certificates without acquiring the essential skills needed for successful careers. Such problems are well accepted in the global TVET sector (UNESCO, 2016). This situation calls for a critical examination of the training programs offered by institutions.

Besides, the participants expressed that the current curriculum is overly complex and burdensome for majority of students. Sunil, a principal of a constituent CTEVT school located in the Kathmandu Valley, expressed his concern that majority of students joining TVET courses have comparatively weak educational foundation. However, "the diploma level curriculum covers contents equivalent to bachelor's level in certain subjects", which ultimately leads to higher failure rate. Chandra Mani also pointed that the vastness of the curriculum that contributes to high failure rates, leading many students to drop out or seek alternative educational paths such as joining 10+2 courses. He suggested that the duration of diploma programs could be shortened to enhance student retention and success. Similarly, Binayak, a Project Coordinator at an NGO working in the sector of TVET, echoed this concern, stating, while the curriculum is not basically defective, it should be more concise to prevent students from feeling overwhelmed. The poetic expression on problems and challenges in TVET curriculum is presented in Box 1.

How TVET Stakeholders See the Solution

Together with the challenges identified, stakeholders also proposed some solutions to enhance the effectiveness of the TVET curriculum. In general, it was shared that revising curriculum is necessary to foster practical skills. Hari, a civil engineering instructor, suggested that CTEVT should concentrate on providing practical skills that align with job market demands (Mulder & Winterton, 2017). He also stressed the importance of initiating curriculum revision processes to ensure that the content remains relevant. Chandra Mani, a program coordinator of TECS School highlighted the need for ongoing reforms in curriculum. As an example, he indicated the need for inclusion of on-the-job training (OJT) provision in the Civil Engineering Diploma Program to better prepare students for real-world challenges. "*We have already started the reform in curriculum by adding OJT in Civil Diploma,*" he shared. Although there is no provision of OJT in curriculum, from the school's own effort, it is already practiced in their institution.

Box 2: Poem

Measures for Mitigating Misery

Amidst the shadows of doubt and despair,
Voices rise with visions to share.
"Revise the curriculum," they call with might,
"To weave practical skills into the light."

An urgent plea for relevance is there,
"Let us align with what jobs hold dear!"
Practical training has real worth,
To prepare our youth fit for work,

Ongoing reforms are needed, people say,
To bridge the gap in a meaningful way.
On-the-Job Training must be a key,
To equip our students for real-world decree.
Yet beyond the walls of classrooms confined,
An urge for leaders: remind, remind, remind!!

"Greater interaction," voices implore,
Industry-education linkage: more and more,
Participation of employers is often claimed,
But, the depth of insight remains unframed.
"Experienced hands must shape our fate,
Or else we're left with a curriculum late."

Questions arise on implementation galore,
How can we thrive if we don't explore?
Outdated courses may hold us back,
So, to the real updates, make no lack.
Awareness blooms as a vital seed,
To inform young minds indeed.

A model that blends earning with learning,
Can spark a fire of passion, ever-burning.
Flexibility emerges as a guiding light,
Dreaming in this fast-paced fight.

For those who aspire to reach beyond shores,
Training must open all possible doors.
TVET stands at this pivotal hour,
To blossom a vibrant competent flower.
To mend what is broken and heal what is torn,
In unity lies hope - a new dawn reborn.

***

Intensified stakeholder engagement was also emphasized as a crucial step toward improvement of the present situation. R.P. Sharma, a business industry representative from hospitality sector, called for *"greater interaction between CTEVT and industry representatives"* to ensure that curricula reflect the needs of employers. Such engagement could help bridge the gap between education and employment (Bajracharya & Paudel, 2021). Sashi, Managing Director of a TVET institution running short-term vocational training who has a long experience in TVET, pointed out that when industry representatives participate in curriculum development, they often do not send experienced professionals who can provide valuable insights. Once, he shared:

> *There is always a saying that CTEVT courses are very old, even dating back to 1980; however, that is only partially true because those curricula that are not in use have not been updated….In the curriculum development process, there is always the participation of people from business and industry, but they rarely send truly experienced individuals for this purpose. So, 'Tauko Ganne Kam Matra Bhayo' (only head-counting is being done).*

The insights shared by Sashi in this quotation reveal a critical detachment between the perception of CTEVT courses and the realities of curriculum development and implementation (Boahin, 2018). In the similar tone, Sunil, a constituent CTEVT school

principal, questioned *how a curriculum can be effective when there is no assurance of proper implementation?*

While some curricula may be outdated, the underlying issue lies in the lack of effective updates and the *unreal* participation of industry representatives in the development process (Bajracharya & Paudel, 2021). This highlights a broader systemic challenge where mere attendance of industry stakeholders does not translate into meaningful contributions which ultimately leads to a curriculum that fails to meet the contemporary needs of the labor market. To address these challenges, there is a pressing need for more meaningful involvement from industry experts in the curriculum development process Stakeholders recognized the need to better support students in their learning journeys, ensuring that the education provided is relevant, practical, and aligned with industry demands.

Besides making curriculum more relevant, there were also concern for informing and making people aware regarding TVET programs (Baral, 2024). Binayak, Project Coordinator at an NGO working in the sector of TVET advocated for awareness programs in general schools together with developing more skills focus curricula emphasizing the need for a model that combines earning and learning to enhance practical training. He sees the need to inform potential students and guardians about the opportunities available in TVET sector. Similarly, Umesh suggested that flexibility in training schedules and approaches would help accommodate the needs of students, particularly those preparing for international opportunities.

A poetic synopsis of findings as shared by the research participants regarding the solutions to the existing problems is illustrated in Box 2 under the title of "Measures for Mi Misery".

Challenges in TVET Curriculum: A Discussion

The findings from this study highlight significant challenges within the TVET curriculum in Nepal, including a disconnection between the curriculum and labor market needs, implementation issues, and the complexity of the curriculum itself. Addressing these challenges requires a multifaceted approach that involves curriculum revision, increased stakeholder engagement, and enhanced support for students. Utilizing the Curriculum Value Chain (CVC) framework (Renold et al., 2015) allows for a more structured analysis of these issues and potential solutions.

The CVC framework posits that effective curriculum development involves a series of interconnected stages, including needs assessment, curriculum design, implementation, and evaluation. The disconnection between the TVET curriculum and labor market demands highlights a critical gap in the needs assessment phase. Adhikari et al. (2023) emphasizes that existing curricula often fail to meet dynamic labor market demands, leading to unemployment and underemployment among graduates. To address this, CTEVT must enhance its needs

assessment processes by actively engaging with industry stakeholders to gather insights on required competencies and skills.

Adopting a competency-based approach in curriculum design is essential for ensuring that training aligns with industry requirements, focusing on developing specific skills and knowledge crucial for successful job performance (Mulder & Winterton, 2017). This approach emphasizes the need for effective monitoring mechanisms to ensure practical components of the curriculum are implemented, aligning with the Curriculum Value Chain's (CVC) emphasis on implementation trustworthiness. By applying a competency-based framework across all types of curriculum development, CTEVT can enhance employability by directly linking curricula to industry needs (Lamsal, 2021), which should include integrating On-the-Job Training (OJT) for hands-on experience. Additionally, incorporating a modular approach allows learners to progress through the smaller, self-contained units while earning credits for completed modules, facilitating recognition of prior learning and enabling targeted training based on industry needs (Boahin, 2018; MoEST, 2023). However, this requires robust systems for credit accumulation and transfer to prevent fragmentation in learning. Similarly, the outcome-based approach plays a vital role in defining clear learning outcomes that learners should achieve by program completion, emphasizing the demonstration of knowledge, skills, and attitudes through performance-based assessments (Saha et al., 2023). This alignment with industry expectations promotes learner-centered teaching strategies while facilitating program effectiveness measurement. Nevertheless, it necessitates extensive planning and resources for developing learning outcomes and assessments. Thus, the complexity of the curriculum, which contributes to high failure and dropout rates among students, can be addressed through targeted support and simplification of the curriculum. This aligns with the CVC's focus on evaluation and feedback mechanisms. Observations of the research participants regarding the overwhelming nature of the curriculum suggest that CTEVT should consider revising the curriculum to focus on essential subjects that directly contribute to employability (CPSC, 2024). Simplifying the curriculum and reducing its duration may help improve student retention and success rates as supported by the literature.

Way Forward and Implications

In order to effectively address the challenges identified within the TVET curriculum in Nepal, it is essential to prioritize comprehensive needs assessments that actively engage industry stakeholders. This collaboration will ensure that the curriculum aligns with current labor market demands, adequately preparing students for successful careers. By fostering a strong connection between educational institutions and industry representatives, TVET can bridge the existing gap between education and employment, ultimately enhancing the relevance of its

programs. In addition to improving needs assessments, TVET should focus on designing a curriculum that emphasizes practical skills. Adopting a competency-based approach and integrating On-the-Job Training (OJT) will create a curriculum that not only meets industry requirements but also provides students with valuable hands-on experience. Regular reviews of the curriculum are necessary to keep content relevant and up-to-date, ensuring that students acquire the skills needed to thrive in their chosen fields. Strengthening implementation mechanisms through robust quality assurance processes will further enhance the effectiveness of practical training components and uphold academic integrity. Supporting student learning is equally crucial for improving retention rates and overall educational outcomes. Implementing awareness programs in schools will inform students about the opportunities available within TVET, while simplifying the curriculum will make it more accessible to those with foundational challenges. Providing targeted support for struggling students will help them build essential skills, thereby leading to a greater success in their educational journeys.

The implications of these recommendations are significant for both program development and future research. Programmatically, enhancing needs assessments and focusing on practical skills within the TVET curriculum will create a more responsive educational framework that meets industry demands. This shift can lead to improved employability for graduates, addressing issues of unemployment and underemployment. From a research perspective, further studies could explore how collaboration with industry could be enhanced, ensuring that participation is meaningful rather than merely cosmetic. Additionally, researchers could investigate how skill acquisition is balanced between component and possibilities for further educational progression, thereby informing future curriculum development strategies.

Conclusion

This study explored stakeholders' insights on the TVET curriculum in Nepal, revealing significant gaps in its alignment with actual labor market demand. Timely curriculum revision is essential for enhancing the effectiveness of TVET. While efforts have been made to revise the curricula, these initiatives appear insufficient in meeting the needs identified by stakeholders. The stakeholders highlighted the need for a focus on practical skills and a collaborative approach to curriculum development. By prioritizing these elements, the TVET system can become more responsive to the evolving demands of the workforce. Ultimately, an intensive effort to revise the curriculum, strengthening of stakeholder collaboration, and emphasis on practical training will significantly enhance the relevance and effectiveness of TVET in Nepal, ensuring that it meets the dynamic needs of the economy.

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References

Abd Samad, N., Wan Ahmad, W. M. R., Sern, L. C., Mohd Noor, S. N. F., & Harun, H. (2018). Exploring domains and elements for behavioural competency and employability skills. *Journal of Technical Education and Training*, 10(1). https://publisher.uthm.edu.my/ojs/index.php/JTET/article/view/1515

Acharya, S. D. (2023). Globalization, global political economy and technical and vocational education and training: A nexus. *Journal of Technical and Vocational Education and Training, 17(1)*, 49-56. https://doi.org/10.3126/tvet.v17i1.52415

Adhikari, R., Adhikari, S. R., Upreti, D. R., & Adhikari, K. P. (2023). Effectiveness of TVET in Nepal. *Journal of Technical and Vocational Education and Training (TVET), 17(1)*, 35-48. https://doi.org/10.3126/tvet.v17i1.52413

Bajracharya, A. & Paudel, P. (2021). Employer engagement in curriculum making process in Nepal: Meaningful or cosmetic? *Journal of Technical and Vocational Education and Training (TVET), 1*(15). 60-70. https://doi.org/10.3126/tvet.v1i15.45169

Bajracharya, S. N. (2022). Overview of technical and vocational education in Nepal. Retrieved from https://nepaleconomicforum.org/overview-of-technical-and-vocational-education-in-nepal/

Baral, D. P. (2024). Declining enrollment in long-term engineering programs: Stakeholders' perspectives. *Journal of Technical and Vocational Education and Training, 18(1)*, 20-37. https://doi.org/10.3126/tvet.v18i1.62740

Bhandari, U. (2023). Technical and vocational education and training in federal Nepal: A critical analysis. *Journal of Technical and Vocational Education and Training, 17*(1), 82-92. https://doi.org/10.3126/tvet.v17i1.52425

Boahin, P. (2018). Competency-based curriculum: A framework for bridging the gap in teaching, assessment and the world of work. *International Journal of Vocational and Technical Education Research, 4*(3), 24-37.

Caves, K., & Renold, U. (2016). *The employer's dilemma: Employer engagement and progress in vocational education and training reforms* [KOF Working Papers, No. 423]. http://dx.doi.org/10.3929/ethz-a-010799048

Colombo Plan Staff College. (2024). *Exploring research in TVET: Design and development.* https://www.cpsctech.org/2024/06/exploring-research-in-tvet-design-and.html

Cooms, S., & Saunders, V. (2023). Poetic inquiry: A tool for decolonising qualitative research. *Qualitative Research Journal. 24*(4). https://doi.org/10.1108/QRJ-05-2023-0071

Council for Technical Education and Vocational Training. (2024). *Curriculum*. https://www.ctevt.org.np/curriculum

Dakshata (n.d). *Strong TVET foundations for a prosperous Nepal: Commitments to support TVET reform*. https://www.dakchyata-nepal.org/sites/default/files/Final_%20Commitments%20to%20support%20TVET%20reform_compressed.pdf

Lamsal, H. P. (2021). TVET reform in Federal Republic Nepal. *Journal of Technical and Vocational Education and Training*, *1*(15), 168–180. https://doi.org/10.3126/tvet.v1i15.45178

Mahon, K., Heikkinen, H.L., Huttunen, R., Boyle, T., & Sjølie, E. (2020). What is educational praxis? Mahon, K., Edwards-Groves, C., Francisco, S., Kaukko, M., Kemmis, S., Petrie, K. (Eds.), *Pedagogy, education, and praxis in critical times.* Springer. https://doi.org/10.1007/978-981-15-6926-5_2

Ministry of Education, Science and Technology. (2023). TVET sector strategic plan (TSSP) 2023-2032. *Retrieved from https://planipolis.iiep.unesco.org/sites/default/files/ressources/nepal_TVET%20Sector%20Strategic%20Plan_2023-2032.pdf*

Ministry of Education, Science and Technology. (2024). *Pravidhik Tatha Vyabasayik Siksha Ra Talim Ko Pathyakram Sudhar Sambandhi Karya Toliko Prativedan 2081* [Report of the Task-Force for Improving TVET Curricula 2024]. Unpublished Report.

Mulder, M., & Winterton, J. (2017). Introduction. In Mulder, M. (Ed.), *Competence-based vocational and professional education: Bridging the worlds of work and education*. (vol. 23, pp. 1-43). Springer. https://doi.org/10.1007/978-3-319-41713-4_1

Prendergast, M. (2009). "Poem is what?" Poetic inquiry in qualitative social science research. *International Review of Qualitative Research*, *1*(4), 541–568. https://doi.org/10.1525/irqr.2009.1.4.541

Rauner, F. (2009). Overview: TVET curriculum development and delivery. In Maclean, R. & Wilson, D. (Eds.), *International handbook of education for the changing world of work* (pp. 1578–1591). Springer. https://doi.org/10.1007/978-1-4020-5281-1_106

Renold, U., Bolli, T., Caves, K., Rageth, L., Agarwal, V., & Pusterla, F. (2015). *Feasibility study for a curriculum comparison in vocational education and training* [KOF Studies No. 70]. ETH Zürich. https://doi.org/10.3929/ethz-a-010713492

Rijal, N. (2021). Desktop study: Challenges in curriculum development of technical and vocational education in preparation for the 21st century to Nepal. http://dx.doi.org/10.2139/ssrn.3813005

Saha, G. C., Akbar, S. M., & Roy, A. (2023). Impact of outcome based education (OBE) on learners' performance in business courses. *International Journal of Professional Business Review. 8(8)*. 1-19. https://doi.org/10.26668/businessreview/2023.v8i8.2394

Sharma, T. N. (2021). An integrated quality assurance system in technical vocational education and training in Nepal. *Journal of Technical and Vocational Education and Training. 1*(15). 14-29. https://doi.org/10.3126/tvet.v1i15.45165

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

Smith, M. K. (2000). Curriculum theory and practice. In *The encyclopaedia of pedagogy and informal education.* Retrieved from www.infed.org/biblio/b-curric.htm.

Tshong, K. P., & Yasin, R. M. (2023). TVET educational learning strategies and their impact on students: A systematic literature review. *International Journal of Academic Research in Business and Social Sciences. 13*(11). 1790-1813. http://dx.doi.org/10.46886/IJARP/v13-i11/7587

UNESCO. (2016). *Technical and vocational education and training for the twenty-first century*.

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Article

Augmenting Enrolment through Integration of TVET and General Education

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TVET Expert

Abstract

Nepal has made a significant progress in the Technical and Vocational Education and Training (TVET) sector. However, the declining trend in student enrolment, which has led to even the closure of TVET institutions, poses questions over these achievements. The Ministry of Education, Science and Technology (MoEST) has explained in detail the TVET problems and issues in its TVET Sector Analysis Report (TVET SAR) 20791, the Technical and Vocational Education and Training Reform Strategic Plan (TRSP) 2079 and the TVET Sector Strategic Plan (TSSP) 2079. Avoiding repetition, this article focuses on the integration between TVET and general education, and of qualifications within the TVET system to facilitate its vertical expansion as a means to boost enrolment. It addresses issues such as social stigma and systemic disarray; explores policy efforts in the international practices; chronicles Nepal efforts; and examines challenges like policy-implementation gaps, rigid teaching methods, poor internal efficiency, and subpar employment outcomes. The paper concludes that Nepal must continue preparing competent and competitive TVET graduates for both domestic and international markets. Achieving this requires restructuring the education system, particularly through integration mechanisms. By taking references from the proven international models, Nepal can transform its TVET system into an attractive choice not only for Nepali students but also for international learners.

Keywords: integration, recognition, pathways, credit, multi-exit and multi-entry

Introduction

The importance of TVET cannot be overstated, as it has the proven capacity to prepare a competent and competitive workforce for industrial and entrepreneurial markets. Both developed and developing countries have been investing significantly in TVET systems, and Nepal is no exception. Provisions for Pre-Diploma and Diploma-Level qualifications and short-term training initiatives taken by the Ministry of Education, Science and Technology (MoEST) through the Center for Education and Human Resources

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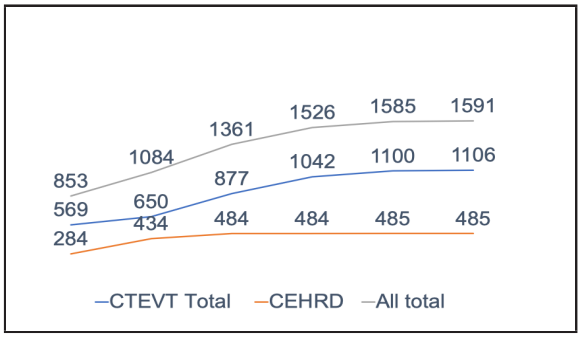
[1]Except for international references, all dates presented in this paper are in Bikram Sambat (BS).

Development (CEHRD) and the Council for Technical Education and Vocational Training (CTEVT) are noteworthy. The government's commitment to open one CTEVT-approved school at each local level[1] is evidence of its emphasis on TVET. As a result, according to TVET SAR 2079, altogether 1,591 schools with 107,411 intake capacity were established by 2078 (Figure 1) which facilitated TVET access to 85% of the local levels (Pradhan et al., 2079a).

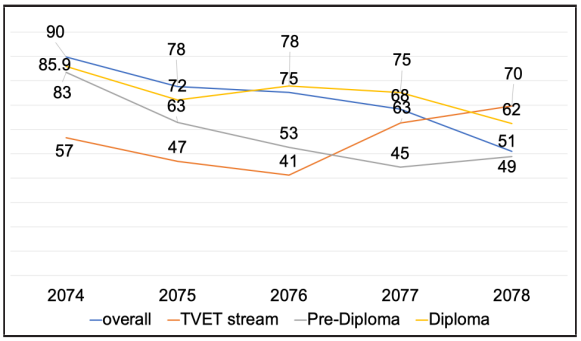
Figure 1: Growth in TVET School Numbers (2073-2078)



Apart from these long-term courses, a large number of short courses are offered by the government, and national and international development partners (IDPs).

Despite these achievements and potentials, challenges persist. The TVET SAR 2079 revealed, despite increase in number of schools (Figure 1), a declining trend in enrolment, with CEHRD and CTEVT programs utilizing only 51% of intake capacity in 2078 (Figure 2). With only 43.1% enrolment in 2079 (CTEVT 2081), the situation with CTEVT got further poorer.

Figure 2: Reduction Tendency in Enrolment Rates (2074-2078)



An ADB study in 2077 reported that, due to insufficient enrolment, not even all the scholarship places were filled in and as a result, annually a large number of these scholarship quotas remained vacant (Pradhan 2077a). Referring to the CTEVT, Kilambu (2080) reported that 50% of schools were on the verge of closure due to the lack of students which led to an increased number of applications for closing schools. Recent media reports stated that several CEHRD and CTEVT schools were closed or facing difficulty to operate due to insufficient enrolment (Maharjan, 2081). All these evidences suggest waste of precious resources from an economy in crisis. On the other hand, as the national development depends on a competent and competitive workforce as envisioned in the Constitution, addressing factors behind these enrolment challenges is imperative.

Objective

This paper aims to contribute to Nepal's effort on TVET reform. Specifically, it aims at initiating discussion on vertical integration

[1]The then PM, K P Oli's inaugural speech on 12 October 2015.

and expansion of TVET qualifications, and horizontal integration with general education, thereby increasing student attraction to and retention in the TVET system.

Methodology

This paper relies on desk review resources including the Constitution 2072, CTEVT Act 2045 (amended version), 13th to 16th national periodic plans, the government's strategic plan, the UNESCO-UNEVOC website, articles published on the internet, and relevant news articles. It attaches importance on the integration, beginning with issues affecting TVET enrolment, followed by examples of international practices and the Nepalese efforts made so far. The next two sections are on challenges and conclusions.

Key Issues Contributing to Reduced Enrolment

Nepal's TVET challenges are extensively analyzed in the MoEST prepared TVET SAR 2079 and TRSP 2080-2089 (Pradhan et al., 2079a). Therefore, in order to reduce repetition, this article focuses on social stigma and misconceptions, disarray in the TVET system, and limitations with short-term training.

Social Stigma and Misconceptions

In Nepal, TVET is often perceived as a secondary option for students deemed academically weaker. For instance, it is considered the only pathway to furthering education for non-graders of school education examination (Taskforce on Curriculum Reform, 2081). Pre-diploma and Diploma-level TVET programs under CTEVT are often viewed as training, not education. Surprisingly, the government's periodic plans lack clarity on the difference between 'skills training' and 'technical and vocational education'. As an example, the budget speech, 2079/80 point no. 168 mentions, 'CTEVT will be restructured and developed as two separate bodies: regulatory agency for quality training and implementing agency for skill-based training program' (MoF 2079). It should have plan to develop CTEVT as TVET sector's quality assurance body rather than targeting it to make a regulatory agency only for quality training. Further, CTEVT's intake capacity for 2080/81 shows the predominance of engineering (43%), health (22%), and agriculture sector programs (31%) (CTEVT, 2081) proves that even the TVET leaders and stakeholders appear to have an incomplete understanding of TVET concept. Over emphasis on these few study areas also suggests that the TVET managers have overlooked the potential in other areas. For instance, achievements in ophthalmology by Tilganga Institute of Ophthalmology, and the uniqueness in forestry and tourism resources that could help diversify study areas are noteworthy. Study programs in these areas could help Nepal TVET even attract international students.

Evidence suggests raising the question of whether education ministers properly realize the capacity and capability of TVET. For instance, one of the education ministers, speaking in the parliament, said,

'CTEVT, TEVT is vocational training…, if someone joins Bachelor's (Degree course) after vocational training, it is a failure' (Nepsal, 2081). Does such an understanding give the right message to the TVET students, parents, and aspirants? What kind of legislative instruments and systems will the parliament develop with such conception? The consequences of an incomplete understanding of a complex system such as TVET has already been reflected in Education Policy 2076. Unless the 'employment first' as the core TVET principle is followed through proper market research, even the Medical Education Commission's mandate on deciding intake seats for CTEVT (GoN 2076) may not be completely agreeable. These instances also question whether policymakers sincerely listen to expert organizations and individuals.

According to TRSP 2079, such misconception-triggered social stigma has not only contributed to reduced enrolment (Pradhan et al., 2079b) but also overshadowed graduates' potential to reach the highest academic qualifications. This bias persists in Nepal, while the international practices such as in Germany, Australia, and India are showcasing TVET's academic and professional value.

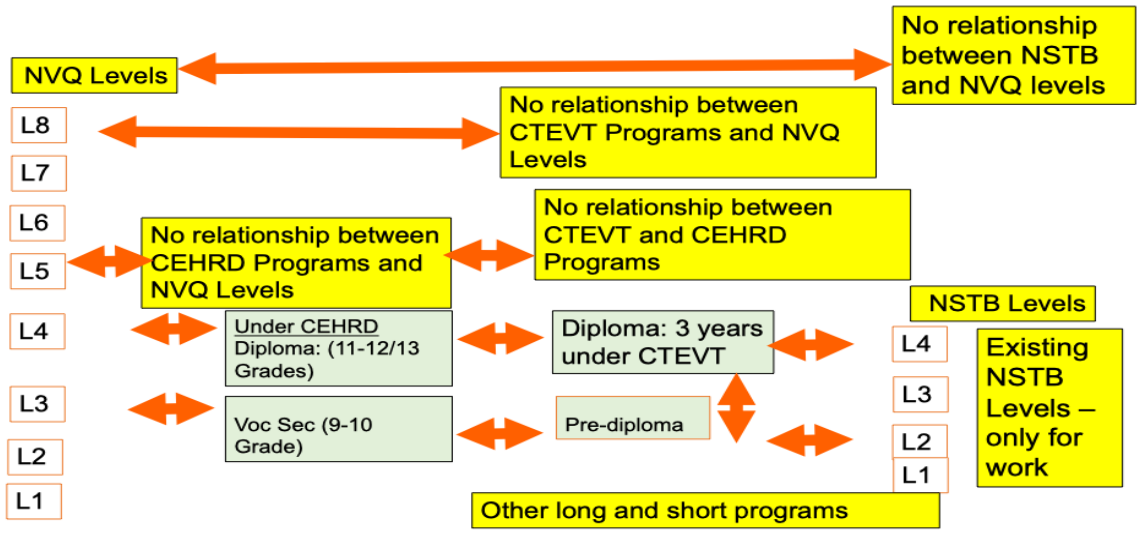
Systemic Disarray

Lack of integration of TVET programs even within CTEVT and that between CEHRD and CTEVT has created confusion among students and parents (Pradhan, 2078a; Pradhan, 2078b) (Figure 3). For instance, the study duration for the technical stream under CEHRD is two years, while it is three years for CTEVT Diploma programs. Yet, both programs are recognized as having the same qualification. This raises the question as why students should opt for programs that require a longer duration to complete while there is a time-efficient option. The MoEST's task force on curriculum development considered the technical stream in Grade 9 and 10 inappropriate and recommended the ministry for its closure (Taskforce on Curriculum Reform, 2081). A serious question appears as to why the MoEST has to be engaged in TVET implementation, while the legislation has mandated CTEVT with this responsibility. Another relevant question in this context is why CTEVT has mandates for both the implementation and quality assurance responsibility. The MoEST even implemented two big loan projects by itself. The conflicting arrangements do not stop here. The National Examination Board (NEB) with the responsibility to assess Grade 12 students is also mandated to assess CTEVT students with 13 years of education (GoN/MoEST, 2076). NEB's current examination system may also not be fully capacitated to assess CTEVT's competency-based framework.

