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TVET in Nepal: Scope and the Associated Challenges

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Abstract

Technical and vocational education and training (TVET) equips individuals with specific skills required for the job market. It also provides a workforce that is needed for employment generation, entrepreneurship, and industrial growth. During the pre-agricultural stage of society, human beings used to practice the on-the-job phenomenon to learn the basic and necessary skills required for survival and cultural continuity. As society changed, vocational education also evolved in the form of formal and informal apprenticeships, oral tradition, and experiential learning. In Nepal, the establishment of the Council for Technical Education and Vocational Training (CTEVT) officially ensured that long and short courses offered by technical schools produce skillful human resources that are needed for the economic growth of the country.

Despite the growth in technical schools across the years, this article shows that TVET has not been able to bridge the gap between demand and supply of the workforce. This article has used secondary data to examine the status of population demographics and employment rate and also has explored the enrolment capacity versus actual enrollment in technical schools. In addition, this study has also explored the status of instructors in technical schools. Based on the secondary data, this study concludes that there is a need for a nationwide debate along with a plan of action to improve all aspects of TVET programs if Nepal aims to cultivate self-reliant and self-employed individuals as a way of reducing unemployment in the country.

Keywords: TVET, technical schools, pragmatism, progressivism

Introduction

The root of vocational education can be traced back to the pre-agricultural stage where learning was an on-the-job phenomenon. Knowledge and life skills were orally transmitted from one generation to the next. The elders imparted survival skills, knowledge of tool-making, and techniques of shelter-building to the family and the clan members. This early educational approach also showcased the effective example of work segmentation and specialization where elders transmitted skills, beliefs, practices, and adaptations essential for survival and cultural continuity. In the words of American anthropologist Margaret Mead, learning during this stage was more focused on observing the tribal communities and imitating the learning-by-doing approach of work to ensure that empathy, identification, and imitation became the core of learning (Schwartz, 1975).

The horticultural stage of society gradually saw

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the emergence of family, religion, law, economy, caste, and class along with political organizations. Vocational education also evolved during this stage in the form of informal apprenticeship, oral tradition, and experiential learning. An example of vocational education during the Vedic period used Vedas, Upanishads along with Dharmashastras, and Aranyakas to spread the concept of *Vidya* and *Avidya* (Saunaka Samhita, 1990-1997). Gurus encouraged students to pursue self-realization and its connection with the cosmic self through *Vidya* while *Avidya* provided knowledge on agriculture, livelihood, land management, and seasonal practices. This education system used spiritual and religious teachings along with vocational skills in ethics, mathematics, martial arts, yoga, medicine, and astronomy to ensure that cultural identity, knowledge, and social cohesion are transferred across generations. Additionally, the transfer of vocational knowledge during this stage encompassed a wide range of skills necessary for successful agriculture, animal husbandry, and trade.

The industrial era brought a massive change in society, as technology became an integral part of everyday life. Such change also led to the establishment of specialized technical schools/institutes aiming to create human resources with technical and vocational skills. Many nations also promoted vocational education through funding and the establishment of national standards and certifications. Institutes like École des Ponts et Chaussées, established in France in 1747, started to provide formal training in engineering and technical subjects, primarily for civil infrastructure projects. The first officially registered technical school, the Royal Polytechnic Institution (now the University of Westminister) established in 1838, and the establishment of technical education thereafter drove the need for skilled labor thus increasing the scope of technical and vocational education across the world.

The shift in vocational education came in the 19th century when vocational learning also focused on off-the-job delivery ultimately leading to the rise of formal vocational education and training (Hager, 2007). This encouraged workers to become better persons by acquiring the scientific disciplinary knowledge connected to their occupation, rather than learning skills that would directly enable them to do their job better. All these laid the groundwork for modern vocational and technical education systems including the establishment of the Council for Technical Education and Vocational Training (CTEVT) in Nepal, which has worked as a national autonomous apex body of TVET to ensure that technical and skillful human resources are produced through long- and short-term courses. Starting in 2013, the Center for Education and Human Resource Development (CEHRD, erstwhile Department of Education), another line agency of the Ministry of Education, Science and Technology (MoEST) also started the technical stream of education in community schools as a four-year program from grade 9 to 12 to ensure that students are equipped with necessary skills and techniques to compete in national and international job market. In terms of courses, schools that are supported by CTEVT provide pre-diploma and diploma courses that are operated in different models and that include: i) Technical Education in Community Schools (TECS), ii) private schools, iii) partnership schools, and iv) constituent schools.