Disarray also continues within CTEVT itself, as Pre-Diploma graduates must spend another three years to complete a Diploma despite completing 1.5 to 2 years of study (Nepal et al., 2074; Pradhan, 2077b). The MoEST's task force on curriculum development considers this a waste of

students' time (Taskforce on Curriculum Reform, 2081). As both qualifications have the same entry criteria, integration of these two qualifications could rather become a beautiful advantage for students but remains so far. On top of all these problems, the TVET graduates lack seamless further educational opportunities (Pradhan et al., 2079a, Pradhan et al., 2079b; Pradhan et al., 2078b; Pradhan et al., 2078c).

Figure 3: Disarray within the TVET system



Source: Pradhan 2077b,c; Pradhan 2078a,b; Pradhan et al., 2079a.

Similarly, short-term training programs also suffer from several limitations. The foremost is that they are designed solely for employment. Recognition of Prior Learning (RPL) is predominantly limited to Levels 1 and 2. In any case, the credentials earned lack academic recognition. Although both the TRSP (2079) and TSSP (2079) have stipulated credit provisions for stacking these credentials for vertical progression, implementation remains distant. This limits further education opportunities for short-term training graduates and contributes to reduced interest in TVET programs (Pradhan et al., 2079b).

Policy and Advocacy Efforts towards Integration

International Practices

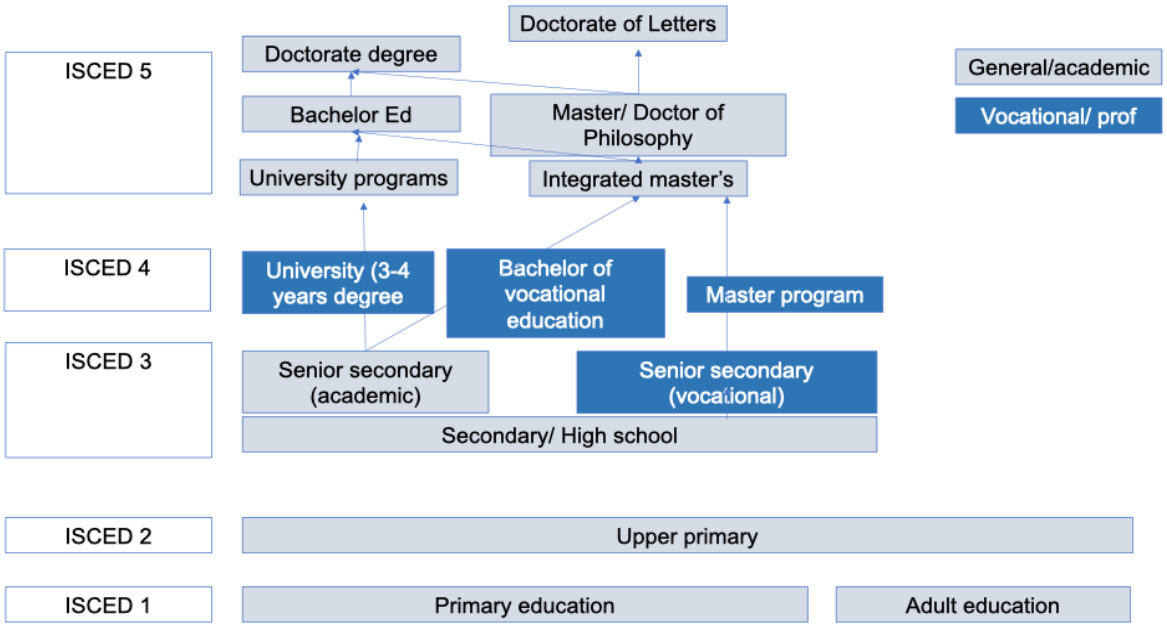
UNESCO-UNIVOC Country Profile shows even if TVET qualifications are up to the International Standard Classification of Education (ISCED) 3 or 4, most of the countries have integration between the TVET and general education. For instance, Singapore has TVET opportunities for diploma and advanced diploma qualifications beyond Level 4, but it allows further education through general education provisions. On the other hand, the Republic of Korea has a clear pathway from ISCED 4 to junior college, opening the path to a Master's Degree in

general education. Provisions of Japan are almost similar to Korea. Sri Lankan and Bangladesh TVET systems terminate at ISCED 4 with some exceptions for the Bachelor's level. Chinese system does not have a pathway beyond ISCED 4.

Unlike the above systems, some countries have flexible education systems. For instance, the Dutch provision has even professional qualification at the Bachelor's level and graduates can pursue a Master's degree. The Swiss ISCED 3-level TVET graduates could move to higher-level general education through preparatory courses under ISCED 4. The Switzerland education system has two pathways for ISCED 3 graduates to further education under only professional qualifications or go to the applied university which can lead to a Master's degree. India enables TVET graduates to pursue Bachelor's degrees in TVET facilitating transition to higher education. Such provision makes TVET an attractive alternative for students seeking both skills and pathways for academic advancement (Figure 4).

Similarly, 13% of Australia's universities are dual-sector in that vocational and general education are integrated allowing TVET graduates to transition into Bachelor's programs which ensures greater flexibility for students pursuing higher qualifications. These universities with significant enrolments

Figure 4: Indian Formal Education System



Source: UNESCO-UNEVOC Country Profile 2024 (with author's minor modification).

in both vocational and higher education admit about twice the proportion of students transferring from vocational education than other universities (Moodie & Wheelahan, 2009). In banking and accountancy over 50 percent of vocational education diploma graduates aged under 25 proceed to study at degree level, which shows that these students were using their vocational education qualification primarily as a pathway to higher education. According to Castillio (2024), to achieve long-term success, the Australian VET system must embrace a harmonized tertiary education framework where vocational and higher education are more closely aligned. Such a system would enable smoother transitions between VET and higher education, foster collaboration and reduce duplication. Further, the Qualification Reform Design Group (2024) suggests 'the qualifications-first approach to integrate pathway credit logic, which is instrumental in supporting career mobility and lifelong learning, including into higher education.

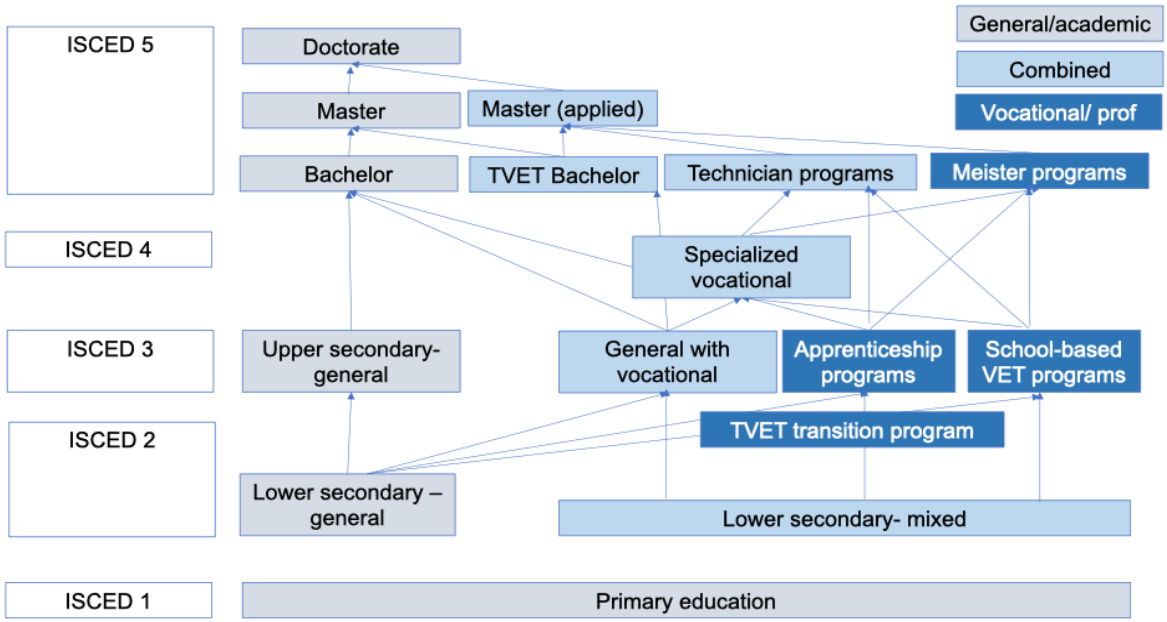
The Royal Melbourne Institute of Technology (RMIT) is one specific example of a dual-sector university ensuring integration. RMIT offers vocational education, also known as TAFE (Technical and Further Education), including hands-on training to help learners enter their first job, upskill, and even change careers or transition into university. As a dual-sector university, its certificates, diplomas and advanced diplomas provide the skills and knowledge for a seamless pathway into learners' desired degree or graduate with an internationally recognized career-ready qualification. Under its vocational education sector, the RMIT offers study opportunities in 16 study areas, including art, business, and fashion. The courses are co-designed with industry partners. Students who are studying in another university or institution can apply to study at RMIT and may be eligible to receive credit for previous study.

India has an emphasis on higher education opportunities for TVET graduates which is conveyed by the establishment of skills universities. As in Australia, it also appears to move toward a dual-sector education system. As evidence, the Indian University Grant Commission foresees 'aligning higher education with the evolving needs of industry and society, and this vision is aligned with India's National Education Policy (NEP) 2020 (Government of India, 2020). The NEP with vocational education contents under the higher education chapter has laid the fundamental principle that there will be no hard separations between vocational and academic streams in order to eliminate harmful hierarchies among, and silos among different areas of learning. The overall higher education sector is aimed to be an integrated higher education system that includes both professional and vocational educations. The NEP also plans 'to integrate vocational education into all school and higher education institutions' and envisions the latter 'to offer vocational education either on their own or in partnership with industry and NGOs'. According to NEP, the Bachelor's level vocational degrees introduced in 2013 will continue to exist and will also be available to

the students enrolled in all other Bachelor's degree programs, including the 4-year multidisciplinary Bachelor's program.

With a mixed education system, Germany not only provides an opportunity for TVET students to reach the doctoral level, but it also provides multiple pathways for vertical progression together with lateral movement (Figure 5).

Figure 5: German Formal Education System



Source: UNESCO-UNEVOC Country Profile, 2024 (with author's minor modification)

Chronicles of Nepal Efforts

Nepal's commitment to the preparation of a competent and competitive workforce has been promised in its constitutional provisions, periodic plans, and strategic plans. For instance, Nepal's Constitution 2072 has a policy 'to prepare human resources…while making education scientific, technical, vocational, empirical, employment and people-oriented. This Constitutional provision is aligned with the CTEVT mandate to 'make necessary arrangement for producing basic, mid- and high-level technical human resources' (CTEVT Act, 2045). It is also worthy to mention that almost all major political parties have emphasized on skills development in their election manifestos.

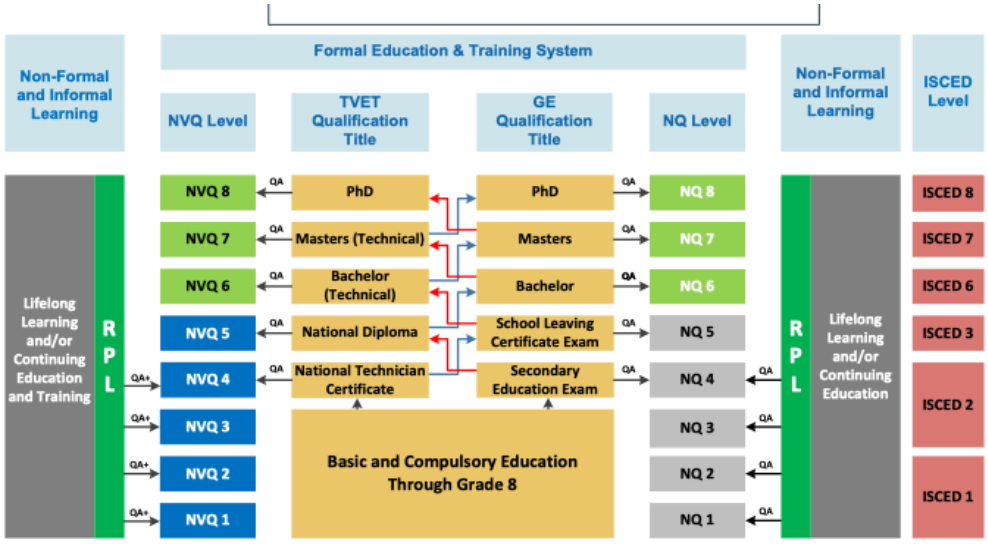
Nepal's vision on further education for TVET pursuers and integration between TVET and general education was envisioned through periodic plans as well. For instance,

the 13th periodic plan stated to 'create opportunity to students from various fields of study and levels to higher education through the preparation of the National Vocational Qualification Framework' (GoN/NPC, 2070). The 14th periodic plan provisions 'opportunity for expansion of TVET (technical stream) up to higher education' (GoN/NPC, 2073). Similarly, the 15th plan had its working policy as 'permeability between general education and technical and vocational education and skills development' (GoN/NPC, 2077) which is relevant in the integration context.

Aligned with the efforts mentioned above, the government approved the National Vocational Qualification Framework (NVQF) (GoN/ CTEVT, 2077) (Figure 6) in 2077; and following this decision, the CTEVT/National Skills Testing Board (NSTB) prepared an implementation roadmap in 2077 (Pradhan, 2077). As such, NVQS apparently was considered as an instrument for translating policy and plan provision on integration into practice.

Giving continuation to the previous work on integration and opening vertical pathways for TVET graduates, the government prepared the TVET Reform Strategic Plan (TRSP) in 2079 with a very clear proposal for restructuring the educational system (Table 1). Later, this structure was included in the government-prepared TVET Sector Strategic Plan (TSSP) 2080-2089 (GoN/

Figure 6: National Vocational Qualification Framework (NVQF)



TVET: Technical and Vocational Education and Training
(+) : Indicates additional technological and practical components as required for each level of NVQF
QA: Qualification Assessed as per the set criteria by National Qualifications Authority (NQA)
GE: General Education RPL: Recognition of Prior Learning.
ISCED: International Standard Classification of Education

Source: GoN/ CTEVT, 2077

MoEST, 2080). This development has been reflected well in the 16th plan which is currently under implementation and has set a plan to 'install a mechanism to avail an opportunity for vocational qualification up to higher (level) education' (GoN/NPC, 2081) which is completely aligned with the CTEVT Act Article 6.16.

All these pieces of evidence suggest that massive policy efforts have been made focusing on opening the higher-level TVET qualifications and their integration with general education.

Table 1: Educational Qualifications Reform Structure

Age	Education Levels	General Education	Bridging Inputs	Governance		TVET	NVQ Level	Long-short Linkages
24-26	Tertiary Education	Doctoral Level		Federal and Provincial Level (Schools also be with Diploma and Pre-Diploma programs)		Doctoral Level	L-8	
23		Master Level				Master Level	L-7	
22								
19-21		Bachelor Level				Bachelor Level	L-6	
18	Post-Secondary Education					Advance Diploma	L-5	
17	Secondary Education	Grade 11 to 12		Local Level		Diploma	L-4	
16								
15		Grade-9 to 10				Pre-diploma	L-3	
14								L-1 & 2 and RPL
11-13	Basic Education	Grade-6 to 8				Preparatory TVET		
6-10		Grade-1 to 5				Elementary/Literacy TVET		
5		ECD (kinder Garten)						
4								

Source: TRSP 2079; TSSP 2079

Advocacy on Integration

Aligning with the constitutional vision, CTEVT Act, and NPC's plans, several advocacy activities were conducted by CTEVT and the Parliamentary Committee focusing on higher-level educational pathways for TVET graduates and their seamless recognition as graduates of general education. Of them, presentations made for: i) provincial workshops on TVET reform held across the country during 2078 (Pradhan et al., 2078c); ii) parliamentarians including the ex-education minister in 2078 (Pradhan,

[2]According to the TVET SAR 2079, the cycle completion rate is defined as share of students who graduated their study within curriculum specified duration. Survival rate under CTEVT was calculated as share of students who graduated within curriculum specified duration and those who graduated until the time of this report writing.

2078b); iii) workshop on curriculum reform in 2077 (Pradhan, 2078a); and iii) CTEVT Directors in 2080 (Pradhan 2080) are noteworthy. Apart from these efforts, MoEST organized a large number of workshops during the TVET SAR and TRSP preparation process where Nepal's NVQS was presented as a major instrument of reform.

Challenges in Nepal's TVET System

Policy Implementation Gap

Despite policy provisions, including CTEVT's legislative mandate on higher education and advocacy activities, no or very minimal progress has been made around integration. Instead, the government continued to develop contradictory policies. For instance, the National Education Policy 2076 (10.11.2) restricted TVET programs up to the Diploma level (MoEST, 2076). Apparently, no thoughts are in place as yet on skills universities as in India and Pakistan. Instead, formation of recent Nepal University indicates government's continued emphasis on general education.

Although a large number of stakeholders, including international development partners (IDPs), have been collaborating with the government, by far, most of such cooperation is on short-term training. There is no evidence showing that IDPs have played a key role in the preparation of higher-level TVET graduates as envisaged by the Constitution, CTEVT Act, and NPC periodic plans.

As such, despite many policy-level provisions on integration, it's hard to understand what, besides bias against the TVET system, might have prevented the government from implementing its own policies and plans. The relevant question is how a thoughtful government capable of putting vision, legislation, and forward-looking plans and strategies in place could fail in implementation. Could it be because of education ministers' misunderstanding of TVET or indifference to the national vision? In such circumstances, it is unwise to imagine ministers taking action against inactions or mis-actions. The continued policy-implementation gap could also be because of technical limitations with bureaucracy or projects distracting the country's vision on TVET. Or whether the efforts made were insufficient or not aligned with national vision, plan, and strategies despite a long history of IDP collaboration equally draws attention. Such incidents also question CTEVT leadership and how far they serve as a policy advisor to the government as mandated by the CTEVT Act or have the technical capacity to contradict the MoEST policies and priorities.

Therefore, addressing the gap in TVET understanding, policy development, and implementation remains a highly challenging action to accomplish.

Rigid Teaching-Learning Methods and Duration

The TVET SAR 2079 (a) points out the lack of a modular approach and credit system that could help graduates earn credentials

and facilitate multi-exit from, and entry to the TVET system. Therefore, a student is required to complete the course in one go, which is particularly challenging for economically disadvantaged students.

Poor Internal Efficiency of TVET Programs

Using CTEVT and CEHRD administrative data, the Cycle Completion Rate (CCR) and the Survival Rates (SR) for 2072 and 2076 intakes were calculated for TVET SAR 2079[2]. The findings revealed weak performance of both CTEVT and CEHRD. The CCR and SR data reveal difficulties in completing TVET courses within the specified timeframe or even within extended durations. Such educational inefficiencies discourage students from pursuing TVET.

Subpar Employment Outcomes

Employment outcomes and income improvements are key indicators of TVET success. However, as revealed by TVET SAR 2079, with an employment rate of only 49%, Nepal's TVET system falls short. This is one of the reasons why the TEVT system is criticized for preparing unemployed graduates (Maharjan, 2081). Poor employment prospects deter students from choosing TVET over general education, which is perceived to offer better long-term career and income prospects. The TVET SAR 2079 shows the employment outcomes of the technical stream are poorer than CTEVT results. Then a question naturally arises as to why one should enrol in TVET programs when the employment potential is low. Further, studies conducted in various countries on the importance of general education at higher levels show that despite encouraging immediate employment outcomes, higher academic education yields higher earnings compared to TVET. This finding implies that graduates must pursue higher education for better income. Then, it is natural on the part of students to prefer the general education system which is easy to complete and has better recognition compared to TVET. This situation also develops distaste for TVET among students.

Conclusion

Nepal's policy on higher-level TVET qualifications and their integration with general education have been well communicated by the CTEVT Act, national planning documents, and strategic plans. These policies and plans are aligned with the Constitutional provision on TVET. These coherent and consistent policy and plan provisions on higher-level TVET qualifications and education cannot be inadvertent. However, there is a policy-implementation gap, contributing to steady reduction in enrolment, thereby leading to even the closure of programs and schools. Such reduction tendency, on the part of TVET enthusiasts, appears logical as who would like to pursue a study that is difficult to complete and even if it is accomplished, there is neither possibility for satisfactory employment nor an ensured pathway for further education.

Despite several successful models for educational structures, authorities entrusted with responsibility for actions are inactive or taking wrong actions for nearly two decades is worth mulling. Will any policymaker and/or leadership take responsibility for the ramifications on enrolment the country is facing today? How would government justify the continued TVET investment managed with the scanty resources? Similarly, how would IDPs justify their tax payers' money when TVET has been passing through such an immense difficulty? In view of mandates entrusted to it and international practices, by now, CTEVT should have been established as a strong TVET sector quality assurance body with some responsibility of managing the centers of excellence and research. However, there is no time to get entangled in debate, rather the need is to work at high speed, particularly focusing on integration between TVET and general education with the purpose of facilitating further education for TVET graduates as envisioned in the Constitution, CTEVT Act, periodic plans and government's TSSP. This situation calls for a performance review of responsible agencies and also putting TVET principles-aligned TVET Act in place. Perhaps IDPs too would like to review their past works and design future interventions aligning them with people's expectations expressed through the documents mentioned above. In order to help the government take effective moves, the IDPs could collaborate to build CTEVT and MoEST staff capacity, focusing on the operationalization of the integration process.

Nepal's move towards this direction could benefit from the lessons from successful and relevant international models. Due to the mixed education system and clear pathway up to the Master's level for TVET graduates, the German model is relevant for developing the education structure for Nepal. Similarly, it will be useful to refer to Australia's proven dual-sector education system. Due to geographical proximity and similar socio-cultural context, review of Indian practices will also be helpful. Knowledge on these models could help Nepal develop an integrated education system that could ensure pathways for educational progression while also facilitating better employment outcomes. This would make TVET an attractive choice to Nepali students, thereby augmenting the TVET enrolment. Moreover, the potentials of some fields of studies suggest that Nepal's TVET system could even attract international students.

References

Advice from the Qualification Reform Design Group. (2024). *Unlocking the potential of VET. Improving the relevance and transferability of vocational education and training qualifications. Final report*. https://www.dewr.gov.au/download/16685/qrdg-final-report-december-2024/38976/qrdg-final-report-december-2024/pdf

Castillo, J. A. (2024). *VET qualifications reform: The end of training packages as we know them* [LinkedIn page]. Retrieved

December 15, 2024, from https://www.linkedin.com/pulse/vet-qualifications-reform-end-training-packages-we-amaro-castillo-hxy3c/

Council for Technical Education and Vocational Training. (2077). *National qualifications framework Nepal.* CTEVT/ Swisscontact/ NVQS Project.

Council for Technical Education and Vocational Training. (2081). *Integrated training management system.* Retrieved on December 15, 2024, from https://itms.ctevt.org.np:5580/

Government of Nepal. (2072). *The Constitution of Nepal*.

Government of Nepal. (2045). *Council for technical education and vocational training act, 2045.*

Government of Nepal. (2076). *National medical education act, 2018.*

Kilambu, N. (2080, Bhadra 06). *CTEVT deprived of students*. The Kantipur News. https://youtu.be/vloaJz4bW5g?si=p6FSssi4wD79oaVK.

Maharjan, B. (2081, Ashoj 09). *Due to a lack of students, two schools in Salyan have stopped teaching technology.* The Kantipur Daily. https://ekantipur.com/en/pradesh-6/2024/09/25/due-to-lack-of-students-two-schools-in-salyan-have-stopped-teaching-technology-31-13.html

Ministry of Education, Science and Technology. (2076). *National education policy 2076*.

Ministry of Education, Science and Technology. (2080). *TVET sector strategic plan 2080-2089*.

Ministry of Finance. (2079). *Budget speech of fiscal year 2079/80*.

Ministry of Human Resource Development, Government of India. (2020). *National Education Policy 2020*. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Moodie, G., & Wheelahan, L. (2009). *The significance of Australian vocational education institutions in opening access to higher education.* Retrieved on Dec 04, 2024, from https://www.academia.edu/311229

National Planning Commission. (2070). *The 13th plan (2012/13-2015/16)*.

National Planning Commission. (2073). *The 14th plan (2016/17-2018/19).*

National Planning Commission. (2077). *The 15th plan (2019/20-2023/24).*

National Planning Commission. (2081). *The 16th plan (2024/25-2028/29).*

Nepal, A. (2024, April 04). *Sumana Shrestha: Politics in education - Answers to MPs in parliament about her effort in education*

[Video]. YouTube. https://youtube.com/watch?v=kmdgGHA7qng

Nepal, J., Sharma, M., & Pradhan, H. (2074). *Policy dialogue: A participatory review of TVET policy 2012. Report submitted to Policy Coordination Committee, Ministry of Education and United Nations Development Programme*.

Pradhan, H. (2077a). *Assessment of TVET courses (TSLC and diploma). Report submitted to Asian Development Bank. TA-8521 NEP: Supporting education and skills development*.

Pradhan, H. (2077b). *Roadmap on development and operationalization of NVQS in Nepal.* Report submitted to CTEVT/NSTB-Swisscontact, Bhaktapur, Nepal.

Pradhan, H. (2077c, Chaitra 12). *Conceptualizing TVET system adjustments for learners' educational progression and employment* [Paper presentation]. Seminar on TVET Sector Reform for Nation's Prosperity, Kathmandu, Nepal.

Pradhan, H. (2078a, Chaitra 07). *Curricula reform: context, challenges and way forward* [Paper presentation]. Workshop on 'TVET Curriculum Reform, Kathmandu, Nepal.

Pradhan, H. (2078b, Push 26). *Overview of the current challenges and opportunities in the TVET sector* [Paper presentation]. Workshop on Interaction with Parliamentarians on Technical Vocational Education and Training (TVET) Reform, Dhulikhel, Nepal.

Pradhan, H. (2080, Bhadra 04). *Aligning level 4 and 5 with pre-diploma and diploma* [Paper presentation]. Workshop on 'Aligning level 4 and 5 with pre-diploma and diploma', CTEVT, Bhaktapur, Nepal.

Pradhan, H., Neupane, N., Paudel, S., Shrestha, S.R., & Koirala, S. (2079a). *Technical and vocational education and training sector analyses report (TVET SAR).* MoEST/European Union (EU)/The British Council (BC)/Dakchyata/Center for Public Policy Dialogue (CPPD).

Pradhan, H., Adhikari, R., Shrestha, C.B., Paudel, S., Chalise, B., Shrestha, S.R. and Shrestha, N. (2079b). *TVE reform strategic plan (TRSP) 2032-2032*. MoEST/ EU/BC/ Dakchyata/CPPD. https://planipolis.iiep.unesco.org/sites/default/files/ressources/nepal_TRSP.pdf

Pradhan, H., Nepal, P., & Shrestha, S. (2078c, Ashad 21). *Overview of Nepal's TVET system* [Paper presentation]. Online Interprovincial Workshop on Provincial Workshop on TVET, Organized by Swiss Agency for Development and Cooperation, Lalitpur.

RMIT University. (n.d.). *About RMIT*. https://rmit.edu.au/about

Taskforce on Curriculum Reform. (2081, Ashoj 06). *Report of Taskforce on TVET Curriculum Reform 2081.* Report submitted to Chairperson of CTEVT and Honourable, Minister, Ministry of Education, Science and Technology. Kathmandu. Nepal.

The New Indian Express. (2024, December 18). *UGC to introduce guidelines for skill-based courses, micro-credentials in higher education institutions.* Retrieved from https://www.newindianexpress.com/nation/2024/Dec/18/ugc-to-introduce-guidelines-for-skill-based-courses-micro-credentials-in-higher-education-institutions#:~:text=NEW%20DELHI%3A%20The%20University%20Grants,in%20the%20rapidly%20evolving%20job

UNESCO-UNEVOC. (2024). *TVET country profile*. https://unevoc.unesco.org/home/tvet+country+profiles

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Article

Chasing Quality TVET Curricula

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Abstract

The curriculum serves as the backbone of any educational system which is crucial in shaping individuals and fostering desirable skills. In the realm of Technical and Vocational Education and Training (TVET), a well-structured curriculum not only equips learners with skills and competencies to meet industry demands but also enhances productivity and help combat poverty. However, many TVET initiatives often fail to achieve their goals due to inadequate curriculum development. This paper aims to delineate the fundamental components of a high-quality TVET curriculum, exploring definitions and key attributes, and discussing effective curriculum development models, including the frameworks forwarded by Tyler, Taba, and Wheeler. Furthermore, it evaluates three distinct curriculum types - traditional, outcome-based, and competency-based - highlighting the relevance of the competency-based approach for TVET. This model's emphasis on practical skills, real-world applicability, and alignment with industry standards positions it as the most effective method to prepare students for the workforce. Ultimately, the paper underscores the necessity of continuous engagement with industry stakeholders and adaptability in curriculum design to empower learners and foster sustainable development within society.

Keywords: TVET, curriculum, competency - based, outcome - based

Introduction

The curriculum serves as the foundational framework of an education system, shaping the types of individuals that society nurtures and the skills they acquire. Key decisions regarding the curriculum play a pivotal role in defining the teaching-learning process, as a well-structured curriculum is essential for achieving high-quality learning outcomes. According to Philip (2016), the curriculum encompasses a deliberate and organized selection of knowledge, skills, and values designed to facilitate significant learning experiences for individuals.

In the context of Technical and Vocational Education and Training (TVET), the curriculum is particularly significant. TVET is widely recognized as a mechanism for augmenting productivity and contributing to poverty alleviation. It arms individuals with competitive skills that play their parts to the social, economic, and environmental growth of a country (Pavlova, 2014). As the gateway

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to future opportunities, a robust TVET curriculum dictates what content is taught, the conditions under which it is delivered, the intended outcomes, and the methods for assessing learners' achievements. Therefore, meticulous planning, design and implementation of the curriculum are essentials of the successful TVET programs.

The ultimate goal of a TVET curriculum is to enrich the learning experiences of youths and boost their employability prospects in the labor market. Nonetheless, many TVET initiatives face difficulty to produce the desired results due to inadequate focus on curriculum development. It can be attributed to several reasons, including the lack of industry input and insufficient alignment with labor market needs as well as excessive theoretical knowledge. In the recent years, it has been noted that in Nepal, majority of students failed in mathematics or in English subjects but passed other occupational subjects in the TVET courses. Given the profound influence of curriculum on the holistic development of individuals and their ability to shape their futures, this paper aims to explore the elements that constitute a quality curriculum within the TVET sector. It will start by establishing a fundamental understanding of curriculum, then examine various models and types, and underscore the critical quality attributes of an effective TVET curriculum.

The Curriculum

The term "curriculum" originates from the Latin word "currere," which means "race course" (Hlebowitsh, 2004, as cited in Musingafi, et al., 2015). This metaphor illustrates the trajectory of instructional programs designed to achieve specific educational goals. Over time, numerous scholars and educational institutions have offered various definitions of curriculum, reflecting the evolving understanding of its purpose and design process. Despite their differences, many of these definitions converge on a common theme: the curriculum serves as a structured framework that guides educational practice.

For centuries, educational philosophers and theorists have grappled with fundamental questions regarding curriculum such as what to teach, how to teach, and how to whet teaching effectiveness. Historically, the concept of curriculum has been approached in two primary ways: prescriptive and descriptive.

Prescriptive definitions articulate what "ought" to happen in educational contexts which often present an ideal program or expert opinion on the necessary components of a course of study. Notable figures such as John Dewey, Franklin Bobbitt, and Ralph W. Tyler have contributed prescriptive definitions that emphasize the planned and intentional aspects of curriculum design (Glatthorn et al., 2018). These scholars share a common view regarding curriculum, which they consider it as a continuous process of development. This process includes a range of planned or unplanned experiences, which are concerned with unfolding the abilities of the individuals.

In contrast, descriptive definitions focus on what actually occurs in educational settings, emphasizing the lived experiences of learners and educators as they navigate the curriculum. D.F. Brown and E. Silva are prominent scholars to provide their descriptive perspectives (Glatthorn et al., 2018). These scholars emphasized the experiences relating to the improvement of knowledge and skills of learners by enabling them to think critically and creatively as well as to be able to solve problems and communicate effectively rather than mere acquisition of information. Their definitions guide educators in constructing educational experiences that align with specific goals, outcomes and values deemed important by the experts and stakeholders in the field. While prescriptive definitions aim a systematic approach to curriculum development, descriptive definitions offer insights into the practical realities and complexities of teaching and learning.

Together, these perspectives underscore the dynamic nature of curriculum, illustrating how it serves both as a roadmap for educational progression and as a reflection of the multifaceted interactions that occur within educational environments. Understanding the curriculum through both prescriptive and descriptive lenses allows educators and policymakers to create more effective and relevant educational experiences that meet the needs of diverse learners.

Throughout the history, various organizations have defined the curriculum in several ways. UNESCO (n.d.) describes it as an organized program of studies necessary for achieving specific educational goals. The curriculum is considered a vision agreed upon politically and socially, accommodating local, national and global needs (Stabback, 2016). The European Centre for the Development of Vocational Training (Cedefop, 2024) further emphasizes that the curriculum encompasses activities related to educational design, organization and planning, including the establishment of learning objectives and assessment methods.

In summary, the curriculum is an ongoing process that develops individual abilities through various experiences, focusing on enhancement of critical thinking and problem-solving skills rather than just information acquisition. It serves as a roadmap for educational progression and addresses the complexities of teaching and learning. Additionally, the curriculum is a structured program designed to achieve specific educational objectives while meeting societal needs.

TVET Curriculum

When TVET programs aim to enable individuals to demonstrate their knowledge and skills in the real world, the curriculum must arm students with competencies applicable in the workplace (UNESCO, 2016). Consequently, the TVET curriculum is descriptive in nature and primarily underlines skills and competency development. This distinction clearly sets the TVET curriculum apart from general education curricula in

terms of focus, content, teaching methods, assessment, certification, and pathways to higher education or the labor market.

The TVET curriculum concentrates on providing practical skills and knowledge directly related to specific trades and occupations, while the general school curriculum covers a broader range of subjects and disciplines. In terms of content, the TVET curriculum highlights skills relevant to particular industries (Brewer & Comyn, 2015), whereas the general curriculum encompasses a wide array of subjects, including languages, mathematics, sciences, and the arts.

Regarding teaching methods, the TVET curriculum stresses practical training, internships, and workplace-based learning experiences (Brewer & Comyn, 2015), whereas general education primarily relies on traditional classroom-based instruction. Furthermore, in the Nepali formal education context, the TVET curriculum leads to vocational qualifications and certifications pertinent to specific trades or industries, while general education culminates in general education qualifications such as a School Leaving Certificate upon completing Grade 10.

As for pathways, TVET curricula aim to prepare graduates, enabling them to enter the labor market with appropriate employability skills or to pursue further studies at higher level (Cave et. al., 2023) or entrepreneurship related to their fields. In contrast, general education curricula typically prepare students to advance to the tertiary education institutions or pursue additional academic qualifications.

In reality, the TVET curriculum serves as a vital instrument to address the economic and social needs of young individuals seeking acquisition of knowledge and skills to excel in the workplace. Therefore, it is essential to focus on the objective of TVET programs, which is to enable individuals so that they can demonstrate their job competencies in real-world settings. Therefore, the TVET curriculum should be designed to provide students with skills and knowledge that are directly applicable in the workplace.

When advocating for the improvement and effectiveness of the TVET curriculum, it is important to consider various models of curriculum development.

Models of Curriculum Development

Curriculum development models play a crucial role in guiding education planners, mentors and administrators in creating purposeful, organized and progressive curricula (Bhuttah & Xiaoduan, 2019). These models offer valuable insights for selecting appropriate types of curricula in TVET. This paper will discuss three distinct models: Tyler's model, Hilda Taba's model, and Wheeler's model because these models share common features, followed by an exploration of the types of curricula to ensure the quality of TVET programs.

Tyler's Model

Ralph W. Tyler identified four fundamental

questions in the 1940's that should be addressed in developing any curriculum and instructional plan. These questions are:

1. What educational purposes should the educational establishment seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?

Tyler's model lays emphasis on alignment of curriculum planning with the goals and mission of an educational institution. The first question involves determining aims and objectives, which refer to the expected outcomes resulting from exposure to learning experiences. These outcomes may include the acquisition of new skills, knowledge or information by the learner, as well as meeting broader societal expectations for TVET institutions.

On the second question, Tyler advises specifying particular learning experiences that will help achieve the defined objectives. Here, the discussion centres around the criteria for selecting certain learning experiences over others and identifying what those experiences should entail. The third question under Tyler's framework pertains to the organization and coordination of the selected learning experiences in alignment with the established objectives. This aspect is crucial, as learning experiences are derived from various subjects, influenced by different teachers, and shaped by the overall educational environment. The final question addresses evaluation, where Tyler asserts that curriculum planners must assess whether the curriculum objectives are being met.

The Tyler's model is linear, as it does not show the connections among those four questions. Despite facing criticism for its linear nature and perceived lack of interconnection between the steps (Bhuttah & Xiaoduan, 2019), Tyler's model remains relevant. It has provided a solid foundation for curriculum development, which subsequent models have built upon to improve the curriculum planning process.

Taba's Model

Hilda Taba expanded upon Tyler's model by presenting a cyclic approach to curriculum planning. A significant contribution of Taba's model is its effort to bridge the gap between theory and practice. She proposed a seven-step process for curriculum planning (Ornstein & Hunkins, 2018). These include:

1. Diagnosis of need (needs assessment)
2. Formulation of objectives
3. Selection of content
4. Organization of content
5. Selection of learning experiences (methods/activities)
6. Organization of learning experiences (methods/activities)
7. Determination of what to evaluate and the methods for doing so.

Taba's model includes three additional steps compared to Tyler's model: the diagnosis

of needs prior to formulating objectives as well as the selection and organization of content. While Tyler's model accentuates educational experiences, focusing primarily on instructional methods and outcomes, Taba's model adopts a more learner-centered approach. Taba places greater highlight on both the selection and organization of learning experiences, underlining the importance of catering to the learners' needs throughout the curriculum development process.

Wheeler's Model

Wheeler built upon Tyler's work in 1967, but placed greater emphasis on learning experiences. While Tyler's model focused primarily on learning outcomes, Wheeler's model shifted the focus to the experiences. Wheeler's main concern was organizing opportunities for learners to interact with their learning environment to facilitate effective learning (Bhuttah & Xiaoduan, 2019).

Wheeler's model stressed the interrelatedness of various elements within curriculum development and laid emphasis that evaluation can occur at any point in the process rather than solely at the final step. His model consists of five key steps:

1. Determination of aims and objectives
2. Selection of learning experiences
3. Selection of content
4. Organization and interpretation of learning experiences
5. Evaluation

Wheeler's model is cyclical, illustrating flexibility and continuity in the curriculum development process. It promotes the ongoing improvement by incorporating new information and insights (Bhuttah & Xiaoduan, 2019).

Despite the differences, all three models share common features. Ralph Tyler's model, being the earlier framework, has its four principles of curriculum rationale acknowledged and adapted by both Taba and Wheeler. While Taba and Wheeler build upon Tyler's principles with their own models, they introduce slight variations. Tyler accentuates the significance of aims, evaluation and regulation. In contrast, Taba's rationale begins with the identification of needs of a particular society before formulating objectives. Wheeler, on the other hand, underscores the interdependent nature of curriculum systems through his cyclical model, which promotes continuous improvement through the integration of new information.

In our pursuit of optimizing the TVET curriculum, the curriculum development process should begin with a thorough understanding of learners' needs and their current level of understanding. This foundation will be followed by defining clear and relevant objectives, which will guide the selection of course content and learning experiences.

As emphasized by Wheeler, evaluation should be an integral part of each stage of the curriculum development process. This continuous assessment will enable us to

refine and update the TVET curriculum, ensuring that it remains relevant and effective in meeting the needs of learners and the demands of the job market.

Next, we will discuss how these models are reflected while developing TVET curricula. We will also discuss the most favorable type of curricula that is suited best to ensure the quality of TVET programs.

Types of Curricula

There are many different types of curricula, each with its own strengths and weaknesses. For the purpose of this paper, we will focus on three types of curricula that aim to determine the best approach to ensure the quality of TVET programs. These types are:

1. Traditional curriculum
2. Outcome-based curriculum
3. Competency-based curriculum

Each of these curricula offers distinct perspectives on education and training.

A *traditional curriculum* is characterized by a structured framework centered around a fixed body of knowledge, often adhering to a standardized format. This type of curriculum gives emphasis to the delivery of content in a linear, sequential manner, primarily focusing on face-to-face, teacher-centered instruction. In a traditional curriculum, the teacher typically leads discussions and imparts knowledge directly to students. Instructional materials predominantly consist of textbooks, lectures, and individual written assignments (Sherpa, 2018).

An outcome-based curriculum (OBC) is a learner-centered approach that focuses on the desired results or outcomes of the educational process (Shamsudeen, 2023). This shift from a traditional, teacher-centred model emphasises on what students should know and be able to do by the end of a course or program. At the core of the OBC is the idea that learning outcomes, teaching methods, and assessment strategies should be aligned and work together to achieve the intended learning goals (Spady, 1994).

A key aspect of the OBC is its focus on learning outcomes, which are clear and specific statements of what students are expected to achieve. These outcomes serve as the foundation for designing the curriculum, teaching methods, and assessment strategies. By prioritizing learning outcomes, educators can ensure consistency and coherence in the design process. The OBC places students at the center of the learning process, encouraging active participation and engagement (Shamsudeen, 2023). This approach recognizes that students are unique individuals with diverse learning needs and styles, and it allows them to take ownership of their learning. The OBC's focus is also on skills and knowledge that are relevant in real-world contexts, preparing students for success in their future careers.

To achieve the specified outcomes, the OBC often utilizes a variety of assessment methods such as project-based evaluations, presentations and self-assessments in addition to traditional exams. This allows

educators to measure student learning in a more comprehensive and nuanced way.

A *competency-based curriculum (CBC)* accentuates the development of specific competencies - knowledge, skills and attitudes - that student must demonstrate to progress in their education. This approach is learner centered that often includes individualized learning materials, allowing students to advance at their own pace based on their mastery of the skills (Boahin, 2018; Guthrie, 2009). CBC focuses on competencies that are directly aligned with industry standards and job requirements, ensuring that students acquire the practical skills and knowledge necessary for success in the workforce (Boahin, 2018). This alignment is particularly crucial in technical fields where practical skills are essential for employability.

All three types of curricula include the key elements that are highlighted in the models discussed above. The common elements include what has to be learnt by the learners (objectives), how will they learn (learning experiences), what methods/media will help them learn and how well they have learnt (evaluation). While analysing, one can identify the limitation of the traditional curriculum for its tendency to overlook individual learning needs and styles. Additionally, it often places less emphasis on the real-world applicability of knowledge, which can hinder students' ability to connect their learning to practical applications in the workplace. Whereas, the OBC provides flexible learning paths or methods for students to choose from, facilitating them to select the approaches that suit best to their learning styles and needs. This flexibility fosters a more inclusive and supportive learning environment, where students feel empowered to learn and grow.

Among all, competency-based programs typically involve hands-on training and real-world tasks, making the learning experience both relevant and applicable. Students actively engage in real-world scenarios to practice and refine their skills, thereby reinforcing their learning through practical applications. Assessment in CBC is both formative and summative (Boahin, 2018), providing ongoing feedback to students regarding their progress toward mastering specific competencies. This feedback mechanism allows students to understand their strengths and areas for improvement, fostering a growth mindset.

Selection of the most appropriate curriculum approach for TVET programs hinges on both the needs of the students and the requirements of the industries for which they are being trained. Among the traditional, outcome-based, and competency-based curricula, the CBC is often regarded as the most effective for TVET programs for several compelling reasons:

Level of knowledge: Traditional curricula may provide a broad foundational knowledge but often fall short in equipping students with the specific technical skills and competencies required in the workplace. These curricula

tend to emphasize rote memorization and structured content delivery, which may not accurately reflect real-world skills (Boahin, 2018). While OBC offers a stronger emphasis on learning outcomes, it may lack the flexibility and focus on practical skill application that CBC provides. The OBC typically operates within a more structured, time-based framework, which may limit the adaptability necessary for effective vocational training (Shamsudeen, 2023).

Alignment with industry requirements: Traditional curricula are often developed by educators with limited input from industry stakeholders, resulting in programs that may not be regularly updated to meet current industry demands. Although the OBC may consider industry requirements, the CBC is specifically designed to align closely with these standards, ensuring that students acquire the skills and competencies that are directly relevant to today's job market.

Learning approach: Traditional curricula are often content-based, relying heavily on textbooks and worksheets, and usually teacher-centered. In this model, students tend to be passive listeners, with their learning primarily assessed through written exams. Conversely, the OBC focuses on the overall achievements of learners, while the CBC stands out for its learner-centered approach. The latter employs individualized learning materials and emphasizes not just what students need to know but also how they can apply their knowledge, skills and attitudes in real-world contexts.

Flexibility: Traditional curricula are typically rigid and follow a strict timeline, making it difficult for students to progress at their own pace. The OBC also adheres to a set timeline with defined exit outcomes. In contrast, the CBC offers a flexible learning environment that encourages continuous feedback, allowing learners to develop the competencies required in their respective industries at their own pace.

Curriculum Practices and Labor Market Trend in Nepal

Nepali labor market is changing rapidly and mainly influenced by the global technological advancement. This trend, however, presents adequate opportunities for Nepal to improve its labor productivity in various sectors by producing competent human resources through TVET programs. This can be achieved by increasing investment in human resources by providing technical skills to the perspective youths through the labor market responsive TVET programs. However, many studies have revealed significant gaps between the competencies acquired by the TVET graduates and the competencies required by the labor market in Nepal. The study conducted by Rimal (2023) highlighted the labor market mismatch in the TVET sector with a high skills gap among graduates. There are several reasons identified for the mismatch of skills in various studies such as lack of qualified teachers (Bhatta, 2023), lack of workplace learning (Paudel & Parajuli, 2023), and mismatch between the course and industry needs (Bagale, 2018). The reasons

highlighted by these studies indicate that the TVET curriculum in Nepal is not yet aligned with the industry needs.

The TVET programs are successful only when the curriculum comply with the market demands. The CBC is generally the best fit in the TVET arena due to its strong focus on practical skills, alignment with industry needs, individualized learning paths, and emphasis on real-world competencies. Furthermore, it places huge importance on mastery of skills over mere completion of course content, helping students develop competencies required in the labor market. Ultimately, the CBC prepares students not only for immediate entry into the workforce but also for continued education, equipping them with the skills required for lifelong learning and adaptability in their careers.

Conclusion

In conclusion, the curriculum plays a pivotal role in shaping the educational landscape, particularly in TVET. A well-structured curriculum not only defines the knowledge, skills and values that learners should acquire but also aligns with industry needs to augment employability and productivity. The distinction between traditional, outcome-based, and competency-based curricula underscores the varying approaches to imparting education, with the CBC emerging as the most effective model for TVET.

The CBC emphasizes practical skills, flexibility, and individualized learning paths, making is sure that students are resourceful with the skills required by the workplaces. This model not only focuses on what students need to learn but also how they can apply their knowledge and skills in real-world contexts. By incorporating continuous feedback and aligning closely with industry standards, the CBC prepares learners for immediate entry into the job market while fostering lifelong learning abilities.

Ultimately, for the TVET programs to thrive and effectively meet the economic and social needs of society, the curriculum must be thoughtfully designed and implemented. This involves continuous engagement with industry stakeholders, adaptability to the changing workforce demands, and a persistent focus on both student needs and real-world applicability. As such, the pursuit of a high-quality TVET curriculum rooted in the principle of competency-based education is imperative for empowering individuals and driving sustainable development.

References

Bagale, S. (2018). Necessity of linkage of TEVT with industry in Nepal. *International Journal of Social Sciences and Management*, *5*(4), 237-242.

Bhatta, K. (2023). Quality assurance agenda in Nepali TVET system. *Journal of Technical and Vocational Education and Training (TVET)*, *17*(1), 74-81.

Bhuttah, M., & Xiaoduan, C. (2019). Analysis of curriculum development stages from the perspective of Tyler,

Taba and Wheeler. *European Journal of Social Sciences,* 58(1), 14-22. http://www.europeanjournalofsocialsciences.com/

Boahin, P. (2018). Competency-based curriculum: a framework for bridging the gap in teaching, assessment and the world of work. *International Journal of Vocational and Technical Education Research, 4*(3), 24-37. www.eajournals.org

Brewer, L., & Comyn, P. (2015). *Integrating core work skills into TVET systems: Six country case studies.* ILO.

Cave, K., McDonald, P., Ditjola, N. & Renold, U. (2023). *A ticket up and a ticket out: Promoting and ensuring permeability in education system reform*. https://doi.org/10.3929/ethz-b-000599202

European Centre for the Development of Vocational Training. (2023). *The future of vocational education and training in Europe: synthesis report* [Cedefop Reference series No 125]. http://data.europa.eu

European Centre for the Development of Vocational Training. (2024). *Curriculum design and development: Guidelines and best practices.* https://www.cedefop.europa.eu/en/publications/2204

Eze, T. I., & Okorafor, O. (2012). New approaches to the development of technical, vocational education and training (TVET) curriculum for improved labour productivity. International Journal of Educational Research, 12(1), 101-108. https://www.researchgate.net/publication/330312021

Glatthorn, A. A., Boschee, F., Whitehead, B. M., & Boschee, B. F. (2018). *Curriculum leadership: Strategies for development and implementation* (5th ed.). Sage.

Guthrie, H. (2009). *Competence and competency-based training: What the literature says.* NCVER. https://www.ncver.edu.au/__data/assets/file/0022/5089/op04170r.pdf

Musingafi, M. C. C., Mhute, I., Zebron, S., & Kaseke, K. E., (2015). Planning to teach: Interrogating the link among the curricula, the syllabi, schemes and lesson plans in the teaching process. *Journal of Education and Practice, 6*(9), 54-59. https://www.researchgate.net/publication/274377183

Ornstein, A. C., & Hunkins, F. P. (2017). *Curriculum: Foundations, principles, and issues. (7th ed.)*. Pearson.

Palupi, D. (2018). What type of curriculum development models do we follow? An Indonesiaâ€™s 2013 curriculum case. *Indonesian Journal of Curriculum and Educational Technology Studies*, 6(2), 98-105. https://doi.org/10.15294/ijcets.v6i2.26954.

Paudel, P. K., & Parajuli, M. N. (2023). Schooling beyond the school: workplace learning in Nepal. *Journal of Workplace*

Learning, *35*(2), 228-241.

Pavlova, M. (2014). TVET as an important factor in country's economic development. *SpringerPlus, 3*(1), 1-2. https://doi.org/10.1186/2193-1801-3-S1-K3

Rimal, I. (2023). Effectiveness of vocational training on light vehicle mechanics in underprivileged children's educational programs, Nepal. *Journal of Technical and Vocational Education and Training (TVET)*, *17*(1), 57-64.

Shamsudeen, M. T. (2023). Designing an effective OBE curriculum: A guide to conceptual framework and implementation strategy. *Journal of Emerging Technologies and Innovative Research, 10*(4), 508-513.

Sherpa, K. (2018). A comparative study on traditional and contemporary curriculum. *International Journal of Research in Humanities, Arts and Literature*, 6(5), 345-350. https://oaji.net/articles/2017/488-1528699578.pdf

Spady, W. G. (1994). *Outcome-based education: Critical issues and answers* American Association of School Administrators. https://files.eric.ed.gov/fulltext/ED380910.pdf

Stabback, P. (2016). *What makes a quality curriculum?* United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000243975

Tam, M. (2014). Outcomes-based approach to quality assessment and curriculum improvement in higher education. *Quality Assurance in Education, 22*(2), 158-168. https://doi.org/10.1108/QAE-09-2011-0059

UNESCO. (2012). *Transforming technical and vocational education and training: Building skills for work and life: working document.* http://unesdoc.unesco.org/images/0021/002160/216065e.pdf

UNESCO. (2016). *Competency-based education and training: A roadmap for implementation.*

UNESCO. (n.d.). *TVETipedia glossary.* Retrieved February 14, 2025, from https://unevoc.unesco.org/home/TVETipedia+Glossary

UNESCO/UNEVOC (2024). *Curriculum issues and perspectives in vocational education and training.* https://unevoc.unesco.org/pub/2024

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Article

Preparing TVET Instructors in Nepal: Challenges and Way Forward

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Abstract

Instructors of the Technical and Vocational Education and Training (TVET) play a crucial role in developing skilled human resource for the country by transferring market relevant skills. However, some instructors face challenges to give best in their roles. Therefore, removing the barriers before instructors and keeping them motivated with a conducive environment is imperative. The purpose of this research article is to investigate the challenges and considerations in preparing TVET instructors in Nepal. This study was conducted using a qualitative research methodology. It focused on four provinces of Nepal with Human Development Index (HDI) values. Both primary and secondary sources of information were collected. A total of ten participants, including TVET instructors and principals and managers from both public and private institutions, were purposefully selected.Qualitative information was collected by using online Google form, and thematic analysis was used to assess the information.The findings of this study uncovered several significant challenges in preparation of TVET instructors in Nepal. The challenges include lack of industry relevant curriculum to address the need of real world scenario, absence of instructors' contribution in curriculum designing, inadequate professional development opportunities to the instructors, particularly beyond the constituent schools, insufficiency of practical knowledge of emerging technologies, lack of proper training need assessment of instructors, dearth of industry experience, absence of systematic performance management system and low motivation to instructors.The findings demonstrate the strong need to address the challenges and increase motivation to the instructors.

Keywords: professional development, challenges, TVET instructors, motivation

Introduction

The Technical and Vocational Education and Training (TVET) plays a pivotal role in equipping individuals with necessary skills and knowledge to meet the demands of the ever-evolving labor market (UNESCO, 2022). Central to the success of TVET initiatives are instructors who serve as the backbone of the system, shaping the learning

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experiences and professional development of students (Adhikari et al., 2023). The quality and proficiency of TVET instructors are critical factors that influence the overall effectiveness of TVET programs. As TVET continues to gain prominence in Nepal's education and economic development agenda, enhancing the capacity and proficiency of TVET instructors become a strategic imperative (Lamsal & Bajracharya, 2023).

TITI offers Occupational Skills Upgrading (OSU) training programs to instructors by placing them in business and industries for real work exposures. The quality of training programs and services depends on the ability and willingness of instructors (Bhandari, 2023a). Professional expertise does not happen on its own; one needs to invest in it to grow as a professional instructor. The efficiency and effectiveness of TVET programs are measured by the volume of employment and self-employment of graduates (Subedi, 2012). Thus, instructor management, which is essential to its functioning, faces many difficulties. These include low training standards, insufficient credentials, and unstable employment for instructors, which ultimately leads to significant employee turnover and a reliance on part-time labor that lowers the quality of teaching. Due to the lack of authorized teaching positions, TVET institutions are forced to use temporary contracts, which further worsen turnover problems (Ministry of Education, Science and Technology [MoEST], 2022).

The quality of TVET programs depends on the quality of the instructors. However, preparing and supporting these instructors pose significant challenges in Nepal due to various systemic, institutional and contextual factors (Bhandari, 2023b).

The majority of instructor training programs currently in place attach more emphasis on instructional skills than on workplace-based and OSU. In addition, lack of a licensing system for instructors erodes their credibility and professional status, which further contributes to apathy toward the field. The undervaluation of TVET instructors' efforts and the uncertainty surrounding their career prospects are the results (MoEST, 2022).

These challenges not only hinder the effectiveness of TVET programs but also impact the employability and competitiveness of graduates in the job market. Understanding the complexities surrounding the preparation of TVET instructors in Nepal is crucial for developing comprehensive strategies to address these challenges and improve the overall quality of vocational education.

This paper aimed to explore the specific obstacles and reasons that affect the preparation of TVET instructors in Nepal. The following sections of this paper will examine the existing literature on TVET training in Nepal and provide an overview of the challenges faced by TVET instructors, and discuss the considerations and strategies for improving their preparedness.

Research Questions

To achieve the purpose of this study, the authors formulated the following research questions:

1. What are the key challenges faced in preparing TVET instructors in Nepal?
2. How can training and professional development program for TVET instructors in Nepal be enhanced?

TVET Instructors Preparation in Nepal

The Council for Technical Education and Vocational Training (CTEVT) was established in 1989 as a national autonomous apex body for production of the technical and skilled human resources required for the nation. The CTEVT Act 1988, Section 16, mandated the establishment of the TITI as a semi-independent institution, which was established in November 1991. TITI's main objective is to train TVET educators, like principals, instructors, curriculum developers, and community facilitators. Its purpose is to enhance the quality of technical education and vocational training in Nepal (CTEVT, 2024).

TITI has a rich history of serving the nation by imparting instructional skills training. TITI is committed to addressing the comprehensive training requirements of technical human resources, managers, and curriculum developers within the TVET sector nationwide. Known for its expertise, TITI's influence extends across many countries in Asia and beyond. Renowned for their excellence, TITI's instructional materials are widely acclaimed and have been embraced by numerous countries across Asia and beyond. Operating under the mandate of CTEVT Act, TITI delivers training to trainers, technical instructors, managers, occupational curriculum development specialists, and community development specialists (TITI, 2024a). It develops instructional training frameworks and modules for both pedagogical and occupational skills to implement at national and provincial-level institutes, aiming to develop quality instructors aligned with industry demands. Functioning as a central hub of technical knowledge, TITI plays a vital role in advancing instructional expertise. By deploying chief and consultant master trainers from TITI, this initiative could effectively enhance the competency of instructors (MoEST, 2022).

Role and Significance of TVET Instructors

The role of TVET instructors is crucial; thus, effective training plays an important role in enhancing the quality of education. Well-trained instructors not only provide support to school management but also serve as catalysts for enhancing relationships within the school. Moreover, trained instructors exhibit a willingness to embrace innovation, leading to the adoption of improved study habits. Additionally, they demonstrate enhanced utilization of textbooks and curricula, employing teaching methodologies that are conducive to the learning needs of

children (Subedi, 2014). In the Southeast Asian region, TVET teachers have been a significant concern in most ASEAN member countries due to both a shortage in numbers and challenges in teacher quality (SEAMEO VOCTECH, 2024).

Existing Challenges in Preparing TVET Instructors

Several issues and challenges face Nepal's TVET sector. These include a lack of industrial experience among instructors, insufficient training opportunities, and insufficient refresher training programs as per market needs. Paryono (2015) points out that insufficient equipment further hinders effective training delivery. Sharma (2019) also emphasizes the critical issue of a shortage of qualified teachers, which leads to poor quality training. There are vacancies not fulfilled for long, low remuneration, insufficient teaching-learning materials, inadequate monitoring and supervision mechanisms, and a lack of performance-based incentives and rewards are other pressing concerns. Addressing these multifaceted issues will be critical to improving the quality and efficiency of Nepal's TVET workforce.

The competence and dedication of instructors and managers within training institutions determine the quality of program and service delivery. Professional competence is not acquired overnight; it requires perseverance and deliberate development. The commitment of these instructors has a significant impact on their ability to provide skillsand secure job placements for program graduates. This is critical because the effectiveness of TVET programs is measured by graduates' employment or self-employment rates. Thus, the quality of TVET programs and services is determined by factors such as accessibility, equity, efficiency and relevance (Subedi, 2012).

Methods

This study adopted a qualitative research method as the primary method of data collection and document analysis for the secondary data (Creswell & Poth, 2018). The study was conducted in four provinces in Nepal: Madhesh Province, Bagmati Province, Gandaki Province, and Karnali Province. These four provinces were selected based on the HDI value, which also varies across the provinces, and the selection of instructors is done from the lowest two provinces to the highest two provinces to get a deeper understanding of the issues faced by TVET instructors (UNDP, 2020). In total, 10 participants were purposefully selected from different TVET institutions to capture a broad spectrum of perspectives and experiences related to TVET training across different types of institutions in Nepal (Creswell, 2016). This consists of seven TVET instructors and two principals and one general manager of a TVET institute. The participants were drawn from a diverse range of TVET institutions, including five constituent schools of CTEVT and three private TVET institutions affiliated to CTEVT.

The qualitative data were collected through open-ended questionnaire, using an online

Google Form to gather insights into the challenges faced by TVET instructors in preparing for their roles, as well as the considerations and strategies that could enhance their professional development (Maxwell, 2012). The questions were designed to explore key themes such as the training and qualifications of TVET educators, the support and resources available to them, the pedagogical approaches used in TVET programs, and the broader contextual factors influencing the effectiveness of TVET training in Nepal. Thematic analysis was used to identify key themes and patterns emerging from the study data, providing a deeper understanding of the issues faced by TVET instructors (Clandinin & Connelly, 2000). It helps to identify key challenges and considerations in preparing TVET instructors in Nepal (Creswell & Creswell, 2018). During the data interpretation and analysis, the interviewees were contacted through phone calls for clarification and confirmation as needed. Besides, the findings from the study, the existing literature on TVET instructors, training and professional development were reviewed to enrich the analysis and provide a nuanced perspective on the subject matter (Olsen, 2004).

Findings and Discussion

We delve into the findings and discussions of this study to bring to light important insights revealed through a qualitative examination of this relevant issue. This section is concentrated on grasping the present practices and challenges facing the TVET instructors in Nepal, and has discussed potential approaches to improve the standard of training and professional growth of TVET instructors in the country.

Findings

Current Practices and Key Challenges in Preparing TVET Instructors

As per findings of the study conducted among the principal/head of the institution of private sector and constituent schools, they have a practice to provide instructional skill training to the fresh instructors and OSU training as well as management and leadership training.

From this perspective, a principal mentioned:

> *School provides different trainings, targeting to new and existing staffs such as instructional skill training tailored for new staff that focus on facilitation skills to enhance their ability to deliver the course effectively. Likewise, OSU training is provided to the existing staff to equip with advanced competencies. The instructors are also provided with management and leadership training to nurture managerial competencies and leadership qualities.*

This illustrates the emphasis on professional development opportunities within the school. In other words, the provision of tailored instructional skill training for new staff highlights the commitment to ensure that employees have the necessary skills to effectively carry out their roles. Additionally, offering the OSU training to the existing staff demonstrates a focus on

continuous learning and growth within the organization. Moreover, the investment in management and leadership training for instructors underscores the school's dedication to supporting the development of managerial competencies and leadership qualities among its staff. This indicates a strategic approach towards building a skilled and capable workforce that contribute to preparing competent human resource for the labor market.

Furthermore, some private technical schools adopted an authentic learning method where students are trained based on the labor market needs. In this regard, a general manager at a private technical school expressed:

> *The school keeps students and instructors intact to the industry relevant and current standards. Key trainers for different subjects are from the industry who hold the positions as working professionals; they bring the industry experience, expertise and exposure together*.

This acknowledges the school's commitment to keeping both students and instructors connected to industry-relevant and current standards. The practice of having key trainers from the industry who are working professionals themselves is highly beneficial as it brings real-world experience, expertise, and exposure into the classroom. By having industry professionals as instructors, the school enhances the relevance of its curriculum and ensures that students are receiving up-to-date knowledge and skills that are directly applicable to the workplace. This approach not only adds credibility to the learning experience but also provides students with valuable insights and perspectives from those actively engaged in the industry.

Sharma (2019) highlights the issue of a shortage of qualified teachers, which results in subpar training quality. Contributing factors include vacancies left unfulfilled for a long time, unattractive salary structures, inadequate investment in teaching-learning materials, insufficient monitoring and supervision processes, and the lack of performance-based incentives and rewards. Tackling these complex challenges is essential for enhancing the quality and effectiveness of Nepal's TVET workforce.

Additionally, while several institutions have made commendable steps in adapting effective practices to enhance the quality of TVET programs, they continue to face numerous challenges. These obstacles, which range from inadequate funding and insufficient infrastructure to a lack of skilled instructors and limited industry partnerships, significantly hinder the successful implementation and delivery of training programs. As a result, many aspiring learners are unable to access the high-quality education and practical skills necessary for thriving in today's competitive job market.

In exploring the challenges associated with the delivery of TVET programs, an instructor from a constituent school provided valuable insights. The observations

highlight several critical issues that impact the effectiveness of training initiatives, emphasizing the importance of addressing communication barriers among trainees, updating curricula to meet industry needs, overcoming infrastructure limitations, and ensuring access to necessary raw materials for practical instruction. In this regard, an instructor stated:

> *The delivery of TVET programs faces several challenges. One key issue is ensuring effective communication as participants come from diverse linguistic backgrounds.This diversity makes it difficult for instructors to teach students withinsame classroom. Additionally, lack of industry relevant curricula hinders the practical application of skills, necessitating regular updates to align with industry demands. Infrastructure limitations, including inadequate facilities and equipment, further impact the learning experience.*

This excerpt illustrates that there is a relevant issue of effective communication and comprehension among trainees from diverse linguistic backgrounds - a crucial issue that can impact learning outcomes and overall program effectiveness. It is imperative for the institutions to implement strategies such as language support services or cultural sensitivity training to address this issue and ensure all students have equal opportunities to succeed. The instructor pointed out that although some curriculum is revised periodically, the updates do not include the current market demand. It largely follow the old methods that focused more on theoretical knowledge than on practical aspects. This creates a challenge to provide up-to-date knowledge and skills and prepare students for today's rapidly evolving job market. Regular updates to the curriculum with the meaningful involvement of industry and guarantee of public participation are essential to align with industry demands and ensure that graduates are well-prepared for the job market.

Another pressing concern is infrastructure limitations such as inadequate facilities and equipment, which can hinder the learning experience and practical skill development of students. Addressing these challenges may require investment in improving infrastructure, upgrading equipment, and expanding resources to create a conducive learning environment. This will enhance the quality of TVET programs and better prepare students for success in the workforce. These factors collectively undermine the efficacy of TVET initiatives, emphasizing the necessity for comprehensive reforms to enhance their impact on skill development and employability. Thus, collaboration among educational institutions, industry partners, and policymakers is key to overcoming these obstacles and fostering a more effective and responsive TVET system.

Quality and Relevance of TVET Program

In examining the quality and relevance of TVET programs in Nepal, this section

highlights key insights gathered from various stakeholders, including managers of private technical school, principals and instructors from constituent schools. They brought up a number of important issues. It is found that instructors have less experience and exposure to industry, less familiarity with current and updated tools and technology for the practical and inadequate awareness about the ways of addressing the needs of diverse learners. Another major challenge is a skill mismatch. TVET programs' failure to pay attention to the current need and relevance is another key issue which creates a gap in linking education to employment. Based on that, a principal mentioned:

> *The existing curriculum does not sufficiently reflect the needs of the market, as it gives more weight to higher education than world of work. The instructors do not have the industrial exposure or experience which, however, is crucial to have real-world experience in order to guarantee that instruction is applicable and efficient. Additionally, the eligibility criteria for the enrolment should be reviewed.*

This acknowledges the critical points raised regarding the alignment of the curriculum with market needs and the importance of instructor qualifications in vocational education. The observation that the existing curriculum may prioritize higher education over the practical skills needed in the workforce highlights a key issue that must be addressed to better prepare students for employment. Likewise, reviewing the eligibility criteria for enrollment is essential to ensure that students entering vocational programs have the necessary skills and aptitude for success. By reassessing and potentially revising these criteria, institutions can better match students with programs that align with their career goals and industry requirements. The lack of industrial exposure or experience among instructors is a significant concern, as real-world experience is invaluable in providing relevant and practical instruction to students.

To this end, instructor training programs, partnerships with industry professionals, and opportunities for instructors to gain practical experience can help address this gap and enhance the quality of instruction in technical and vocational education. These measures are vital for improving the relevance and effectiveness of vocational education programs and better preparing students for successful careers in the workforce.

This highlights that partnership and linkage with industry is essential for improvement of quality and relevance of the TVET program. The study shows that the career path for the students is so uncertain in Nepal. One of the principals of a technical school from Bagmati province stated: "*Due to the absence of TVET Act, there is lack of clear direction for the leadership positions in TVET."*

The principal's view illustrates that the Act is the first and the foremost to improve the quality of the TVET program to link with

market needs.There is a critical need to prioritize research in the TVET sector to ensure its continuous improvement and relevance. Emphasis should be placed on demand-driven subjects that align with labor market needs. Updating the curriculum regularly is essential to keep pace with industry advancements and emerging trends. Moreover, technical education must be made accessible to all, fostering inclusivity and equity in skills development.

Essential Skills and Competencies for TVET Instructors

The skilled and competent instructors play a crucial role not only in supporting school and student but also in fostering stronger relationships within the school community. This section highlights the necessary skills and competencies required for the TVET instructors. Wagiran et al. (2019) highlights three competency domains for effective instructors: technical expertise in their field, pedagogical skills for designing and delivering impactful learning experience and personal and social skills, including emotional intelligence and communication, to foster a positive learning environment for diverse learners.

In Nepal, various trainings are designed to achieve different objectives with focus on instructional skill, occupational skill, Occupational Skill Upgrading (OSU), Training of Trainers (ToT), governance, etc. with the aim of augmenting individual job performance, which is necessary for the achievement of the organization's goal (TITI, 2024a).

Regarding the essential skills and competencies of TVET instructors, one of the principals froma technical school stated:

> *Technical expertise, instructional skill, training of trainer, OSU training, familiarity with current instruments of laboratories and industries, effective communication, adaptability to diverse learners, and staying up-to-date with industry developments are essential qualities of instructors. Furthermore, course delivery should incorporate industrial exposure to make it compatible with updated technology and market dynamics, while specialization within specific departments or courses can enhance skill development.*

The well-trained instructors are open to embracing innovative practices, which facilitates the development of better study habits among students. They also make more effective use of textbooks and curricula, employing teaching methods tailored to meet the diverse learning needs of children (Subedi, 2014).

Therefore, prioritizing technical knowledge, occupational skill training, occupational skill upgrade training, pedagogical skill, communication skills, and problem-solving abilities is essential for both instructors and learners alike. It illustrates that along with technical skills, soft skills are equally essential for TVET instructors to be more practical in the world of work.

Staying Updated for Enhanced Training Delivery

Participating in industry professional exchange programs, both within the institute and with external instructors, emerges as the most efficient means to remain updated on the latest technologies, techniques, and industry best practices. These programs empower instructors to readily adapt to the evolving industry trends and advancements. Additionally, actively engaging with new technologies and seeking information from various sources further enhance one's knowledge base. One of the instructors from Bagmati province stated: *"Instructors from the TVET institutions are capacitated and updated through industrial collaborations, attending workshops offered by CTEVT, I/NGOs, and access to online resources."*

This highlights the importance of participation in professional exchange programs within the industry and with external instructors. It illustrates the crucial strategy for staying updated with the latest technologies, techniques, and industry best practices. This helps instructors adapt to the evolving industry trends and equips them with the practical knowledge and skills necessary for effective training delivery. Similarly, collaboration with industries, participation in the workshops provided by organizations like CTEVT or other institutions, and use of online resources contribute significantly to stay informed. These activities are further linked to improvement of professional skills.

In the dynamic landscape of education and industry, continuous growth and adaptation are vital. An instructor from Madhesh province emphasizes this necessity by stating, "*Gaining industrial exposure, participating in OSU training, honing instructional skills, and conducting research are essential components of staying well-informed of developments."*

This insight underscores the importance of practical experience and ongoing professional development in ensuring that instructors remain at the forefront of their fields. The diverse aspects of professional development in the TVET sector are also stressed in it. While there might not be a specific process, it is crucial for individuals to proactively seek learning opportunities whether through formal training programs or self-directed learning via internet resources and peer interactions. To this end, personal initiatives such as attending seminars, conferences, and free web-based training courses also play a vital role in continuous professional development.

With this, it appears when there is lack of a standardized process for professional development, individual initiatives count much in pursuing learning opportunities. In short, it signifies that professional development in the TVET sector is multifaceted where collaboration, innovation, and individual efforts are essential in preparing instructors to meet the evolving demands of the industry.

Support and Resources for Enhancing TVET Instructors' Skills and Competency

The general practice is such that TITI sets the

competency standard for instructors. Also, TITI conducts blended learning programs such as comprehensive ToT for Master Trainers and Instructional Skill for TVET instructors to ensure all of the instructors are proficient in the current technology and techniques (TITI, 2024b).

The primary areas where TVET instructors can enhance their skills encompass online learning platforms, digital literacy, and training delivery competencies. These facets are pivotal for staying current in an increasingly digitalized world and for ensuring effective knowledge dissemination to students. Research participants mentioned that support systems such as appreciation, motivation, and access to continuous training are crucial for nurturing conducive environment for the professional growth. In the pursuit of excellence in technical education, the role of effective teaching techniques cannot be overstated. A principal from a technical school articulated:

> *To maximize learning results, instructional skills development focuses on providing instructors with efficient teaching techniques. The training of trainers to the instructors guarantees that individuals dispensing knowledge have a strong grasp of the subject matter and can successfully convey practical skills to students. Occupation specific skill upgrading is essential for keeping professionals up-to-date with emerging technologies and industry norms. An example is Tungsten Inert Gas (TIG) and Metal Inert Gas (MIG) welding procedures in the field of mechanical engineering. TVET institutions can better train their instructors to meet the demands of the modern industry and promote ongoing professional growth by giving priority to these areas*.

This perspective highlights the critical connection between instructor training and student success in today's rapidly evolving job market. In other words, this brings to light several key points on the importance of instructional skills development, training of trainers, and occupation-specific skill upgrading in the field of technical education. The principal emphasizes the need for providing instructors with efficient teaching techniques to maximize learning results. This implies that effective pedagogy plays a crucial role in students' achievement and overall educational outcomes. By focusing on improvement of instructional skills, the school aims to enhance the quality of education delivery. Similarly, the principal underscores the significance of training instructors who are responsible for imparting knowledge and skills to students. Ensuring that these individuals have a strong grasp of the subject matter is essential for effective teaching and learning processes. By investing in the professional development of instructors, the institutions have prioritized the continuous improvement of teaching practices. Moreover, the principal acknowledges the importance of keeping professionals up-to-date with evolving technologies and industry

norms. This proactive approach aligns with the growing technical fields and the need for continuous learning. Additionally, the principal emphasizes the role of TVET institutions in training workers to meet industry demands and promote ongoing professional growth. By giving priority to occupation-specific skill development, these institutions contribute to bridging the skills gap and ensuring that graduates are armed with relevant competencies. By focusing on these areas, the technical school aims to enhance the quality of education, equip students with practical skills, and support their transition into the workforce.

Furthermore, the provision of resources including tools, laboratory facilities, and industry coordination further fortifies the training process. Augmented industrial partnerships, ongoing skills upgrading programs, stakeholder engagements, well-planned infrastructural developments and motivation are essential for aligning training programs with industry needs. In this regard, one of the instructors from Karnali province mentioned:

> *Appreciation and motivation play critical roles in boosting morale and commitment among instructors, acknowledging their efforts and encouraging continuous improvement. Comprehensive training programs ensure they are resourceful to deliver high-quality education in line with industry standards. Lastly, fostering strong partnerships and coordination with industry stakeholders make sure that educational programs remain relevant and responsive to evolving industry needs; thus, these should be considered to boost quality of the TVET education in Nepal.*

This quote finely speaks several key factors that are key to quality TVET in Nepal. First of all, recognizing and appreciating the efforts of instructors is crucial for boosting their morale and commitment. When instructors feel valued and motivated, they are more likely to be dedicated to their work and continue improvement. Likewise, equipping instructors with the necessary skills and knowledge through training programs is imperative for making sure that they can deliver high-quality education that meets industry standards. Continuous professional development is equally vital for making instructors up-to-date with the latest trends and practices in their field.

Additionally, instructors emphasized that offering incentives or facilities to temporary instructors should be the same as permanent ones that can also serve as strong motivators for the staffs to excel roles and contribute positively to the TVET sector. It underlines the importance for organizations to prioritize relevant training opportunities and attractive benefits to retain skilled staff members.

Similarly, effective HR practices such as recruitment, retention, and talent development are significant to build a skilled and motivated workforce. By investing in the development of staff and creating a supportive

work environment, educational institutions can attract and retain talented individuals. Furthermore, collaborating with industry partners has a role in keeping educational programs relevant and responsive to the growing industrial needs. By fostering strong partnerships and coordination with stakeholders, educational institutions can increase employability of student (Mitiku, Zeleke, & Adem, 2021). Besides, it ensures that their instructors are prepared and well aware about the skill needed by industries. Resourceful industry and collaboration between government and industry are found crucial to enhance skills and capability of TVET instructors.

Assessing Effectiveness of Instructional Methods and Approaches

The study shows that instructors' assessment practice involves different approaches, including observation of training delivery, self-evaluation, students' performance evaluations, analyses of students' results, and collection of feedback from students and industries, and tracking of employment rates of graduates. These contribute to a comprehensive understanding of training outcomes. One of the instructors of Madhesh province remarked:

> *The schools adopt different ways to assess the effectiveness of teaching and learning. Feedback surveys play a crucial role in obtaining firsthand information about skill improvement, satisfaction levels, and learning experiences. Practical evaluations provide a concrete assessment of how successfully learners can use recently learned information and abilities in real-world situations, insights on applicability and efficacy of the training. Tracking of employment graduates is a vital sign of training effectiveness because it is the result of training*.

This provides an insightful perspective on various methods used by schools to evaluate the effectiveness of teaching and learning, including instructional skill. In fact, feedback surveys are mentioned as a crucial tool for obtaining firsthand information about skill improvement, satisfaction levels, and learning experiences. This aligns with best practices in education where feedback from students can help instructors understand what is working well and what areas need improvement. Meanwhile, the quote mentions the importance of practical evaluations to gauge how successfully learners can apply their recently acquired knowledge and skills in real-world situations. This is essential for determining the applicability and efficacy of the training provided, as it focuses on the practical application of learning outcomes. That is why, monitoring the employment status of graduates is highlighted as a vital sign of training effectiveness which further prepares instructors based on the result. All in all, the instructor emphasizes the importance of utilizing a combination of feedback mechanisms, practical assessments, and employment and self-employment tracking to comprehensively evaluate the

effectiveness of teaching and learning initiatives within educational institutions. Moreover, it underlines the significance of the instructor's preparedness and readiness in delivering impactful sessions.

Government Policies and Priorities

Government policies and regulations play a crucial role in promoting the recruitment, training, and retention of the qualified TVET instructors. Effective monitoring, evaluation, and implementation of policies are necessary to achieve these goals along with the guarantee of competitive salaries and benefits for both pre-service and in-service training programs. Additionally, preparing effective plans and policies for TVET, improving the work environment, allocating proper funds, providing professional development and career advancement opportunities, setting certification standards, supporting research and innovation are other essentials to pave way for quality TVET. It emphasized the preparation, capacity enhancement and satisfaction of the instructors through different opportunities. Job assurance should be in the government's policy and program, and implementation.

The principal of the TVET school underlined how significant the TVET Act is to implement the TVET program smoothly. Most of the respondents, including TVET instructors and principals, highlighted the need for instructor license. One of the instructors from Karnali province stated:

> *For promoting the recruitment, training, and retention of qualified TVET instructors, government policies and regulations are at place which plays crucial role through effective implementation, monitoring and evaluation to achieve the goals. The monitoring and evaluation should be more systematic and effective. The quality assurance and innovation unit should establish and work for the constant quality education and training.*

This means that government policies and regulations are described as pivotal in this process. This emphasizes the need for effective monitoring, evaluation, and implementation of policies and regulations. It also suggests that simply having policies in place is not sufficient; there must be mechanisms to assess their impact and ensure compliance for achieving the intended goals. Thus, the ultimate objective is to achieve the goals related to TVET training, which include enhancing the quality of education, meeting industry demands for skilled workers, and supporting economic development. By prioritizing the recruitment, training, and retention of qualified instructors, governments can contribute significantly to the advancement of vocational education and the overall socio-economic well-being of a nation.

In other words, respondents shared that there is a gap in licensing for the instructors to enter the service. The licensing provision could be a step to ensure the quality of the instructors. Additionally, they emphasized government

investment in research, timely update of the curriculum, and everyone's access to technical education. Further, respondents threw light on job security by recruiting permanent instructors and providing facilities to the temporary instructor similar to the permanent ones, promoting continuous skill upgrade training, and rewarding good performers. The motivation to the instructors through career development and financial planning was also seen crucial.

Discussion

The findings of this study emphasize the vital role of TVET instructors in delivering quality education because they are in the frontline to shape the future of students by providing quality education. Preparing TVET instructor is a continuous process with the CTEVT offering various trainings programs targeting to new and existing staffs as the findings suggest. These programs include instructional skill training, management and leadership training to nurture managerial competencies and leadership qualities. However, some respondents from beyond constituent schools reported that they had not received such trainings. This raises a question where other instructors were delivering the program effectively. One of the instructors stated that professional development of instructors had no uniformity which had direct impact on the quality of program offered. Additionally, training programs are based on standardized package, which are inadequate to meet the need of industry. Therefore, gaining practical industry experience is crucial for professional development that meets the evolving need of industries.

It is crucial to conduct periodic need assessment to identify gaps, categorize them and provide professional development according as the findings suggest. The focus of the training efforts should adopt a bottom up approach to ensure relevance and effectiveness.

The respondents mentioned they applied different approaches and methods in delivering content; however, the student enrolment and pass rate have been declining every year which shows that TVET was slow off the mark to attract students. Baral (2024) highlighted a concerning trend in his study of diploma-level-engineering programs, revealing a 16% decrease in enrolment from 10,450 registered students in the 2021/2022 academic year to 8,744 in 2022/23.

The data raise a serious question about quality and relevancy of TVET programs. If market-relevant content and effective delivery methods are being utilized, TVET should ideally attract more students and meet industry needs. Another important inquiry about how the training received is being applied in teaching practices. To address this, a post training evaluation is necessary to assess behaviour change and impact of training on instructors.

In this era of evolving communication and technology, TITI has been providing skill upgrade training to the instructors. However, many instructors feel that these efforts are

insufficient. While there are many resources available to learn and upgrade for self-improvement, the question is how they are using these resources for their professional development. The instructors also need to put greater efforts to upgrade their knowledge and skill and stay relevant in their field.

According to the respondents, curriculum is not in line with industry needs, lacking to address current market needs, which has resulted in graduates struggling to get the employment opportunities.

In the context of Nepal, curricula have not been effectively aligned with current need of industry. It is essential to design and update periodically and timely which can be further supported by research and need assessment (Bagale, 2018).

Lack of meaningful engagement of employers and limited public participation in curriculum development process contributes to the relevance gap in the curriculum (Bajracharya & Paudel, 2021). The situation indicates that engagement of employers in the curriculum development process is insufficient. Besides employers, another key actor is instructor who implements the curriculum, and knows in detail about the needed task, time, methodology and required practical sessions for particular task.These findings show that relevancy of curriculum is integral to quality TVET. The instructor's input and feedback can play a crucial role while designing and updating curriculum to make more effective and industry relevant. By focusing on these areas, TVET programs can better equip instructors to apply their training effectively, leading to the improved educational outcomes and a more skilled workforce.

In this study, instructors also highlighted that the motivation is the fundamental to their role. Motivated instructors are crucial for delivering effective training, enhancing student's outcome and improving overall effectiveness of TVET program. The support system such as recognition, appreciation, motivation and access to continuous training and professional development opportunities is essential for fostering this motivation.

Research shows that instructors' motivation significantly enhances their performance and overall effectiveness. Consequently, prioritizing instructors' motivation is crucial for improving educational quality and ensuring that instructors are well-prepared to address the evolving need of their students (Layek & Koodamara, 2024).

Moreover, the performance management system should be practiced to track performance targets and goal, and area of professional development. This system recognizes the best performers, and identifies their area of development. This motivates instructors who are doing well and helps them enhance their competencies.

The study findings are aligned with the theoretical lens of Competency-Based Education and Training (CBET). It also points out the critical role of aligning TVET curricula with labor market demands. One

of the recurring challenges highlighted is the inadequacy of curricula to meet industry standards. This gap emphasizes the misalignment between existing educational frameworks and the core tenets of CBET, which advocates for learning modules directly tied to occupational tasks. As emphasized by UNESCO (2022), CBET is grounded in designing learning objectives that addresses specific competencies demanded by the industries. The lack of industry exposure for instructors and delays in updating curriculum with meaningful participation from industry and relevant stakeholders to meet industry need not only hinders development of competencies but also limits the employability of TVET graduates.

Furthermore, professional development of TVET instructors is another area where the CBET principles can be effectively applied. The CBET advocates for iterative learning pathways, allowing instructors to acquire, apply, and demonstrate new skills in a cyclical manner. The current study's findings indicate a lack of continuous skill upgrading opportunities for all instructors. Embedding CBET strategies such as regular industry-oriented certifications and performance-based assessments could foster professional growth while ensuring instructors stay aligned with emerging technological and pedagogical trends (Deissinger & Hellwig, 2005). Additionally, the findings also reveal an emphasis on soft skills like effective communication and adaptability to the diverse learner needs as the essential components for instructors. These soft skills echo with the CBET focus on holistic learner development. By integrating these competencies into both instructor preparation programs and learner outcomes, Nepal's TVET system could better meet global workforce standards.

Similarly, industry collaboration, as identified in this study, plays a decisive role in enhancing the relevance and quality of TVET programs. The CBET principles strongly emphasize partnerships between education providers and industries to ensure the applicability of skills (Republic of Kenya, Ministry of Education, State Department for Vocational and Technical Training, 2018). The involvement of industry professionals as instructors, a practice already noted in some institutions, aligns with CBET's advocacy for contextual learning. Expanding such collaborations across more institutions would ensure that both students and instructor remain updated on current market needs, thereby improving program outcomes directly. Likewise, the study also underscores the need for supportive policies, including certification and standardized professional development frameworks.

Conclusion

The study acknowledges the decisive role that instructors play in shaping the quality of TVET delivery and student outcomes, emphasizing the need for targeted interventions that help enhance their professional development. It underscores the need for collaborative efforts among key stakeholders, including industries, TVET

institution, instructors and policy makers to address issues.

The preparation of TVET instructors is underway with standardized training package, but it is insufficient to meet the need of diverse instructors and lacks a foundation of thorough assessment and analysis. If the issues are not timely addressed with proper plan, it will adversely affect the quality of TVET and overall TVET system of Nepal. Consequently, there has been a declined attraction and enrollment in TVET sector. Therefore, one of the crucial aspects of TVET is professional development of instructors to deliver quality program.

More importantly, the study calls upon TVET stakeholders to provide unwavering support and empowerment to TVET instructors in view of their pivotal role in the success of the TVET system and to meet the evolving needs of the labor market in Nepal. Additionally, it is imperative to recognize and elevate the status of instructors. They should immerse themselves in real-world skill environments and be equipped with proper session delivery, technology integration, assessment, and feedback skills. Introducing TVET instructor licenses could further improve standards. Balancing pedagogical and industrial knowledge is essential along with constant training to keep pace with evolving industries and teaching methods. All of these efforts can contribute to the sustainable growth and effectiveness of TVET in Nepal and ultimately to ensure that TVET instructors' motivation towards their work.

References

Adhikari, R., Adhikari, S. R., Upreti, D. R., & Adhikari, K. P. (2023). Effectiveness of TVET in Nepal. *Journal of Technical and Vocational Education and Training*, *17*(1), 35-48. https://doi.org/10.3126/tvet.v17i1.52413

Bagale, S. (2018). Necessity of linkage of TVET with industry in Nepal. *International Journal of Social Sciences and Management, 5*(4), 237-242. https://doi.org/10.3126/ijssm.v5i4.21377

Bajracharya, A. M., & Paudel, P. K. (2021). Employers engagement in curriculum making process in Nepal: Meaningful or cosmetic? *Journal of Technical and Vocational Education and Training, 1*(15), 60-70. https://doi.org/10.3126/tvet.v1i15.45169

Baral, D. P. (2024). Declining enrolment in long-term engineering programs: Stakeholders' perspectives. *Journal of Technical and Vocational Education and Training*, *18*(1), 20–37. https://doi.org/10.3126/tvet.v18i1.62740

Bhandari, U. (2023a). Power struggle in the technical and vocationale Education and training (TVET) sector in Nepal. *IFF Working Paper Online.* https://doi.org/10.51363/unifr.diff.2023.37

Bhandari, U. (2023b). Technical and vocational education and training in federal Nepal: A critical analysis. *Journal of Technical and Vocational Education*

and Training, 17(1), 82-92. https://doi.org/10.3126/tvet.v17i1.52425

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research.* Jossey-Bass Publishers.

Council for Technical Education and Vocational Training. (2024). *Introduction to CTEVT.* http://ctevt.org.np/introduction

Creswell, J. (2016). *Research in education: Design, conduct and evaluation of quantitative and qualitative research* (N. Kouvarakou, Trans.). (Original work published 2005).

Creswell, J. W. & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches.* SAGE.

Creswell, J. W. & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.) SAGE.

Deissinger, T., & Hellwig, S. (2005). *Structures and functions of competence-based education and training (CBET):A comparative perspective.* https://www.researchgate.net/publication/30015315

Lamsal, H. P., & Bajracharya, A. M. (2023). TVET sector strategic plan, 2023-2032: A drive to success. *Journal of Technical and Vocational Education and Training*, *17*(1), 116–129. https://doi.org/10.3126/tvet.v17i1.52429

Layek, D., & Koodamara, N. K. (2024). Motivation, work experience, and teacher performance: A comparative study. *Acta Psychologica, 245.* https://doi.org/10.1016/j.actpsy.2024.104217

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach.* Sage.

Ministry of Education, Science and Technology. (2022). *TVET sector strategic plan (2023-2032 A.D.)*.https://planipolis.iiep.unesco.org/sites/default/files/ressources/nepal_TVET%20Sector%20Strategic%20Plan_2023-2032.pdf

Mitiku, G., Zeleke, B., & Adem, B. (2021). Examining the role of TVET-industry partnership on the acquisition of employability skills of polytechnic graduates in Oromia. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, *5*(2), 588–596. https://www.ajhssr.com

Olsen, W. (2004). Triangulation in social research: Qualitative and quantitative methods can really be mixed. In M. Holborn, Ed., *Development in Sociology (*pp. 1-30*).* https://pure.manchester.ac.uk/ws/portalfiles/portal/207102987/TriangulationChapterFinaleditedSS.pdf

Paryono, P. (2015). Approaches to preparing TVET teachers and instructors in ASEAN member countries. *TVET@Asia, 5,* 1-27. https://tvet-online.asia/wp-content/uploads/2020/03/paryono_tvet5.pdf

Rao, T.V. (1995). *Human resources development, experiences, interventions, strategies.* National Book Foundation.

Republic of Kenya, Ministry of Education, State Department for Vocational and Technical Training. (2018). *Competency-based education and training policy framework.*

SEAMEO VOCTECH. (2024). *Annual report fiscal year 2023 – 2024: Inclusive TVET for a green and digital future.* https://voctech.org/wp-content/uploads/2023/05/VOCTECH-Annual-Report-2023-2024.pdf

Sharma. T. N. (2019). *Review of the current situation of technical vocational education and training in Nepal 2019.* https://www.dakchyata-nepal.org/sites/default/files/Annual%20TVET%20Review%20Report%202019.pdf

Subedi, B. S. (2012). Prospects and challenges of TVET teacher education in the context of Nepal. *Technical and Vocational Education and Training Development Journal,1*(12), 20-36. http://www.ctevt.org.np/files/Research%20Journal%202012.pdf#page=26

Subedi, B. S. (2014). How relevant is teacher training to improve the quality of education? *TVET Development Journal, 1*(14), 19-25. http://ctevt.org.np/files/Research%20Journal%202014.pdf

Training Institution for Technical Instruction. (2024a). *About TITI*. https://titi.org.np/about

Training Institution for Technical Instruction. (2024b). *TITI newsletter* (No.63, December 2024).https://titi.org.np/publication/titi-newsletter-no-63-december-2024

UNDP. (2020). *Nepal human development report*, 2020. https://www.undp.org/sites/g/files/zskgke326/files/migration/np/UNDP-NP-NHDR-2020.pdf

UNESCO. (2022). *Transforming technical and vocational education and training for successful and just transition:Strategy for technical and vocational education and training (TVET), (2022–2029).*https://unevoc.unesco.org/pub/unesco_strategy_for_tvet_2022-2029.pdf.

Wagiran, W., Pardjono, P., Suyanto, W., Sofyan, H., Soenarto, S., & Yudantoko, A. (2019). Competencies of future vocational teachers: Perspective of in-service teachers and educational experts. *Cakrawala Pendidikan, 38*(2), 387–397. https://doi.org/10.21831/cp.v38i2.25393

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Article

Strengthening TVET through Private Sector Engagement in Nepal

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Abstract

The purpose of this study is to scrutinize existing legislative frameworks, policies, and the present scenario of private sector engagement in the technical and vocational education and training (TVET) in Nepal to understand their roles in developing a competitive technical and vocational workforce equipped with 21st century skills for employability. Utilizing qualitative research, the study reviews TVET-related legislative and policy documents as well as current implementation practices. Additionally, it uses Nepal as a case study to explore the tripartite relationship among the government, TVET providers, and private sector employers. It also reviews policies and plans, including the TVET Sector Strategic Plan (2023-32) and the 16th Periodic Plan, which emphasize collaboration between the government, academia and industry to create the skilled workforce. Despite efforts, the current state of TVET in Nepal, which is largely managed by CTEVT, shows minimal involvement from private sector employers compared to the government and TVET providers. Such insufficient industry engagement results in adverse impacts on graduates' employability. The study concludes urgency of effective collaboration among government, TVET providers, and private sector employers and calls for reform in legal and policy frameworks and the adoption of strategies to encourage meaningful private sector engagement in TVET. These strategies include apprenticeships, internships, and dual VET systems. This approach will not only help Nepal maintain a balanced relationship among key stakeholders but also enhance quality and relevance of TVET programs, leading to better employment opportunities for graduates and a more competitive national economy.

Keywords: TVET, private sector employers, work-based learning

Background

A balanced collaboration among the government, Technical and Vocational Education and Training (TVET) providers, and the private sector employers/industry, as depicted in Figure 1, ensures that the TVET system aligns with labor market needs.

In Nepal, it's frequently argued that the relationship among these three entities is imbalanced with a notable lack of meaningful engagement of the private sector employers.

This imbalanced relationship might be

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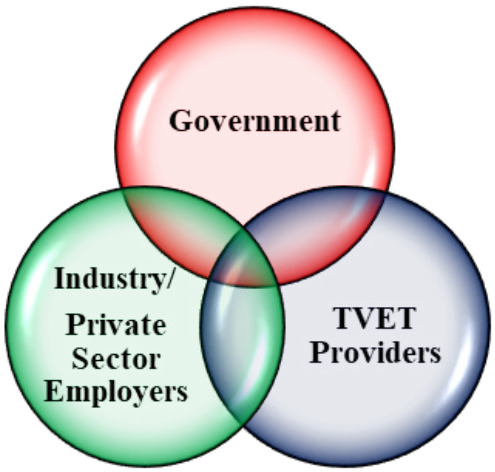
Figure 1: Trilateral Relationship between Government, TVET Providers and Industry/Private Sector Employers



the reason behind Nepal's struggle to cost-effectively develop a competitive workforce that can enter, sustain, and succeed in the labor market, and confidently meet the challenges of 21st century domestic and global needs. Therefore, to maintain a balanced relationship among these three entities and meaningfully engage private sector employers in TVET, it is essential to identify the root causes through an in-depth analysis of existing legal and policy frameworks, organizational arrangements, and practices.

In this connection, this study scrutinizes existing legislative frameworks, policies, and the present scenario of private sector engagement in TVET in Nepal to understand their roles in developing a competitive technical and vocational workforce equipped with 21st century skills for employability. Utilizing a qualitative research, the study reviews TVET-related legislative and policy documents as well as current implementation practices. Additionally, it uses Nepal as a case study to explore the tripartite relationship among the government, TVET providers and industry.

Governing Frameworks Related to the TVET System of Nepal

The existing governing frameworks detailing the provisions, defined roles, responsibilities, and gravity of participation of the Government of Nepal, TVET providers, and private sector employers within Nepal's TVET ecosystem are analyzed below. However, the analysis primarily focuses on the provisions explicitly and implicitly emphasized in these frameworks concerning the involvement of private sector employers.

Statutory Provisions

The Constitution of Nepal aims to develop competent, competitive, ethical and dedicated human resources for the national interest. It seeks to make education scientific, technical, vocational, empirical, employment-oriented, and people-centered (Article 4.51-Ja-1). The Constitution of Nepal implicitly highlights the importance of meaningful engagement of private sector employers. Without their involvement, education can be made technical, scientific, and empirical, but it is challenging to make it professional, employment-oriented, and aligned with societal needs.

The Education Act (1971) mandates a technical stream in secondary education

(Grades 9-12) with an added one-year on-the-job training (OJT). This stream aims to prepare students for higher education or immediate employment. The Ministry of Education, Science and Technology (MoEST) runs the 9-12 technical stream through the Center for Education and Human Resource Development (CEHRD) in limited subjects such as civil engineering, electrical engineering, computer engineering, animal science, plant science, and music. However, this stream is facing several challenges, including OJT placement and limited private-sector employers' engagement.

The CTEVT Act, 1988 mandates the Council to provide technical and vocational education, set skill standards, and certify to produce a TVET workforce. Similarly, the CTEVT Regulations (1994) include provisions (Chapter 4, Rule 13-16) on industrial apprentices and the committee for facilitating the programs. The committee, comprising 36 percent industry representation, is responsible for developing and implementing curricula for the industrial apprenticeship training. The committee also focuses on improving the quality of training and ensures coordination among the stakeholders.

The Labour Act (2017) includes provisions (Sections 16 and 17) for entering and learning at the workplace as an intern, apprentice, or trainee, with apprentices learning as per prescribed curriculum. This law paves the way for collaboration with industry to foster learning in a particular trade or profession.

In this context, concerning the aforementioned provisions, it can be asserted that key statutory frameworks, including the Constitution of Nepal, the Education Act (1971), the CTEVT Act (1988) and Regulations (1994), and the Labour Act (2017), are conducive to private sector employers' engagement in TVET in Nepal.

Policies and Plans

From the onset of its development initiatives, Nepal has prioritized TVET. Some plans have focused on expansion, while others have aimed at improving quality and creating jobs. The Ninth Periodic Plan marked the entry of the private sector into TVET, and its contributions continue. However, at this time, the entry of the private sector was not as industrialists providing work-based learning, but only as TVET institution operators. Since the implementation of the Tenth Periodic Plan, Nepal has concentrated on expanding access, ensuring inclusion, enhancing relevance and quality, and securing sustainable financing to develop the workforce through TVET, thereby driving socio-economic development.

Likewise, the TVET Sector Strategic Plan (2023-32) aims to enhance the quality, relevance, and access to TVET to meet the evolving needs of the labor market. The plan emphasizes the importance of collaboration among the government, academia, and industry to create the skilled workforce that can contribute to the country's economic growth and development. It envisions making Business and Industry Associations' (BIAs) engagement productive and all the

qualifications respond to the employment market.

In line with the TVET Sector Strategic Plan (2023-32), the current 16th Periodic Plan (FY 2024/25-2028/29) of Nepal aims to promote good governance, social justice and prosperity. A significant focus within this plan is on enhancing the TVET sector to meet labor market demands and support economic growth. Key objectives related to TVET in the plan include: (i) improving access and equity, (ii) enhancing the quality and relevance of TVET programs to align with industry standards and labor market needs, (iii) strengthening governance and management, and (iv) promoting public-private partnerships by ensuring balanced collaboration among the government, private sector employers, and educational/TVET institutions.

The TVET Sector Strategic Plan and the 16th Periodic Plan are both aligned with the National Education Policy 2019. The National Education Policy 2019 aims to develop a workforce that is competitive, well-organized, technologically adept, productive and employable to drive the country's progress. This will be achieved through inclusive, equitable, and affordable employer-led market-responsive TVET. One of the key strategies is to secure sustainable investment and encourage active participation of stakeholders in the TVET sector.

In this context, referring to the aforementioned plans and policies, it can be asserted that key documents, including the periodic plans, the TVET Sector Strategic Plan (2023-32), and the National Education Policy 2019, significantly underline the engagement of private sector employers in Nepal's TVET system. This emphasis is made without undermining the roles and responsibilities of the two other entities, namely the government and TVET providers.

Organizational Arrangement of TVET in Nepal

In addition to the 9-12 technical stream governed by the MoEST, the Center for Education and Human Resource Development (CEHRD) in six specific subjects through its 537 schools, the majority of TVET is overseen by the CTEVT. The CTEVT Act, 1988 mandates the Council to provide technical and vocational education, set skill standards, and certify to produce a TVET workforce. CTEVT strives to manage and ensure the affordable access and quality of TVET in coordination with other TVET stakeholders. As the apex body of TVET, CTEVT caters to 18-month pre-diploma and 24-month apprenticeship programs equivalent to the tenth grade and diploma/ proficiency certificate level programs equivalent to the 12th grade through 1,169 technical schools and polytechnics. This includes 66 constituent institutions, 57 partnership, 639 community schools, and 407 private technical schools and polytechnics with a focus on agriculture, engineering, health, and hospitality sectors. The Office of the Controller of Examinations (OCE) tests and certifies graduates. Additionally, as many

as 1621 affiliated private training providers nationwide offer short-term and professional vocational courses (CTEVT, 2024).

The National Skill Testing Board (NSTB) tests and certifies both formally and non-formally acquired skills. NSTB has 50 percent representation from the private sector employers on its board. Additionally, six Sector Skill Committees (SCCs) have been formed with 10 out of 11 members from among the private sector employers. There are also 27 Technical Sub-Committees (TSCs) led by private-sector employers. Similarly, private-sector employers are involved in the curriculum design phase. CTEVT, Curriculum Development and Equivalence By-law 2023 (By-law 15) permits stakeholders, including private sector employers to design short-term TVET curricula.

Despite this, all the aforementioned TVET schools are on par with other general education schools in Nepal. These technical schools and training centers are solely established as TVET providers and lack direct connections to the industry or private sector employers. Consequently, the participation of private sector employers in TVET implementation is minimal except for a few apprenticeship programs.

TVET Programs and Implementation Modality in Nepal

TVET programs in Nepal range from short-term vocational courses to comprehensive professional and diploma (equivalent to +2 level) programs across various sectors, mainly in agriculture, health, engineering and tourism. Table 1 depicts the TVET programs and implementation modality in Nepal.

Table 1 : TVET Programs and Implementation Modality in Nepal

SN	Program	Modality	Governed by	Managed by	Certification
1	9-12 Technical Stream	School-based	MoEST/ CEHRD	School	National Examination Board
2	Diploma/Proficiency Certificate Level	School-based	CTEVT	Technical School/ Polytechnic	CTEVT Office of the Controller of the Examination (OCE)
3	Pre-Diploma (18 months)	School-based	CTEVT	Technical School	OCE
4	Pre-Diploma (24 months)	Work-place based	CTEVT	Technical School	OCE
5	Professional Course (1,696 hours)	Training Institute based	CTEVT	Training Institute	Skill Testing NSTB
6	Short-term training programs	Training Institute based	Different actors	Training Institute	NSTB
7	4 (2+2) Year Vocational Program (Apprenticeship Course)	Workplace-based	Butwal Technical Institute (BTI)	BTI	BTI

Apart from the 9-12 technical stream and Diploma/Proficiency Certificate Level (PCL) courses, other courses such as Pre-Diploma, Professional, and short-term training programs are non-academic. There is no credit transfer mechanism for these courses. As a result, graduates of these non-academic courses face barriers to vertical upward mobility.

Most of the programs except the apprenticeship mentioned, are school-based with minimal involvement from industries/ private sector employers except during the design phase of the TVET system (Bhattarai, 2019). As a result, students rarely get the world of work exposure/the relevant skills needed for the workplace/job market. TVET institutions produce graduates focusing only on technical competencies while overlooking employability skills (Sharma & Bhattarai, 2022a).

Even in the 24-month pre-diploma (dual VET) program, schools take the lead with industries or the private sector employers only supporting the work-based learning component of the curriculum. Therefore, it can be said that industry participation in TVET implementation in Nepal is not satisfactory.

Challenges and Key Strategies for Collaboration

Work-based learning approaches such as apprenticeships, internships, and dual VET systems are crucial frameworks that can substantially enhance the meaningful engagement of private sector employers in TVET, ensuring that the system aligns with labor market demands.

However, engaging the private sector employers in TVET presents several challenges. Private sector employers' primary business is not supporting or providing workplaces for learning. Additionally, ensuring that the TVET program aligns with current industry demands can be difficult, as the industry needs rapid development. Securing adequate funding and resources from the private sector to support TVET initiatives can also be challenging. Hence, a conducive environment needs to be created for their meaningful engagement in the TVET system through legislation, tax exemptions or subsidies, or public-private partnerships (PPPs) to establish joint committees to oversee competency standards and curricula design, development, and execution of training programs and resource allocation. By sharing the benefits, PPPs harness the strengths of both sectors, enabling the effective sharing of resources, expertise, and practical experience.

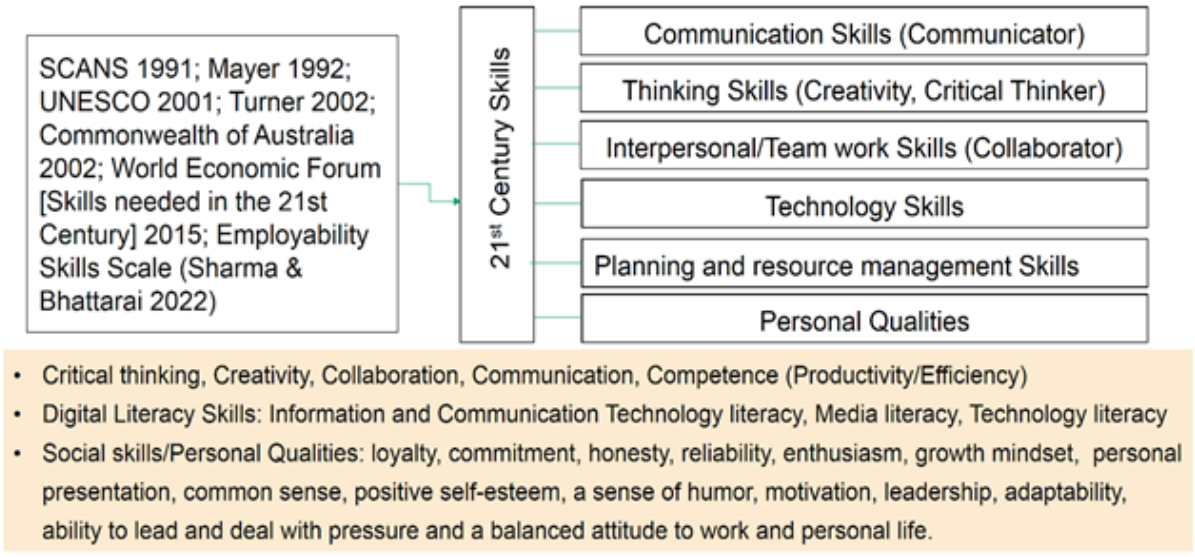
In today's fast-changing landscape, balanced collaboration among government, schools, and industry might function as a crucial strategy for enhancing learning outcomes and preparing students to meet the present day workforce demands . For this:

- The government plays a crucial role in facilitating the relationship between schools and industry/private sector employers by implementing appropriate

policies, plans, regulations, strategies, and quality assurance mechanisms.

- Skill mapping exercises can be conducted jointly to identify the skills required in various industries. The information and insights gathered must be utilized during the competency standards and curricula design to ensure the TVET curricula align with job market demands.
- The industry takes the lead while designing standards and curricula. It gets support from other stakeholders while designing and updating curricula.
- The industry operates as the locus to produce TVET workforce.
- The school as a source of the production of a competent and relevant workforce collaborates by providing the learner with real-life cases and problems, problem-based learning, work-based learning as per needs specified by the partners from the industry. The learner gets adequate opportunities to strengthen employability skills.
- The industry supports academia/TVET providers in providing professional development opportunities for TVET teachers so that they would keepp abreast of industry trends and technological advancements.
- Effectiveness of collaborative programs can be monitored jointly to ensure continuous improvement and adaptation to changing industry needs.
- Currently, most TVET programs except a small number of apprenticeship (Dual VET) programs are conducted in a school-based modality. Therefore, a strategy

Figure 2 : Trilateral Relationship between Government, TVET Providers and Industry/Private Sector Employers



should be implemented to gradually transition from school-based learning to work-based learning, considering the scale of the industry.

Role of Private Sector Employers in Enhancing Employability Skills of TVET Graduates

In addition to the technical or vocational skills, individuals need to develop other competencies to secure employment, excel in their roles, and achieve career success. These competencies, often referred to as the 21st century skills, are also known as employability skills, soft skills, and job readiness skills. Figure 2 depicts these skills.

This brings up the question: Are these competencies included in Nepal's TVET curricula? Neupane and Pradhan (2014) argue that the TVET curricula in Nepal fail to include critical employability skills, resulting in graduates' dearth of skills to apply in the workplace. This claim remains valid because the curriculum development process has not changed.

Without work-based learning, even if these subjects are included in the designed curricula, learners cannot develop the competencies needed to secure, sustain and succeed in the job market. Bhurtel (2012) claims that apprenticeship programs could enhance employability skills among graduates. Likewise, TVET teachers and private sector employers in Nepal believe that work-based learning opportunities significantly enhance the employability skills of TVET graduates (Sharma & Bhattarai, 2022b). This aligns with Bandura's social learning theories (1977), which state that individuals learn best by observing, associating and emulating those around them.

However, it is not necessary that the work-based learning experiences have to be occurred exclusively in the workplace. In Nepal, where the industry cannot fully accommodate all TVET students in collaboration with employers, most of the work-based learning experiences can be provided to students at school, too. It primarily relies on the methods and approaches employed. The methods and approaches such as case studies, project, and problem-solving activities, group work, industry excursions, management of industry experts as guest speakers for session delivery, and learning factory (production unit) at school can be applied to provide work-based experiences to the learners at school (Sharma & Bhattarai, 2022b)

Conclusion

Effective collaboration among government, academia/TVET providers, and industry/ private sector employers is imperative to prepare a workforce equipped with the competencies required for the 21st century labor market, and address the contemporary challenges. However, the current imbalance, particularly the limited involvement of private-sector employers, hinders the effectiveness of the TVET system in meeting labor market demands.

It is essential to analyze and reform existing legal and policy frameworks and organizational arrangements. Additionally, it is equally necessary to adopt approaches that promote apprenticeships, internships, and dual VET systems. By doing so, Nepal can enhance the quality and relevance of its TVET programs as envisioned in the TVET Sector Strategic Plan (2023-32). This will ultimately lead to better employment opportunities for graduates and a more competitive national economy.

References

Bhattarai, A. (2019). Skilling Youth through Industry Linkages: Case of Nepal. *Journal of Training and Development*, *4*, 3–11. https://doi.org/10.3126/jtd.v4i0.26816

Bhurtel, M. P. (2012). Apprenticeship: An Overview. *Technical and Vocational Education and Training Development Journal, 1*(12), 124-130.

Council for Technical Education and Vocational Training. (2024). *CTEVT annual report 2079/80.* https://ctevt.org.np/public/uploads/kcfinder/files/CTEVT%20Annual%20Report%20-2079_80.pdf

Ministry of Education, Science and Technology. (2022). *TVET sector strategic plan (2023-32).*

Ministry of Education, Science and Technology. (2019). *National education policy.*

Neupane, B. R., & Pradhan, H. K. (2014). The soft skills gap in CTEVT curriculum guides. *Technical and Vocational Education and Training Development Journal, 1*(14), 48-52.

National Planning Commission. (2024). *The sixteen periodic plan.*

Sharma, B. K., & Bhattarai, A. (2022a). Employability skills scale. *Siksha Annual Educational Journal, 38*(52), 159-177. http://202.45.146.138/catalog/opac_css/index.php?lvl=notice_display&id=12311

Sharma, B. K., & Bhattarai, A. (2022b). *Teachers' perspective on employability skills of female students:* Case of Nepal In V. Singh, D. Maheshwari, K. Mishra, & M. Upadhyay (Eds.), Women entrepreneurship & empowerment (pp. 1-12). AISECT Publication.

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Article

Identification of Labors' Role Transition Processes: From Traditional to Electric Vehicles in Nepal

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Abstract

The maturity of technological innovation and declining battery costs have made us opt for purchasing the electrical vehicles. It has resulted into growing preference towards electric vehicle over traditional cars, thereby spurring more job vacancies in the electric vehicle industry. The study examined the labor's role in the transition process towards working with electric vehicle from traditional vehicle. An inductive narrative research approach was used to gather the necessary primary information from automobile technicians and engineers from authorized national electric vehicles distributors in Kathmandu. Globally, shifting towards the electric vehicles has stimulated a significant transformation in the automobile industry worldwide, which has encouraged labors of automobile to shift towards working with electric vehicle anticipating a better job opportunity in the changing automobile landscape and career sustainability. However, the experience of the role transition was not flawless. Challenges of role transition such as innovative technology and unavailability of quality training and hindrance in the shifting process caused the need for re-skilling for mitigating problems. As a result transition has presented a significant lift in the career of the participants which helped them fit in the new role. Finally, this case study serves as evidence to the transformative potential of education and institutional determination in transitioning labor's role from the traditional to electric vehicles. However, this study does not analyze the downside of transition process and status of job demand versus job loss in the changing automobile industry.

Keywords: role transition, automobile, electric vehicle

Introduction

Historically, the concept of electric vehicles is not new, as in the 19th century, the idea of electric vehicles was already tested to prevail over petrol and steam cars. Once again, this idea is becoming a global surge among manufacturers and consumers. Technological innovation has brought us to the stage of an intelligent device also called as 'computers on wheels' (Stone, 2012). The electrical vehicles are on continuous rise due to environmental concerns for controlling global warming, political concerns to reduce

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dependency on expensive foreign fossil fuel, economic concerns to revive the automotive industry, and social concerns over citizens' health priority. In addition, the maturity of technological innovation and declining battery costs have also made us think once again about purchasing the electrical vehicle (Talantsev, 2017).

Automobile Jobs Trend

Mönnig et. al., (2019) claimed that people will prefer electric vehicles over traditional cars, creating demand of more jobs in electric vehicle manufacturing industries, electric parts manufacturing industries and at service and maintenance area. Focal Initiative (2021) showed higher employment in the EVs sector while their parts manufacturing area faced losses as compared to ICE related jobs. The ministry of skill development and entrepreneurship has estimated 10 million direct jobs and 50 million indirect jobs in the EV industry by 2030 (CIEL, 2022). The Society of Motor Manufacturers and Traders (SMMT), UK also argued that the impact on the traditional vehicle industry cannot be ignored with increasing trend of electric vehicles, the rate at which EVs are being adopted is not proportionally matched by the corresponding increase in the number of EV technicians (Fleetnews, 2022). So, availability of more jobs can be expected in EV sector.

EV Related Jobs in Nepalese Context

Now, considering the trend of Nepalese consumers' behavior of purchasing electric vehicles, it is not different from the rest of the world because in the fiscal year 2021-2022, Nepal imported six times more electric vehicles than the previous year. (Lamsal, 2022). The number is going to increase year by year because government is promoting the electric vehicle to deliver as per pledges in the Paris Agreement, 2015, where the government plans 20% of four-wheeler public vehicles sold to be electric vehicles in 2025, reaching the progressive growth of market share up-to 60% in 2030 (Pande, 2020). While comparing the vehicle (cars, jeeps, and vans) import data from the Customs Department of Nepal, the import of electric vehicles were significantly higher in comparison to the traditional ICE vehicles. Year-on-year, electric vehicle imports grew by 189% when comparing the fiscal years 2022-2023 and 2023-2024. Similarly, in the previous fiscal year, the market share of electric vehicles was 64.06%, and of ICE vehicle was 35.64%. However, in the latter fiscal year, the market share of electric vehicles surged to 78.24%, making an increase of more than 14%; in contrast, there was a drop of around 15% in the import of ICE vehicles in the same year. These facts clearly indicate the sign of the growing demand of electric vehicle technicians in future.

Table 1: Import of EVs

Import Count	FY 2079/80 Quantity	FY 2080/81 Quantity	Y-O-Y Growth
ICE vehicles	2272	3254	43%
EV vehicles	4050	11700	189%

Source: Department of Customs, Nepal

Table 2: Market Share of EVs

Market Share	FY 2079/80 - Quantity	FY 2080/81 - Quantity
ICE vehicles	35.94%	21.76%
EV vehicles	64.06%	78.24%

Source: Department of Customs, Nepal

Based on the above facts, booming electric vehicle industries are bringing the massive wave of job opportunities in the labor market of electric vehicles manufacturing and service industries. As a result of the wave, author has studied to understand the role

Table 3: Vehicle Type and their Year-on-Year (Y-O-Y) Comparison Growth

Vehicle Import Data	FY 2079/80 Quantity	FY 2080/81 Quantity	Y-O-Y Growth
Other vehicles having capacity <=1000CC	395	533	35%
Other vehicle (Petrol engine) capacity >1000CC to <=1500CC	1676	2547	52%
Other vehicles (Petro engine) >1500CC to <=2000CC	52	70	35%
Other vehicle (Petrol engine) capacity >2000CC to <=2500CC	10	11	10%
Other vehicle (Diesel engine) capacity up to 1500CC	139	93	-33%
Electric car, jeep & van up to 50KW	3759	4571	22%
Electric car, jeep & van 51KW to <=100KW	272	6885	2431%
Electric car, jeep & van > 101KW to <=200KW	15	217	1347%
Electric Car, Jeep, Van with motors pick power 201KW to 300 KW	4	27	575%

Source: Department of Customs, Nepal

transition model of labors from traditional vehicle to electric vehicle sector in Nepal.

Literature Review

Regarding the role transition, Nicholson and West (1988) proposed the idea of two distinct adjustment processes, namely personal growth and role development in the process of work-role transitions. Individuals undergo modest routine and habit changes, big relationships and self-image changes, and everything in between as part of their personal development. Role development, on the other hand, is structuring the transitioning role to fit the requirements of that job, and framing can range from modest work schedule alterations to more dramatic role innovations like shifting the primary organizational work goals. Therefore, role development involves tailoring the role to fit oneself, whereas personal growth entails tailoring oneself to the function (Nicholson & West, 1988). This concept was then modernized by Blake in the year 2000 with his revised idea, occupational role transition as a process of extricating from one role and engaging into another role with or without new skill.

In 2021, the European Centre for the Development of Vocational Training (CEDEFOP) stated that technological innovation was bringing new products or services along with requirement of new skills within the labors. But again, there is another thought that technology is also making labor's skills out of date sooner (Stone, 2012). Electric vehicle technology is seen as one of the such examples of technological innovation which demanded new technical skill within the labors but at the same time outdating the existing skills. So, for the success in the era of working with electrical vehicle, personal development cannot be ignored. Thus, strong job-skill mappings will identify feasible job changes based on their existing skills as well as guiding them towards new skills to achieve their career objectives (Baldwin et. al., 2022) in order to be up-to-date with changing industry requirements. It can only be possible through re-skilling and up-skilling employees (Sawant et al., 2022). Frederiksen and Poulse (2016) also found similar thoughts from their research conducted on data taken from 1992 to 2007 among the private sector employees.

Similarly, a research conducted in China also found that skills upgrading met the increasing demands of skilled workers for the purpose of innovation and self-skilling for being up-to-date (Albatayneh, 2024; Alkhamaiesh & Cavanaugh, 2022; Li & Zhu, 2020). Further, Dawson and his team claimed differently about role transition that it should not be ignored that smooth labor transitions produce huge productivity and fairness gains for the whole labor market, but if labor transitions are sluggish or failed then it may result into huge costs for both the individual and the government (Dawson el. al., 2021). Employers found investment made in upskilling and re-skilling their staff is cheaper than hiring new workers and providing training to them for the same position (Chakma & Chaijinda, 2020). Thus, this process of transformation of labors towards EV has potential to demonstrate a prominent impact on the labor market of the automobile industry.

In contrast, a study conducted in Thailand explored the challenges associated with Electric Vehicles' workforces in SMEs of the automobile sector. The researchers found that the demand for occupational changes and skill development in the engineering industry might increase by 10%, while low labor skills severely decreased by up to 70%, which is a worrying indicator for workers in low skill positions in fossil fuel engine cars. So, they suggested a need for effective policies for establishing EV master plan in coordination with related stakeholders; otherwise, this adaptation of EVs could have a destructive effect on the workforce development of SMEs. In the worst case, the study highlighted some SMEs may need to shut down their business just because of insufficient workers to catch up with the demand of EVs workers in their industry (Osatis & Asavanirandorn, 2022).

Methodology

Selecting participants for the purpose of

research is the foundation of qualitative research. According to Neuman (2006), it is theoretically possible to learn people's perspectives on particular issue by choosing a small number or even by only one participant, but again, Creswell (2014) came with a different argument for the qualitative research which argued that about four to five case studies are enough for qualitative research. Thus, considering the views of Neuman and Creswell as well as the norms of research, author has interviewed four participants for the case study and took their stories to comprehend the role transition process adopted by Nepalese technicians from traditional automobile to electric vehicles. All of the participants are currently working at authorized EV dealers in Kathmandu Valley.

Qualitative inquiry was used to gather necessary primary information for the research since it is a kind of interview-based research that involves studying people's lives; here, the technicians and engineers of automobile sector were delimited as participants to understand their transition process from working with traditional vehicle to the electrical vehicles (Clandinin & Connelly, 2000). Since Nepal does not have any vehicle manufacturing plant, most of the jobs available are related to preventive care and maintenance so the engineers and technicians working in these sectors with experience in traditional vehicles are shifting to work with electric vehicles. They are selected from the Hundai, Skoda, and KN Motor within the Kathmandu Valley.

The author prepared open-ended questionnaire to explore the insight of their experiences, beliefs, and educational background during data collection process with additional follow-up questions to support their statements. Questionnaires had core set of questions for guiding the interview process and for assuring minimum required information from the participants. Prolonged engagement was applied to ensure research data's trustworthiness.

Findings

An inductive narrative analysis approach was used to categorize the participants' information on the shifting processes toward electric vehicles. For this, the author ensured sufficient data was collected from the individuals during the interview. As the information collected was non-numeric in the form of interview notes and audio recordings, three-step methods were used to extract the common understanding from the collected data. In the first step, the recording was listened to multiple times. Then, considering the reference notes of the interview, initial categorizations were developed, which were further improved by removing the overlapping categories and redundancies. Finally, the information collected was categorized based on respondents' educational background, professional experiences, and shifting process. Shifting process was again coded with motivations, challenges, and learning processes. Overall, a model was developed considering these underlying structures of experiences and processes.

The first participant was a Training Manager at Laxmi International (Hundai) Nepal, who had 16 years of experiences in working with fossil fuel engines and more than six years of experience in working with electric vehicle sector. His major duties are vehicle maintenance and services, conducting training programs and workshop management.

According to him, the global trend of demand and awareness towards electric vehicles alerted participant's company as well to meet with the demand of customers' choices. So, along with the traditional vehicles, company added electric vehicle stall in their product line. It caused them to learn working with the electric vehicles, otherwise company would degrade them. To meet with company's requirements and beliefs to sustain in the automobile industry for longer periods and constantly become valuable in the market motivated him to learn new skills and exceled in the working electric vehicles.

The participant added:

> *I feel lucky since company sent me for the training about electrical vehicle in Korea at the parent company, where I took classes from Korean experts and professionals which I found extremely informative and the perfect knowledge transferring moments.*

Altogether, he mentioned three such types of training in the last six years, , which covered the basic principles of electric vehicle, layout, periodic maintenance processes, and simple repairing procedures. Further, he emphasized as his dissatisfaction as the training sessions were only conducted for a limited time and knowledge shared could not cover all the topics. However, online training platforms and examinations with certification are featured in recent times. In the shifting process towards working with electric vehicles, his educational background and prior experiences of the automobile sector have supported him to learn quickly. As per him, basic concepts of automobile engineering such as vehicle suspension system, brake system, chassis, and electrification are similar in both types of vehicles. Along with that observing the maintenance processes of electric vehicles performed by seniors and following their instructions has also facilitated him to supplement in the transitioning process on the one hand, and on the other hand, self-study of instructional manuals became icing on the cake in his learning process.

The second participant was a technician who began his journey from informal education at the Underprivileged Children's Educational Programs (UCEP), Nepal, a technical school, with a rigorous six-month automobile training. He has seven years of working experience in the traditional automotive sector and two years of dedication in working with the electric vehicles (EVs) sector, making him an experienced technician in both traditional engine and EVs.

As he shared, nowadays, trend of car sales are reflecting people's interest more in

electric vehicles than in the traditional cars. So, in future, demand of jobs will be more in the EVs sector. After his consideration on the sales and self-realization, he concluded himself that technical knowledge of working with EVs will pay him for long-term and will be sustainable in the future. He said it is a journey of adaptation and learning.

In the transition process, despite three days training on electric vehicles in the Hyundai office, he found it was difficult for him in the beginning to cope with new technologies associated with EVs. According to him, "*Unlike traditional vehicles EVs lack conventional engines and instead they rely on motors, requiring extra effort to understanding of their unique components behaviors and systems*". After overcoming these initial obstacles through diligent study, suggestions and supervisions from the experienced seniors and supervisors, he is now satisfied with his role in EVs. Overall, he claimed the training and re-skilling have provided him invaluable skills essential for working with EVs. Later, he also discovered many aspects of traditional automotive skills are applicable and transformable to EVs. For instance, the skills of body electrification and mechanical components such as brake pads are similar in both types of vehicles. Understanding these similarities eased him on the transition to the realm of electric vehicles.

The third participant was a technician from Skoda motor having educational background up to the SLC level (Grade X), and four months of automobile training at UCEP. To validate his skills, he undertook exams at the National Skill Testing Board, CTVET. He completed skill test levels 1 and 2. Professionally, he has eight years of work experience in the traditional vehicle sector. However, his career took a new direction nine months ago when he transitioned to working with electric vehicles (EVs). This transition expanded his knowledge base, positioning himself as a versatile technician capable of navigating both traditional and electric vehicle systems.

In the interview, he claimed, *"The decision to shift towards EVs sector was developed as a consequence of a confluence of factors, primarily driven by practical and futuristic considerations"*. Initially, the realization of the growing trend of high costs associated with traditional fossil fuels sparked his interest in exploring alternative options. As he investigated deeper into the automotive landscape, it became apparent to him that EVs will represent the future of transportation, witnessing the increasing trend of EV adoption in the market. He recognized the immense potential for growth and opportunities within EVs sector which motivated him to shift towards this new realm.

Unlike traditional vehicles, where solutions may be more intuitive to the participant, the complexity of EV systems requires specialized knowledge. Diagrams and procedures to restore the problems are obtained from the VAS/scanner device,

making it the key device to resolving EV issues, yet deciphering output of device is another challenge for the participant without proper guidance. This hurdle became a significant obstacle in his journey towards proficiency in EV maintenance. However, relief came with the training from the Chinese technicians, who provided them with invaluable skills and knowledge needed to debug EVs. Their guidance not only deciphered the challenges but also filled confidence in his ability to effectively handle EV- related issues, ultimately easing his transition into this rapidly evolving field. According to the research participant, training equipped him with the necessary theoretical knowledge as well as highlighted the difference in approach compared to traditional vehicles. Besides, the participant claimed that traditional skills, indeed, play a crucial role in working with EVs, particularly in aspects unrelated to the engine. The skills acquired in traditional vehicle maintenance provide a solid framework for troubleshooting various mechanical and operational issues in EVs as well.

Lastly, the fourth participant began his journey with formal education of diploma in automobile engineering, followed by five months of on-the-job training at Sipradi. These training and formal education mainly focused on traditional fossil fuel vehicles. The participant has a rich hands-on experience on conventional vehicles, an impressive 8 to 9 years' experience in traditional vehicles.

With the increasing adoption of electric vehicles, he was sure that the pool of technicians that are proficient in working on EVs is relatively small, creating opportunities for those with the skills of EVs. He argued this sector has enough job opportunities. Recently, the company provided him three months of EV maintenance training which offered him opportunity to expand EVs knowledge and adapt new skills presented in the EVs technology. In the training, he became familiar with essential aspects such as EV concepts, scanner software procedure, and basic idea of issues solving methods in electric vehicles. Moreover, he figured out the acquired skills from working with traditional vehicles came to crucial in working with electrical vehicles because despite the distinct motor system and power source as the battery systems in EVs, he found many components and operational principles remain similar in both sorts of vehicle. His familiarity with traditional vehicle mechanics enabled him to leverage existing knowledge when troubleshooting and maintaining electric vehicles which helped him efficiently address the issues in EVs, minimizing downtime and enhancing overall service quality.

According to him, with the shift towards the electric vehicle sector, it has positive influence on his career prospects. His skills in both traditional and electric vehicles positioned himself as a versatile technician capable of addressing a broader range of automotive needs. It has unlocked potential for his promotions and career advancement opportunities in the company.

Discussion

Globally, shift towards the electric mobility is surging by stimulating a significant transformation in the automobile industry worldwide. In Nepal too, this change is demonstrated by rising sale volume of EVs (Central Bureau of Statistics [CBS], 2019) which is also highlighted by the participants in their narrations. The study found various factors such as motivation, challenges, learning processes and outcome of transition.

Motivations for the Transition

The transition to working with EVs among Nepalese technicians and engineers were primarily driven by two major factors: automobile market trend and individual foresight. Regarding the automobile market trend, participants unanimously recognized that the rapid acceptance of EVs globally and locally as a crucial indicator of shifting customers preferences is one of the motivation factors. Next, most participants realized that the prospect of better job opportunity in the long-term and career sustainability in the changing automobile landscape served as another compelling motivator for them (Mönnig et. al., 2019). This was also supported by Focal Initiative (2021), Fleetnews (2022) and CIEL (2022), showing sky-rocketed demand of workers in electric vehicles industries. Technicians also acknowledged that expertise in EVs could safeguard their importance and create opportunities for career advancement in future. One senior manager highlighted that their organization obligated them to acquire EVs skill, and similarly, another technician noticed role transition to EVs will secure his job for long-term in the company.

Challenges during Transition

Despite strong motivation among the study participants, the experience of the participant in the role transition process was not flawless either. The major challenges faced were knowledge gap and insufficient training.

Due to the absence of traditional engine, participants were struggling initially to understand the EVs system which demanded new technical skills, making their own skills useless (Stone, 2012) at the same time. The gaps of EVs' knowledge such as electric motors, battery system or working principle of EVs were clear challenges for them. Without adequate training, using and interpreting diagnostic tool was another headache for all the participants.

In order to update with the changing industry requirements, re-skilling and up-skilling employees (Sawant et al., 2022) were only solutions (Frederiksen & Poulse, 2016). Providing such skilling methods was also underscored by Li and Zhu (2020), Alkhamaiesh and Cavanaugh (2022) and Albatayneh (2024). Although all participants received some form of EVs training, the sessions were still limited in scope. For instance, one technician described the training mostly focusing on basic EV principles while neglecting advanced troubleshooting techniques. The absence of comprehensive hands-on training made them difficult to address different sort of problems they have recently faced.

Learning in Transition

Reskilling played a pivotal role in transferring the knowledge and skills of EVs to the technicians for the preparation of role transition as Nicholson and West (1988) and Blake (2000) underlined. International and local trainings were provided to reskill them. One manager benefited significantly from multiple training sessions at the parent office in Korea while most of them got training locally by the experts from the manufacturing company.

All participants agreed that prior knowledge of traditional automobile was useful in working with EVs. Except the knowledge of engine, the experiences such as suspension systems, brake systems, and chassis design share common principles in both ICE vehicles and EVs. This overlapping knowledge provided them a foundational framework in the transition process. Further, observing the tasks done, senior and supervisors came up with new learning method for the participants. Mentorship from them helped to bridge the knowledge gaps. Moreover, self-study of EVs manuals and online resources bridged the training gaps.

Outcome of Transition

Upon analysis of the information collection, role transition process has brought positive outcomes to all participants. Skill enhancement, career growth and increased job satisfaction are few of them. Participants have received EVs knowledge and repairing skills which enabled them for maintenance and servicing job. Additional EVs skills with their existing traditional vehicle knowledge made them versatile, unlocking the potential of career growth. In one case, a technician shared his company was for his promotion and he was confident to have better job opportunities within the company and outside. All participants expressed satisfaction with their roles in the EV sectors and felt a sense of continuing working with EVs in the competitive Nepalese automobile labor market.

Conclusion

The transition from working with traditional vehicles to electric vehicles represents a significant enhancement in the career of technicians which had made role transition to fit oneself in the required task. Such change was primarily boosted by the global market trends, increasing fuel prices, individual technicians' aspirations, and the realization of the long-term job probability in the EVs sector. However, challenges such as insufficient training and technical complexities were initial obstacles, which were, then, mitigated by the supporting supervisors, seniors and online self-studies.

The finding underscores the importance of continuous learning, trainings and institutional investment in EVs technicians' development. Institutions have missed prioritizing comprehensive and advanced training programs for upskilling and reskilling of their staffs in order to prepare expert technicians who can address all kinds of EVs problems.

Ultimately, the adaptability and resilience demonstrated by the respondents highlight their commitment to growth and learn innovative product. By accepting changes and overcoming related challenges, participants not only secured their professional futures but also contributed to the goal of promoting EVs transportation system in Nepal. This case study serves as evidence to the transformative potential of education and institutional determination in transitioning technician role from the traditional vehicles to the electric vehicles.

About the limitation of future study, it does not analyze the downsides of transition process and its possible affects (Dawson el. al., 2021) in the company or the government. Similarly, Osatis and Asavanirandorn (2022) are claiming that job demand will increase only by 10% in the engineering field of EVs but low labor skills will be dropped by up to 70% which needs further research considering Nepalese automobile industry.

Implications

The study has some important implications. As it is inevitable that the future of automobile is going to be EVs, so will it be crucial to prepare for the related requirements such as human resources and the technical expertise. This necessitates a proactive approach to provide EVs training to as many as possible for skill development and ensuring adequate professionals enough to meet the future demands of EV maintenance and repair workers.

The study also highlights a limitation in current training opportunities, as the training are primarily limited to the company premises to their staffs. This restricts individuals outside the company from accessing to the training opportunities, creating barriers to skill acquisition and hindering broader public participation. Thus, companies should be mandated to offer training opportunities to the public as well. This would help the needy ones build a skilled workforce despite limited resources. For that, policy intervention may require, to which the role of government bodies such as Council for Technical Education and Vocational Training (CTEVT) and Ministry of Education, Science and Technology (MoEST) will be crucial on this matter.

Moreover, the inadequate training scope is the dissatisfaction among the participants. Trainings are not designed to address the diverse range of EVs related issues. The syllabus of the trainings is limited to the trainers without monitored by any authorized agency. Therefore, today's necessity of comprehensive training is lacking, otherwise, it could have supported the effective integration of EVs maintenance and care technologies at societal level. As shared by the participants, automobile training at CTEVT is limited to ICE vehicle. Thus, considering recent market demand of EVs technicians, revision of syllabus is essential. It is also recommended for developing a standardized EV training syllabus aligned with global standards and making it obligatory for any training institutions which

is willing to provide EVs training. Finally, a standardized skill testing and certification mechanism system should be in place to ease employers to recruit technicians based on their skill-tested certificates.

References

Albatayneh, A. (2024). The electric cars era transforming the car repairs and services landscape. *Advances in Mechanical Engineering*. 16(7). doi:10.1177/16878132241266536

Alkhamaiesh, S., & Cavanaugh, P. (2023). Preparing EV technicians for the U.S.A transition to electric vehicles through the implementation of the bipartisan infrastructure Law. *Modern Economy, 14,* 1504-1514. doi: 10.4236/me.2023.1411078.

Baldwin, T., Clarke, W., Garcia de Macedo, M. M., de Paula, R., & Das, S. (2022). Better skill-based job representations, assessed via job transition data. *2022 IEEE International Conference on Big Data, Osaka, Japan, 2182-2185*. doi:10.1109/BigData55660.2022.10021087.

Blake, A. (2000). *Role transitions in organizational life: An identity-based perspective.* Lawrence Erlbaum Associates Publishers.

Chakma, S., & Chaijinda, N. (2020). Importance of reskilling and upskilling the workforce. *Interdisciplinary Sripatum Chonburi Journal, 6*(2), 23-31. https://so04.tci-thaijo.org/index.php/ISCJ/article/view/2454474

CIEL. (2022). *Latest employment trends in EV sector.*

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approach.* Sage.

Dawson, N., Williams, M. A., Rizoiu, M. A. (2021). Skill-driven recommendations for job transition pathways. *PLoS ONE 16*(8).https://doi.org/10.1371/journal.pone.0254722

Department of Customs. *FTS of FY 2079/80 and FTS of FY 2080/81.* https://customs.gov.np/page/statistics

European Centre for the Development of Vocational Training. (2021). *Sectors in transition – the automotive industry.* https://www.cedefop.europa.eu/en/news/sectors-transition- automotive-industry

Fleetnews. (2022). *Automotive industry ramps up EV qualified technicians.* https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2022/05/10/automotive-industry-ramps-up-ev-qualified-technicians

Focal Initiative. (2021). *Automotive industry labor market analysis. Trend report*. https://www.futureautolabourforce.ca/wp-content/uploads/2021/10/EV-Report-Final-Oct-4.pdf

Frederiksen, A., & Poulse, O. (2016). Income

inequality: The consequences of skill-upgrading when firms have hierarchical organizational structures. *Economic Enquiry, 54*(2), 1224-1239. https://doi.org/10.1111/ecin.12295

Lamsal, H. (2022, August 12). Import of electric vehicles increased by 600 percent last year. *Republica*. https://myrepublica.nagariknetwork.com/news/import-of-electric-vehicles-increased-by-600-percent-last-year/.

Li, S., & Zhu, H. (2020). Agglomeration externalities and skill upgrading in local labor markets: Evidence from prefecture-level cities of China. *Sustainability, 12*(16), 6509. https://doi.org/10.3390/su12166509

Mönnig, A., Schneemann, C., Weber, E., Zika, G., & Helmrich, R. (2019). *Electromobility 2035 Economic and labour market effects through the electrification of powertrains in passenger cars.* https://doku.iab.de/discussionpapers/2019/dp0819.pdf

Nicholson, N., & West, M. A. (1988). *Managerial job change: Men and women in transition.* Cambridge University Press. https://doi.org/10.1017/CBO9780511522116

Osatis, C., & Asavanirandorn, C. (2022). An exploring human resource development in small and medium enterprises in response to electric vehicle industry development. *World Electric Vehicle Journal, 13*(6), 98. https://doi.org/10.3390/wevj13060098

Pande, K. R. (2020). *National strategy for electrification of public transport.* UN ESCAP Transport Division.

Sawant, R., Thomas, B., & Kadlag, S. (2022). Reskilling and upskilling : To stay relevant in today's industry. *International Review of Business and Economics, 7*(1). https://doi.org/10.56902/IRBE.2022.7.1.4

Stone, I. (2012). *Upgrading workforce skills in small businesses: Reviewing international policy and experience.* Durham University Business School.

Talantsev, A. (2017). Who gains and who loses in the shift to electric vehicles: Impact assessment through multi-criteria multi-stakeholder analysis. *Procedia Environmental Sciences,* 37, 257-268. https://doi.org/10.1016/j.proenv.2017.03.057

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Article

Role of Training in Women for Employment: A Thematic Study

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Abstract

The vocational training is a crucial approach for empowering women, encouraging economic independence, and building social equality, particularly in the settings where conventional gender norms restrict women's access to formal labor markets. This study indicates that vocational training has developed a good level of self-esteem in women along with decision-making skills and participation in household and community decisions. The study uses a qualitative approach with thematic analysis to explore the complex relationships among vocational training, women's empowerment, and labor market outcomes. After reviewing recent national and international researches, the findings reveal that vocational training not only improves technical abilities but also increases confidence, decision-making capacity, and social recognition within families and communities. Furthermore, these efforts encourage entrepreneurial desires and economic independence. However, the ultimate goals of such initiatives are hampered by challenges such as inadequate market alignment, lack of post-training support, and limited access to funding. These findings highlight the importance of quality instruction, closer alignment with industry, and improved support mechanisms to guarantee that such projects are long-term and effective. It is advised that follow-up mentorship, financial literacy, and networking platforms are necessary to assist women in transitioning from training to stable job or self-employment. This study focuses on comprehensive, market-relevant vocational training programs as critical interventions for bridging gender gaps in the workforce and promoting women's social and economic empowerment in Nepal. Thus, the research provides an important understanding for policymakers and program developers in constructing sustainable and impactful training programs for women.

Keywords: vocational training, women empowerment, gender equality, economic independence

Background

Vocational training is an important tool to promote women's empowerment, economic independence, and social equity in Nepal, where traditional gender roles usually restrict women from formal labor market opportunities. In particular, women in rural and semi-urban areas face tremendous obstacles due to gender differences in education, work, and entrepreneurship (Acharya, 2017). The vocational training

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that focuses on skill acquisition and employability appears to be a popular path through which women can break into the participation rates of the labor market. This is important because these skills are in short supply in the low-income countries and tend to be an increasingly defining factor of one's capacity for gainful employment. Such programs provide essential technical skills and enhance personal and professional growth, enabling women to pursue new career opportunities or establish their own businesses (International Labour Organization [ILO], 2018).

The Government of Nepal, along with many non-government organizations, has been conducting various training programs for twenty years to make women more employable or financially self-dependent. According to the Asian Development Bank (ADB, 2020), vocational education and training (VET) programs tailored for women in Nepal have contributed significantly to increasing female labor participation. Target sectors include agriculture, tailoring, and beauty services, among many others, and small-scale manufacturing in which women can easily earn a decent livelihood either as employees or entrepreneurs. For instance, technical and vocational education and training (TVET) initiatives have played a significant role in equipping women with market-relevant skills (ILO, 2021). Such training provides women with the confidence and capability to enter the formal workforce or establish their own businesses, thereby promoting financial independence and social empowerment.

Besides economic advantages, there are some significant social effects of the programs concerning vocational training. Within these, it has been identified that women participating in these programs have higher levels of self-confidence and decision-making capacity, with greater social recognition within their family and community. Empowerment through the vocational training goes beyond financial independence, as women become more involved in household and community decision-making (Khan & Sultana, 2017). This is especially important in the rural areas, where women have traditionally been limited to household chores and agricultural labor with minimal access to formal employment possibilities (Bhadra, 2019).

However, not all the benefits are without challenges. Vocational training programs in Nepal frequently deal with problems pertaining to training quality, applicability to market demands, and sustainability of employment following training (Khattri & Sharma, 2020). Most of the programs fail to provide employment opportunities to the participants as a result of poor alignment with the present market demands. In addition, the lack of access to financial resources for entrepreneurial endeavors, job placement services, and mentorship further impedes the long-term success of women trained in vocational disciplines (Joshi & Rijal, 2019).

Vocational training programs for women have a huge potential for both economic

growth and gender equity in Nepal. Training programs bridge the gap between formal education and actual employment opportunities by providing women with marketable skills where demand is on the rise. While the progress is being made, it appears still more can be done to help women obtain the benefits from such programs. Mechanisms for mentorship, greater program compatibility with industry requirements, and post-training assistance are imperative. The purpose of this study is to investigate how skill training programs can enhance women's employability, confidence, and decision-making capacity.

Methodology

For this study, I used the qualitative approach and conducted a thematic analysis. This strategy is beneficial for categorizing and presenting data-related themes by exhibiting data through the interpretation of various issues (Boyatzis, 1998). According to Alhojailan (2012), thematic analysis allows researchers to closely explore the relationships between concepts, and contrast them with repeating data patterns. Thematic analysis enables academics to connect distinct concepts and opinions presented by the workers.

To carry out the thematic review, I used Google Scholar to explore the literature extensively. I focused on recent publications, prioritizing articles published within the last ten years to ensure relevancy and current insights. I found and reviewed literature using keywords such as vocational training, skill acquisition, self-employment opportunities, and shifts in socioeconomic status. From these, I chose the top 20 national and international research articles that expressly addressed the importance and contribution of training for women employment.

Findings

The study of literature highlights several important conclusions on the impact and efficacy of vocational training programs for women in Nepal. These can be summed up under three distinct themes: Empowerment through training skills; quality of training and professional development, increased career opportunities; and sustainability and long-term impact of training programs.

Empowerment through Training Skills

In Nepal, skill development initiatives have become critical for women's empowerment in various sectors. These programs provide women with the technical skills needed to start their own businesses or enter the workforce in a variety of industries, including beauty sector, agriculture, garment sector, handicraft and more. Empowerment through such skill acquisition not only fosters financial independence but also challenges traditional gender roles (Kabeer, 2005). Such programs are critical in Nepal's socioeconomic landscape where women, particularly those from the marginalised regions, frequently lack access to education and formal employment. The broader impact of such initiatives is evident in their potential to transform women's socio-economic

standing, particularly among the marginalized communities (UN Women, 2020). With its growth, women, especially those from the underprivileged backgrounds, have ample opportunity to seek improvements in their socioeconomic status with the active engagement in this sector. A study by Gurung and Shrestha (2020) highlights that women engaged in technical training on agriculture reported increased household decision-making power and financial independence. Similarly, the tourism and hospitality sector, a growing industry in Nepal, has become a fertile ground for women seeking to break traditional barriers through skill acquisition (Bajracharya & Maharjan, 2021). This is a representative example of a broader impact on society because many of these skilled women often become role models in their communities, which may lead others to pursue similar opportunities. However, in order for women to transition into stable employment or self-employment, these programs must be successful. For this to happen, effective training and post-training support such as financial aid and mentorship are required (Joshi & Rijal, 2019). As a result, skill training programs for women in Nepal must be sustainable, ensuring that participants receive the assistance they require to succeed economically while also gaining new skills.

Quality of Training and Professional Development

A key factor in determining the effectiveness and long-term effects of vocational programs is the quality of training and professional development, especially for the underrepresented groups like women. Such vocational training aims at imparting on participants the right level of competitiveness in the labor market, entrepreneurship, and professional circles. Moreover, it is not just technical knowledge that is sufficient, but, in fact, the personal and professional development. The employability, revenue generation, and entrepreneurial activities of participants in the women's training program are directly correlated with the program's overall effectiveness based on the quality of the training. One of the crucial dimensions of quality training is relevance to market needs. Khattri and Sharma (2020) explain that skill development programs often fail when they do not align with the evolving demands of the job market.

Professional growth apart from technical expertise is also a stipulation. Personal development comprising increased self-confidence, decision-making skills, and leadership qualities also play an important role in enhancing employability through vocational programs. In addition to the cultural expectations and family responsibilities, a study by Sharma and Pant (2018) shows that women in these programs frequently encounter other obstacles that can hinder their ability to participate fully in the workforce. Thus, financial literacy, time management, and personal empowerment are also critical components of quality training programs to respond to such issues.

Success from these programs does not

depend solely on the content provided but also on the competency of the trainers themselves. A study by Joshi and Rijal (2019) emphasizes the importance of having highly skilled trainers who possess both industry expertise and pedagogical skills. Professionals who are experienced can provide current comments on trends, market demands, and obstacles faced today. It is also essential that the facilitators must have adult education methods because most of the trainees are women who have a number of responsibilities unlike fresh graduates.

Generally, quality of learning would enhance substantially if teaching methods could be adapted to different backgrounds of the participants. Also being affected by is the setting where the training is conducted. According to Khadka et al. (2020), the quality of vocational training is heavily influenced by the availability of proper infrastructure and resources. Similarly, training programs comprising state-of-the-art facilities and practical workshops help participants use theoretical information in real time, which boosts the confidence and competence of participants. On the other hand, training programs that are not well equipped, for instance, with adequate makeup or equipment, would result in less practice and mastery of skills by the participants, consequently lowering the overall quality of the training. Moreover, professional development for participants is also enhanced by post-training support and mentorship services. Thapa and Karki (2021) present the argument that TVET programs will be more effective if follow-up mechanisms such as mentorship networking and job placement services are in place. Continued support to the women even after completion of training leads to better professional performance, whether employed or self-employed. For example, mentorship programs offer continued support to trainees making them able to face the challenges that might relate to building a business, dealing with clients, or being in the competitive line of world of work. Without such assistance, many of these women may fail to move into the practical application in the labor market.

Thus, the success of vocational programs for women depends on market-relevant training, qualified educators, and infrastructure. Personal growth, financial literacy, and post-training mentorship are all important to unlock the potential of technical abilities. Quality programs promote self-confidence, employability, and entrepreneurship by removing barriers, providing practical training, and ongoing support for the long-term professional growth and success.

Training Increases Career Opportunities

Training program offers several opportunities for professional growth and economic empowerment through the skill development of women. It is expected that women who receive new skills will have better employability, financial independence, and encouragement of entrepreneurship. The ILO (2018) found that skill development programs can

dramatically raise women's labor force participation rates, which in turn promotes social justice and economic progress. Skill development provides participants with hands-on expertise, which increases the chances of employability either as a self-employed or as a freelancer. This training opens the doors to economic independence, particularly for women confined to household responsibilities by providing them with the means to earn a sustainable income. The training encompasses more than just technical skills, as it brings entrepreneurial possibilities and motivates participants to launch their own ventures.

Similarly, training fosters entrepreneurship, which is essential for self-employment. A study by Singh and Ghosh (2020) emphasizes that women trained in fields like tailoring, handicrafts, or digital marketing have successfully launched small businesses, contributing not only to family income but also to the local economies. This goes hand in hand with the global shift toward more flexible work arrangements, where, the gig economy is thriving. For instance, women who acquire skills through targeted programs are more likely to challenge societal norms, access financial resources, and create opportunities for others by employing fellow women (UNESCO, 2022a).

Moreover, soft skills like communication, teamwork, and time management are also improved by training and are essential for professional success. Participants in these programs might interact with possible employers, clients, or partners through networking and mentoring opportunities. A research underscores the role of such holistic training in building sustainable career paths and increasing job retention rates among women (ILO, 2021). The program also facilitates social empowerment, as it encourages women to build networks and engage in business collaborations, enhancing their leadership roles within their communities. Such skills provide them with opportunities for expansion into wider markets and the use of digital means of improving their services for career advancement and entrepreneurship. Nevertheless, vocational training is a very good means to further one's skills in personal and professional development. Besides the immediate effects of skill acquisition, they offer employment opportunities, financial independence, and community growth. Policymakers should further encourage these initiatives and ensure access for women from different socio-economic backgrounds to maximize their benefits.

Sustainability and Long-Term Impact of Training Programs

To have long-term effects on women's employment, skill training must go beyond simply providing skills and promote sustainability through comprehensive support systems. In Nepal, there are numerous training initiatives that do not provide enough post-training support, which is critical for allowing women to successfully employ their gained abilities in the labor market. In absence of continued

guidance, mentorship, or access to resources, many women face difficulties in translating their newly acquired skills into sustainable careers or businesses (Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ], 2020).

Moreover, monitoring and evaluation mechanisms for these programs are often underdeveloped, making it difficult to measure their long-term effectiveness or identify areas for improvement (ILO, 2021). This leads to inefficiencies and inadequate opportunities to improve training delivery and outcomes.

Sustainable programs should integrate follow-up support mechanisms such as microcredit schemes and networking platforms, which can help women access funding and establish business connections (UNESCO, 2022b). Strong collaboration among training providers, employers, and politicians is also necessary to create a comprehensive system that supports women throughout their careers. Indeed, only when such mechanisms are in place can the training programs achieve long-term success and contribute to real, long-term women's empowerment in Nepal.

Hence, for the training programs to have a long-term influence on women's employment, they must provide post-training support such as mentoring, micro financing, and networking opportunities. Many women fail to turn their skills into long-term professions for lack of follow-up methods and sufficient supervision. Therefore, the collaboration among providers, employers, and governments is critical to long-term success and empowerment.

Discussion

Vocational training significantly benefits women in Nepal in terms of empowerment, employability, and entrepreneurship development. However, how far the programs are effective in changing women's lives and the long-term effects are determined by a variety of factors other than skill acquisition. Empowerment comes not only from technical capabilities but also from other aspects of personal and professional development that training programs encourage. Women gain confidence, leadership skills, and financial literacy, thereby allowing them to better manage diverse challenges such as family duties and cultural constraints.

Despite these favorable outcomes, the success of training programs is not always sustained. One of the most pressing challenges is how women can preserve their new skills in the face of a shortage of post-training. Without much-needed follow-up coaching, networking, and resource access, most of these trainees have struggled to start enterprises or find secure jobs.

As noted by scholars, the integration of support mechanisms such as microcredit schemes, job placement services, and mentorship is vital for ensuring that these programs lead to a long-term empowerment (ILO, 2021; UNESCO, 2022b). Furthermore, it is more difficult to evaluate the program's

efficacy and make the required adjustments for lack of adequate monitoring and evaluation methods. Vocational training must therefore take a comprehensive strategy that includes both skill-building and long-term support systems to promote women's empowerment and ongoing professional advancement if it is to be genuinely transformative.

Conclusion and Implications

This thematic review summarizes the evidence on the effects of women-targeted training programs such as socioeconomic benefits, empowerment, and long-term sustainability. According to the academics, such course is frequently required to boost women's employability in the nontraditional fields. These skill-based programs provide technical competencies to women while also contributing to their independence and self-confidence, allowing them to be more active in the labor market. The studies show the skilled women frequently pursue traditional male careers, disrupting gender stereotypes and promoting gender equality.

The study dives deep into different aspects of empowerment that result from training program participation; it highlights important themes like social recognition, economic independence, and personal development and tries to demonstrate how skill development raises self-esteem and increases one's ability to make decisions for oneself and one's family and community.

Despite these advantages, a host of obstacles persists, including insufficient alignment of training programs with current market demands, inadequate infrastructure, and a lack of support following training. Most women find it difficult to move from training to employment or self-employment in the absence of ongoing mentorship, job placement services, or financial access. The study highlights the importance of improving training quality, aligning with industry demands, and developing long-term support mechanisms to assure success.

The findings also suggest for continuation of training in the evaluation and adaptation of changing women's needs across diverse contexts by adding mechanisms for participant feedback, which may result in more relevant and impactful training content, hence increasing efficacy. Women's vocational training will only be able to reach its full potential if employers, government bodies, and training providers work together more effectively at all levels. For Nepal to fully empower women and promote gender equality in the workplace, more interventions are needed in a number of areas, including entrepreneurship skills, financial literacy access, sustainability, and improved post-training assistance. Building links with local firms and organizations can help a training program enable placements and grow female small enterprises. As a result, the thematic study provides invaluable insights into the multidimensional effects of training programs for women, particularly those with integrated approaches to skill development, empowerment and sustainability. These conclusions can be used to inform future

programs aimed at promoting gender equity, economic empowerment as well as societal reform.

References

Acharya, M. (2017). *Women and labour force participation in Nepal.* Nepal Economic Forum.

Alhojailan, M. I. (2012). Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences, 1*(1), 39-47. https://faculty.ksu.edu.sa/sites/default/files/ta_thematic_analysis_dr_mohammed_alhojailan.pdf

Asian Development Bank. (2020). *Vocational education and training for women in Nepal: A path to empowerment.*

Bhadra, C. (2019). Gender roles and women's empowerment in rural Nepal. *Journal of Social Development Studies, 12*(2), 45-62.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development.* Sage.

Deutsche Gesellschaft für Internationale Zusammenarbeit. (2020). *Skill development for employment: Lessons from Nepal.*

Gurung, R., & Shrestha, P. (2020). Empowering women through skill-based vocational training in Nepal. *Journal of Social Change, 12*(3), 45-58.

International Labour Organization. (2018). *Women's economic empowerment through vocational training programs.*

International Labour Organization. (2021). *TVET and women empowerment in South Asia.*

Joshi, M., & Rijal, S. (2019). Assessing the competency of trainers in vocational education programs in Nepal. *Journal of Vocational Education Research, 35*(2), 110-125.

Joshi, P., & Rijal, S. (2019). Enhancing employability through vocational training: A study of the beauty industry in Nepal. *International Journal of Vocational Studies, 17*(4), 122-134.

Joshi, S., & Rijal, B. (2019). Challenges of vocational training in Nepal: A case study. *Journal of Vocational Education and Training, 41*(3), 201-218.

Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third millennium development goal. *Gender and Development, 13*(1), 13-24.

Khadka, P., Bista, R., & Giri, S. (2020). Infrastructure and resource gaps in vocational training programs in Nepal. *Journal of Educational Development, 45*(1), 55-68.

Khan, M., & Sultana, N. (2017). Women empowerment through vocational training: A study in South Asia. *International Journal of Social Research,*

44(2), 67-82.

Khattri, P., & Sharma, D. (2020). Vocational education and training in Nepal: Market alignment and sustainability. *Nepal Development Review, 25*(3), 115-130.

Sharma, P., & Pant, M. (2018). Women's empowerment through skill development in Nepal: A study of vocational programs. *Gender Studies Quarterly, 27*(4), 89-102.

Shrestha, A., & Khadka, R. (2019). The impact of vocational training on female labor force participation in Nepal. *Nepal Journal of Employment and Training, 22*(2), 56-78.

Singh, R., & Ghosh, M. (2020). Entrepreneurship and women empowerment: A study of vocational training programs in South Asia. *Economic Development Quarterly, 36*(3), 221-230.

Thapa, N., & Karki, L. (2021). Post-training support and the success of vocational programs: The role of mentorship and networking in women's professional development. *Journal of Education and Training, 18*(2), 120-138.

UNESCO. (2022a). *Barriers to women's education and employment in Nepal.*

UNESCO. (2022b). *Global trends in gender and vocational education: Bridging the gap*.

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Article

Effectiveness of Instructional Skills Training for TVET Instructors in Nepal: Evaluation through the Kirkpatrick Model

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Abstract

This study assesses the effectiveness of instructional skills training offered by the Training Institute for Technical Instruction (TITI), Nepal, using the Kirkpatrick Model. The four levels of evaluation of this model - reaction, learning, behavior, and results - were used to assess the effectiveness of the training conducted for the Technical and Vocational Education and Training (TVET) instructors. The quantitative method was applied for this study. Data were collected through a structured questionnaire and administered to 51 participants of instructional skills (IS) training. The findings showed that IS participants rated reaction at 4.00, learning at 2.76, performance at 4.3, and overall results at 4.00. The overall training effectiveness was 3.76. These scores were based on a five-point Likert scale, where 1 meant "strongly disagree" and 5 meant "strongly agree." In this regard, training reactions were positively impacted; the learning was moderately achieved; the trainers improved their performance; and the trained instructors' outcomes was enhanced in the instructions. Finally, the training impacted positively to improve quality of the instruction in the teaching learning process.

Keywords: training of trainers, evaluation, training effectiveness, Kirkpatrick model

Introduction

Training is associated with the enhancement of competence and confidence in human resources. It facilitates the development of trainees' performance leading to better organizational results. In the context of Nepal, the Training Institute for Technical Instruction (TITI), a constituted training center of the Council for Technical Education and Vocational Training (CTEVT), has been mandated to conduct capacity development training for TVET professionals. The institute conducts various training programs, especially in the areas of instruction, curriculum development, management, community development, and e-learning.

The transfer of training in the TVET school from trainers to the trainees is fundamental for the acquisition of new knowledge, skills and attitude. In the current world economy, the knowledge, skills and abilities necessary to maintain a competitive advantage are growing and changing (Arguinis & Kraiger, 2009). The training is the application,

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generalization and maintenance of newly learned knowledge and skills on the job over a long period of time through transfer of training (Baldwin et al., 2017). In this scenario, training of trainers helps in delivering training more effectively to secure the desired results in the organization. So, training is an important and reliable technique of human resource development so that organizational productivity would be enhanced. The technical and vocational training is a bridge for connecting training institute and labor market, whereas the trained instructors transfer the competency needed to participants as per industry needs. Ahmad and Essien (2021) state that the TVET instructors training is very important to develop competencies for transferring skills, and innovative and effective teaching learning strategies. In this regard, IS training plays a vital role in the development of human capital along with the competitiveness to transfer employment skills from trainers to trainees to fit in the current labor market.

The training and retraining of TVET teachers is essential to develop innovative and effective teachers (Mohamad et al., 2009). Only skilled trainees are easily absorbed by the industry. This situation can be addressed by the effective teaching-learning procedures. The competency of TVET graduates is ensured when the trained trainers transfer their competencies.

The effective transfer of training is reflected in the workplace (Broad & Newstrom, 1992). Similarly, the training transfer is higher immediately after training, but decreases later (Newstrom, 1986). According to Holton (1996), the outcomes of training are: individual learning, individual performance, and organizational results. In the learning and development on 70:20:10 framework, the challenging assignments and on-the-job experiences make up 70 percent of learning, while the relationships with other people, networks and feedback 20% of learning, and the formal training courses and workshops constitute 10% of learning (McCall et al. 1988). In this way, training plays an important role in performance of the human resources.

According to the National Planning Commission (2022), the TVET institutions are enrolling merely 70% students of their capacity. Their graduation rate is about 80% and the employment rate of the graduates is 60%. The same study suggests that an institute must have at least 20% of instructors with two or more years of industrial experience and 50% of its instructors with at least one instructional skill-related training from TITI or other nationally recognized institutions. TITI training is therefore recognized as the foundation for quality enhancement of TVET instructors in training delivery.

Training of trainers is very important for improvement of instructional quality and trainers' development. Training needs to be designed to enhance the performance, efficiency and effectiveness of TVET instructors. The transfer of training is the desired outcome of the instructors. TITI has been providing training for TVET instructors

to improve quality of session delivery, but the status of transfer of training needs to be identified for further planning. Hence, this study assesses to what extent the transfer of training has occurred and identifies the effectiveness of training through trained trainers.

Literature Review

According Broad and Newstrom (1992), the transfer of training is related to effective and continuous application of the competency gained in training back in the workplace. The transfer level may be higher immediately after training, and declines over time (Newstrom, 1986). In this regard, the level of transfer of training depends on the application time. If training does not transfer as per the goals, it is a waste of time and resources.

According to Holton (1996), there are three primary outcomes of training: individual learning, individual performance, and organizational results. These are affected by a joint effort of motivational, environmental, and enabling factors. The outcome of personal learning is affected by the trainee's reaction to the learning environment, and the trainee's experience and capability. The outcome of trainee's performance is affected by the trainee's motivation to transfer, the internal and external environment, and the design of the training program. Similarly, the organizational results or performance are determined by the application of such training or the return on investment of time and resources.

The transfer of training is the application, generalization and maintenance of newly learned knowledge and skills on the job over a long period of time (Baldwin et al., 2017). The objective of the training of trainers' program is the improved training delivery of the individual instructors and enhanced organizational performance.

According to Alsalamah and Callinan, (2021), the Kirkpatrick evaluation model was very effective in evaluating educational training for head teachers in Saudi Arabia. The research in Saudi Arabia includes instruments for each of the four levels in the model of evaluation: reaction, learning, behavior and results criteria. So, this model is effective for training evaluation.

Evaluation of Training

In the goal-free evaluation, the evaluation is conducted without having particular knowledge of pre-defined goals and objectives. Goals are "broad statements of a program's purposes or expected outcomes, usually not specific enough to be measured and often concerning long-term rather than short-term expectations" (Jacobs & Weiss, 1988). In this way, without pre-defined goals training effectiveness can not be evaluated.

In the ADDIE model, training evaluation is done to identify adequate on-the-job performance so that the learners can learn sufficiently to perform a certain job or task (Branson et al., 1975). This model includes: analysis, which involves identifying learning needs; design, which focuses on planning

content and structure; development, which entails creating training materials; implementation, which involves delivering training; and evaluation, which assesses outcomes and allows for refinement.

The training evaluation entails assessing the training program to ensure its effective implementation and to measure the returns on investment related to the resources allocated to the operation (Gebrehiwot & Elantheraiyan, 2023). The four levels of evaluation of transfer of training in Kirkpatrick's Model are reaction, learning, behavior, and results (Kirkpatrick, 1996). The training transfer is related to acquisition of competency (attitudes, skills and knowledge) through training and transfer it into the workplace or organization.

The training program, if evaluated at the reaction level, is related to the feelings of the training participants. The learning level measures the level of competency (knowledge, skills, and attitudes) acquired by the participants. The performance level is concerned with positive changes in behaviors of the participants in the real world of work. The results level examines the institutional outcomes or improved organizational results. This article has adopted the Kirkpatrick Model for assessing the effectiveness of training. I use Kirkpatrick's framework due to its adaptability and effectiveness in a training evaluation.

Table 1 : Level of Evaluation in the Kirkpatrick Model

Level	Evaluation tools
Reaction	Evaluation tools and techniques
Learning	Feedback from the trainees to evaluate training experiences
Behavior	Skill exercise or technique learned in a training
Results	Trainees were providing techniques regarding quality standard and they use for quality improvements

The training need is defined as the gap between the existing and the desired competency of the employees in any organization. Training needs could be organizational as well personal for those working in the organization. The educationalists should identify their individual training needs to enable them to facilitate the training needs of other staff (Sheperd,1994). So, training needs deals with the competency gap between organization need and individual performance. The professional development in the TVET sector is done by identifying the training needs. The study is based on the premises of the system approach of identifying training needs as illustrated in Figure 1.

Figure 1: Model for Determining Training Needs

In this model, job requirements are the organization's job-related needs and capabilities. The existing competency of the instructors is their capacity, and the training need is the difference between organization's requirements and existing competency of the employees. The gap can be fulfilled by training and development approach.

The effectiveness of any instructional training program can be evaluated using the Kirkpatrik Model of training evaluation. This model evaluates the effectiveness of training at the level of reaction, learning, behaviour and results. These all four variables collectively determine the training effectiveness as dependent variable. So, these indicators are applied as the variables of training effectiveness in the study. These are contributing variables to determine the training effectiveness. The personal attributes collectively address gender, age, education, work experience, job nature and job status as independent variables. These both variables act in a complementary manner for enhancing training effectiveness among instructors of the technical schools.

Methodology

This research employed quantitative research method to evaluate effectiveness of training program conducted by TITI. The instructional skills training participants were from four CTEVT constituted schools. The instructors of two technical schools from Kathmandu and one technical school each from Rupandehi and Dhanusha were selected for this research. Due to staff turnover, I accessed only 51 participants for the study. Based on the Kirkpatrick Model, I administered a questionnaire with 11 questions for reactions level, 5 questions for learning level, 9 questions for performance level and 2 questions for results level. The feedback from the key stakeholders, including trainers and IS participants was taken to ensure that the questionnaire aligned with the constructs. The primary data were collected with the help of structured questionnaire. The descriptive statistics was applied for the data analysis with the help of SPSS (2025). This study was limited to the CTEVT constituted school instructors. The determination of training needs model was used while selecting the participants by TITI. I selected IS participants, who were participants of IS training in 2023. The survey was conducted by the researchers among those technical schools' instructors.

Results

The research presents the personal attributes of the respondents. Likewise, it includes overall reactions of the IS training, overall learning from the training, performance after the training and result of the training. The information is presented in Table 2 in order to evaluate objectives of training effectiveness in different level.

The sex, age, marital status, service period, education, job status and nature of job are categorized as their personal attributes.

Table 2: Personal Attributes of the Respondents

Variables		N	P	Variable		N	P
Gender	Male	41	80.4	Age	Below 30	27	52.9
	Female	10	19.6		30-40	19	37.3
	Total	51	100.0		Above 40	5	7.8
Education	Technical SLC	4	7.8		Total	51	100.0
	Diploma	11	21.6	Work Experience	Below 5 Yrs	26	51.0
	Bachelor	25	49.0		5-9 Yrs	21	41.2
	Master	11	21.6		More than 10 Yrs	4	7.9
	Total	51	100.0		Total	51	100.0
Job Status	Assistant Level	20	39.2	Job Nature	Contract	45	88.2
	Officer Level	31	60.8		Permanent	6	11.8
	Total	51	100.0		Total	51	100.0

Note: N=Number, P=Percentage

Table 2 shows that the total number of participants was 51, where 80.4% were male and 19.6% were female. Similarly, respondents with bachelor and above were 70.6%, and officer level comprised 60.8%. More than 50% respondents were under 30 years old; 51% respondents had work experience of less than 5 years, while 88.2% respondents were working as contract staff. Hence, the majority of trainers were young ones of under 30 years. It indicated that productive time of the trainers was spent in the training.

Table 3 shows the reactions to the training across different variables. The responses were taken on a 5-point Likert scale. The "friendly classroom environment" received the highest score of 4.4, indicating that the participants found the training environment highly conducive and pleasing. Similarly, the overall average score 4.0 of all responses suggests that the training was generally well-received by instructors. However, the "alignment of topics with current needs" received the lowest score of 3.6, highlighting the need for better updating of training content to meet participants' requirements.

Table 3 presents the learning outcomes of the training for each variable on 5-point Likert scale. The "on-the-job coaching is applied in the workplace," received the highest score of 3.92, indicating application

Table 3 : Overall Reactions of the Training

Reactions	N	Mean
I have got training as per my expectations.	51	3.8
Topic of training is updated to fulfill current requirements.	51	3.6
Resource material is organized, enough and useful.	51	3.8
Teaching materials were well prepared.	51	4.1
Training participants had well interacted with trainers.	51	4.3
Teaching methodology was good and relevant.	51	3.9
I read and learned useful things for future use.	51	4.0
Assignment was enough.	51	4.0
Trainer's presentation was useful and understandable.	51	4.0
Classroom environment was friendly.	51	4.4
It was better to provide more practical sessions.	51	4.2
Average	51	4.0

Note: 1.00-1.79 = completely disagree, 1.80-2.59 = disagree, 2.60-3.39 =neutral, 3.40-4.19 = agree, and 4.20-5.00 = greatly agree

of coaching techniques in the training. Similarly, "introduce a lesson to gain attention of learners" and "the product should be evaluated when there is more than one acceptable standard" both secured 2.06 as the lowest score, suggesting foundational pedagogical skills are identified but requires further emphasis for improvement. Trainees may benefit from guidance on effectively introducing lessons and applying different evaluation techniques, with more examples to enhance understanding. The overall average learning score across five variables was 2.76, reflecting a medium level of understanding

Table 4 : Overall Learning of the training

Learning	N	Mean
The lesson introduction is done to gain attention of the learners.	51	2.06
The product should be evaluated when there is more than one acceptable standard.	51	2.06
The purpose of giving feedback is to improve performance.	51	3.53
The adult learning strategies should be applied for motivation, curriculum and classroom strategies.	51	2.25
On-the-job coaching is applied in the workplace.	51	3.92
Mean	51	2.76

Note: 1.00-1.79 = completely disagree, 1.80-2.59 = disagree, 2.60-3.39 =neutral, 3.40-4.19 = agree, and 4.20-5.00 = greatly agree

with room for improvement in several areas.

Table 5 illustrates the performance outcomes of the training measured across different variables by applying a 5-point Likert scale. Respondents reported a high level of consistency in delivering daily classes which was reflected in a score of 4.7, indicating strong commitment to regular teaching schedules. The lowest score, 4.0, was observed for the use of terminal performance objectives and adult learning strategies in instruction. The overall mean score of 4.3 highlighted that the training was effective.

Table 6 shows the results level of the training effectiveness clearly demonstrates that the trained teachers play a crucial role in fostering better academic performance, skill transfer and examination success among students. The students' performance

Table 5 : Overall Performance of the Training

Performance	N	Mean
I am taking class daily.	51	4.7
I am taking class with lesson plan.	51	4.2
I am using terminal performance objectives for skill demonstration.	51	4.0
I am using different instructional methods while teaching.	51	4.4
I am teaching in an interactive environment.	51	4.5
I am starting class with the introduction of the topic at first.	51	4.6
I am using adult learning strategy while teaching.	51	4.0
I provide feedback to students for each and every learning activity	51	4.1
I use performance guide for every demonstration	51	4.3
Mean	51	4.3

Note: 1.00-1.79 = completely disagree, 1.80-2.59 = disagree, 2.60-3.39 =neutral, 3.40-4.19 = agree, and 4.20-5.00 = greatly agree

was improved when taught by the trained teacher rated 62%, indicating that effective teaching methods not only prepare students for assessments but also equip them with the knowledge, skills and attitudes necessary for success. The overall average performance across all indicators was 61.9%, suggesting a high level of impact of the trained teachers on the instruction.

Table 7 shows that the behavior, reactions and results all three rate 4.3, 4.0 and 4.0 respectively. Whereas, learning was lowest with 2.76. The average training effectiveness

Table 6 : Overall Results of the Training

Results	N	P
The students' performance was improved when taught by the trained teacher.	51	62.0
The students who were taught by the trained teacher improved their performance in the final examination.	51	61.8
Mean	51	61.9

Note: very low (0–20%), low (21–40%), medium (41–60%), high (61–80%), very high (81–100%)

was 3.76 which also indicated positive impact and effectiveness. The overall training effectiveness was positive in the aspects of reactions, behavior and results but there is need of improvement in the leaning aspects.

Discussion

Overall Training Effectiveness

The overall training effectiveness was indicated positive results of four level of training evaluation in the aspects of reactions, learning, behavior and results, but there is a need of improvement in the leaning aspects.

The reactions were 4.0 on a 5-point Likert scale of all responses. It suggests that the training was generally well-received by instructors in this study. Farjad (2012) reported that training reactions in Pakistan was "almost acceptable," with an average score of 2.76 on a 5-point Likert scale. The findings shown between these two studies from different countries may vary due to different social, economic, and cultural contexts. Such variations highlight the importance of how and which activities are focused during training programs.

The overall learning score was 2.76, showing a medium level of understanding with a

Table 7 : Comparing Average Major Variables of the Training Effectiveness

Variables	Mean	Training Effectiveness
Reactions	4.0	Agree
Learning	2.76	Neutral
Behavior	4.3	Agree
Results	4.0 (61.9%)	Agree
Mean	3.76	Agree

Note: 1.00-1.79 = completely disagree, 1.80-2.59 = disagree, 2.60-3.39 =neutral, 3.40-4.19 = agree, 4.20-5.00 = greatly agree and 0-20%- Likert scale=1, 21-40%- Likert scale=2, 41-60%-Likert scale=3, 61-80%- Likert scale=4, 81-100%- Likert scale=5

room for improvement in several areas of the participants in this study. A similar study conducted among TVET trainers from Japan demonstrated that instructors gained attitudes, skills and knowledge, which positively impacted teaching effectiveness (Naing et al., 2022). Likewise, in the context of Saudi Arabia, as Shani (2020) mentioned, the managerial training, using Kirkpatrick framework, was found highly effective for learning. All national and international studies highlight a positive impact of professional development training on trainers' learning.

This research highlighted high level of training effectiveness, suggesting that trainers effectively perform by applying the principles of learning strategies during the program. These findings align with Loeung (2024), the study in Cambodia reported that individual work performance improved by over 70% after training. The research study in two different contexts but with similar findings indicate similar patterns of effectiveness in Nepal and Cambodia. It further suggests that the training program's design and implementation strategies may be broadly applicable across different social, cultural and educational contexts.

This study shows improvement in the results of TVET instructors after their training. This improvement signifies the positive outcomes of the trained instructors that can arise from effective training of trainers' programs. The research conducted by Hafeez (2021) in Pakistan shows how different instructional methods such as lecture, discussion, inquiry, and demonstration impacted students' academic performance and interests, and the findings indicate that the demonstration teaching method had the most significant positive impact on students' achievement. Both researches resulted in positive effect on outcomes of trained instructors.

The overall training effectiveness was found positively impacted. A research conducted in Thailand on training activities with different four levels of the Kirkpatrick model: reaction, learning, and behavior (performance test), the overall result showed the participants' positive reaction to the outcome (Chernbumroong et al., 2022). The study conducted in different contexts, and similarity of the findings indicate similar patterns of training effectiveness in Nepal and Thailand.

The overall average performance across all indicators was suggesting the effective and positive impact of the trained instructors on the instruction. This improvement in the training delivery from the participants indicates the positive outcomes of the trained instructors that can arise from effective training of trainers' programs and interventions that likely focus on improving teaching methodologies, including possibly demonstration-based, practical and participatory approaches.

Conclusion

This study assessed the overall training effectiveness of the IS training conducted by TITI with the use of Kirkpatrick Model. The

findings reveal that the positive reactions of the participants towards the training; the trainers were utilizing their learning in the classroom environment, teaching methodologies.

The learning outcomes were moderately achieved. The training has a positive impact on improving the TVET instructors' performance. The application of pedagogical skills has a notable emphasis on on-the-job coaching and guiding. The performance after the training was seen effective. The results showed a positive impact in students' achievement with the help of trained instructors. Overall, training of trainers' programs is effective in the TVET institutions.

However, the policy makers and training implementing agency can make training more effective by updating training contents with the adoption of adult learning strategies, interactive learning environment and use of latest technology. It helps meet industry needs and standards. The training should also focus on-the-job practice for the trainers, and consistent performance of the instructors. Continuous monitoring and evaluation is equally necessary for the improvement of training.

References

Ahmad, J., & Essien, E. O. (2021). Training and retraining: A case of TVET teachers in Malaysia. *Asia-Africa Journal of Academic Research and Review*, *1*, 110-118.

Alsalamah, A., & Callinan, C. (2021). Adaptation of Kirkpatrick's four-level model of training criteria to evaluate training programmes for head teachers. *Education Sciences*, *11*(3), 116.

Arguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society. *Annual Review of Psychology*, *60*, 451–74.

Baldwin, T. T., Kevin Ford, J., & Blume, B. D. (2017). The state of transfer of training research: Moving toward more consumer-centric inquiry. *Human Resource Development Quarterly*, *28*(1), 17-28.

Branson, R.K., Rayner, G.T., Cox, J.L., Furman, J.P., King, F.J., Hannum, W.H. (1975). *Interservice procedures for instructional systems development: Executive summary and model*. (Vol. 1-5). U.S. Army Training and Doctrine Command.

Broad, M., & Newstrom, J. (1992). *Transfer of training: Action packed strategies to ensure high payoff from training investments*. Addison-Wesley.

Chernbumroong, S., Sureephong, P., Suebsombut, P., & Sekhari, A. (2022). Training evaluation in a smart farm using Kirkpatrick model: A case study of Chiang Mai. *2022 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and*

Telecommunications Engineering (ECTI DAMT & NCON). Chiang Rai, Thailand, 2022, pp. 463-466.

Farjad, S. (2012). The evaluation of effectiveness of training courses in University by Kirkpatrick model (Case study: Islamshahr University). *Procedia-Social and Behavioral Sciences*, *46*, 2837-2841.

Gebrehiwot, G. D., & Elantheraiyan, P. (2023). A study on the effect of training on employee performance in the case of Mekelle City, Tigray, Ethiopia. *Social Sciences & Humanities Open*, *8*(1), 100567.

Hafeez, M. (2021). Impact of teacher's training on interest and academic achievements of students by multiple teaching methods. *Pedagogical Research*, *6*(3), 1-10.

Holton, E. F., III. (1996). The flawed four-level evaluation model. *Human Resource Development Quarterly*, *7*(1), 5-21. https://doi.org/10.1002/hrdq.3920070103

Jacobs, F. H., & Weiss, H. B. (1988). *Evaluating family programs* (pp. 37-68). Aldine de Gruyter.

Kirkpatrick, D. L. (1996). Invited reaction: Reaction to Holton article. *Human Resource Development Quarterly*, *7*(1), 23-25.

Loeung, B. (2024). The effect of training effectiveness on individual work performance in business organizations in Cambodia. *Journal of Social Sciences and Humanities*, *3*(3), 1-19

McCall, M. W., Lombardo, M. M., & Morrison, A. M. (1988). *Lessons of experience: How successful executives develop on the job*. Simon and Schuster.

Mohamad, M. M., Saud, M. S., & Ahmad, A. (2009). The need in training and retraining for TVET teachers in Malaysia. *Journal of Technical Education and Training*, *1*(1), 51-57

Naing, T. T., Minamoto, Y., Aung, Y. P., & Than, M. (2022). Faculty development of medical educators: Training evaluation and key challenges. *The Asia Pacific Scholar*, *7*(3), 23-32.

National Planning Commission (2022). *Socio-economic impact of diploma and pre-diploma TVET graduates after 5 years of graduation.*

Newstrom, J. W. (1986). Leveraging management development through the management of transfer. *Journal of Management Development*, *5*(5), 33-45.

Sahni, J. (2020). Managerial training effectiveness: an assessment through Kirkpatrick framework. *TEM Journal*, *9*(3), 1227-1233.

Sheperd, J. C. (1994). Training needs analysis model for qualified nurse practitioners. *Journal of Nursing Management 2*, 181–185.

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Book Review

Teaching with AI: A Practical Guide to a New Era of Human Learning, authored by Jose Antonio Bowen and C. Edward Watson, Baltimore, Johns Hopkins University Press, 2024, pp. 270. Paperback & E-book: $ 24.95. ISBN: 978-1-4214-4922-7 (Paperback), ISBN: 978-1-4214-4923-4 (E-book)

Artificial Intelligence (AI) is revolutionizing the way we work and live. Almost every profession is influenced by AI, if not eliminated. Education and training are no exception. In this context, Jose Antonio Bowen and C. Edward Watson have authored Teaching with AI: A Practical Guide to a New Era of Human Learning. The book is structured into three parts, each containing four chapters, making a total of twelve chapters. These three sections focus on thinking with AI, teaching with AI, and learning with AI, respectively. Each chapter begins with a thoughtfully selected epigraph that sparks the reader's interest and encourages them to delve deep into the text. The book introduces basic ideas about AI, and establishes the point that while AI is a powerful and influential tool, it cannot replace human intelligence or creative teachers. It highlights AI as a double-edged sword with both pros and cons and advocates for its use in enhancing creativity and improving learning outcomes.

The first part of the book explains AI's functions and impact on human life. Chapter 1 introduces the basics of AI, including key terms defined in embedded glossaries within the text. The authors vividly describe the chronological development of AI and provide examples of commonly used AI tools, particularly in the field of education in 2024. In Chapter 2, the authors argue that AI has ushered in a new era of work. The book makes a very significant point that AI will replace some jobs, while it will transform every job. The authors emphasize that those who can work with AI will replace those who cannot. The presentation of findings from research studies on the potential impact of AI in different occupational sectors is thought-provoking. More interestingly, the authors discuss how AI is reshaping human relationships with the rise of digital care. The authors portray AI as more of a collaborator than a mere assistant. Chapter 3 delves into AI literacy, covering essential skills such as defining problems, selecting the right AI tool for a task, crafting effective prompts, and refining responses through iteration. The authors stress that students will need both general and discipline-specific AI skills to thrive in the future. They also express concerns and warn that AI could widen the existing digital divide, thereby further marginalizing the already marginalized people. In Chapter 4, the discussion centers on AI surpassing the average worker in some tasks, although humans remain more creative than AI. Nevertheless, AI can enhance our creativity by helping us clarify our thoughts,

explore new ideas, and expand divergent thinking.

The second part of the book focuses on teaching with AI. Chapter 5 explores AI's capacity to assist faculty in research, writing, classroom discussion, assessments, and course design. One of the key topics discussed in Chapter 6 is AI-related cheating and detection. The authors cite various studies showing an increase in cheating while also questioning the reliability of AI detection tools due to their lack of trustworthiness. Instead, they advocate for redesigning assignments and assessments, and introducing low-cost cheating prevention strategies. Chapter 7 examines the required policies to uphold academic integrity in the age of AI. With the advent of AI, traditional definitions of plagiarism are becoming obsolete, necessitating new policies that clarify how work should be done and why. Moreover, Chapter 8 calls for rethinking of conventional assessment and grading system, emphasizing the need for defining what constitutes work that is "better than AI".

The last part of the text sheds light on learning with AI and designing assessments and assignments for today's world. Chapter 9 explains AI's ability to help customize learning and provide students with personalized feedback. If context and specificity are clearly provided in the prompt, AI can whet students' thinking and offer new perspectives. However, it will not eliminate the need for creative teachers, the authors duo remind. Chapter 10 introduces new design ideas to improve guidance and clarify the learning process. The authors build on the principle of intrinsic motivation, emphasizing that students learn best when they feel "I care" (purpose), "I can" (self-efficacy) and "I matter" (agency). They emphasize that assessments should be redesigned to minimize cheating and maximize learning. Chapter 11 elucidates AI's role as a writing assistant. Readers are intrigued in this chapter by the authors' apt analogy: just as having calculators does not mean we no longer need math, having AI does not mean we no longer need to write well. The final chapter, Chapter 12, provides practical ideas for integrating AI into assignments and assessments, including incorporating creative projects and asking students to describe the process, with the goal of preparing them for an AI-influenced future.

The book offers valuable insights into the application of AI in the teaching-learning process. The fundamental concepts of AI and its potential applications are very useful to TVET instructors and trainers. Although the book primarily focuses on higher education, it presents fundamental concepts and strategies that are equally relevant to TVET. Written in clear and simple language, it is research-based, and each chapter can be completed in a single sitting. As indicated by its title, the book serves as a practical guide, mainly emphasizing AI's role in writing, content generation, and refinement. However, it offers little discussion on AI's applications

in practical activities. For example, in TVET fields like welding, AI-powered augmented and virtual reality can enhance learning by minimizing resource waste and reducing risks during skill practice.

Hands-on skills and practical experiences are paramount in the field of TVET. However, TVET instructors and trainers can utilize AI tools to simulate real-world scenarios, enabling students to practice and refine their skills effectively. Preparing students — especially those from developing countries — to compete in a world where industries have already embraced AI is a significant challenge. The book thus provides insights that are useful for revising TVET curricula by integrating AI skills, managing and upgrading resources, updating instructional methodologies, and refining assessment strategies. AI is a force multiplier and has both merits and demerits. The book has effectively warned us of the downsides while encouraging us to take advantage of its positive aspects. At present, technical instructors, too, have no option but to gradually internalize the technological changes and challenges brought forth by AI and advancements in education and instruction.

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