Theoretical Discussions

Technical and vocational education in Nepal uses a pragmatic approach to education by providing knowledge and hands-on training, apprenticeships, and internships that directly prepare individuals for specific courses. The TVET curriculum used on-the-job training (OJT) models as an integral part of education so that students can demonstrate their practical skills and knowledge. However, it has been found that all pre-diploma curricula and the short courses offered by CTEVT had OJT provisions, while it was not specifically categorized in the case of diploma-level courses (Centre for Public Policy Dialogue, 2022). In the case of CEHRD-led technical stream, there is a provision for one-year OJT following 4 years of school-level education. The implementation status of OJT is subject to debate, but it clearly emphasizes the pragmatist method of experiential learning and problem-

solving approach to promote personal growth and social progress as essential outcomes of education (Sikandar, 2016).

Progressivism in education is a student-centered philosophy of education (Webb et al., 2007), that advocates the needs and interests of both students and society. Technical and vocational education in Nepal follows a progressivist philosophy of education aiming to prepare human resources that meet the demands of the labor market thus contributing to social and economic development. The selection of TVET courses including engineering (civil, computer, and electrical), health, agriculture (plant science, and animal science), hospitality, forestry, tourism, and others (entrepreneurship development, computer application, social work, and music) is intended to generate skilled human resources that meet the market demands. However, the study revealed that "the enrollment capacity of TVET programs is more influenced by the supply of students rather than the demand of the market" (Neupane, 2020, p. 25). This was evidenced by the decreased percentage of students from community schools completing pre-diploma courses from 66 percent in 2014 to 61 percent in 2023. While there was an improvement in the case of diploma courses from 29 percent in 2019 to 69 percent in 2023 (Ministry of Finance, 2023), it is clear that the outcome of Nepal's progressivist approach to TVET does not align with the intentions and therefore needs further discussion.

One of the aims of TVET in Nepal is to address, as critical theorists Max Horkheimer refers to, the issue of inequality in education and to critically analyze and question social norms and structures (Noddings, 2016). In the context of Nepal, where society is divided into class and caste, access to TVET schools was given priority to enhance the skills of students ultimately challenging existing norms and society. During the initial year of CTEVT establishment, when there were only six technical schools (National Planning Commission, 1991), by the end of 2021, 1591 schools were providing technical courses across the country. However, these schools have not been able to attract many students these days. Such a trend is evident in all types of technical schools signaling the possible gap of skilled human resources in the country. Despite CTEVT's provision, with up to 10 percent reserved for students from less privileged communities, 74.9 percent of diploma and 27.5 percent pre-diploma level scholarships remained unused in 2022 (Centre for Public Policy Dialogue, 2022). While TVET aims to address inequality, the expansion of TVET schools has not been able to attract more students to the classrooms. Similarly, the inability to distribute scholarships to needy students has not been able to reduce the issue of inequality.

All the above-mentioned philosophical stances along with the constructivist idea of contextual learning are the foundations of TVET programs. They encourage students/learners to become practical, learner-centered, and socially responsive. As Nepal aims to become a middle-income country by 2087 BS, efforts have been made to strengthen technical and vocational education that prepares a competent workforce relevant to domestic and global needs. Yet, Nepal is the third lowest among nine South Asian countries including China, placing it above Sri Lanka and Pakistan, with a 4.4 percent annual growth rate (Ministry of Finance, 2023). This growth rate is 0.9 percent less than the annual growth rate from emerging and developing Asia and 1.4 percent less than the annual growth rate of Nepal for 2022, signifying a possible loss of employment. In this context, TVET has been hoped to be a viable tool for driving individuals to become self-reliant and self-employed; however, evidence shows that TVET has not been able to generate much interest among parents, students, and other stakeholders thus suggesting the need for nationwide debate in improving all aspects of TVET programs.

Methodology

This is a review-based article based on the secondary data that are available in CTEVT and the CEHRD. Many variables could have been analyzed; however, this study focused exclusively on quantitative data related to population demographics and employment rate; the number of technical schools across the country along with the enrollment capacity and

the actual capacity of those schools; and the availability of instructors in those schools. The objective is to assist policymakers in predicting the scope of TVET in Nepal and also to understand the demand side situation of human resources needed to enhance employment and economic outcomes.

The analysis of the number of technical schools and the enrollment capacity versus the actual capacity was conducted to understand the supply of skilled labor needed for the market. This data was also studied to show the level of interest of students and parents in TVET programs. Less difference between enrollment capacity and actual capacity signifies a high level of interest in TVET programs while a big difference would signify the opposite. This dataset, it was hoped would be pivotal to understanding the degree and magnitude of access and relevancy of TVET programs in Nepal.

The responsibilities of teachers in technical schools go beyond traditional teaching, and therefore the adequacy of such teachers has also been explored in this study. Teachers in technical schools have multifaceted responsibilities to address and some of those responsibilities include instruction, industry collaboration, curriculum development, and technology integration. While schools can make alternative provisions or can use technology as a means of teaching and learning practices to address the shortage of teachers, this dataset was necessary to inform stakeholders of possible gaps regarding teacher recruitment.

In the end, the data needed for this study has been extracted from journal articles, research reports, TVET plan preparation reports, informative publications from CTEVT and CEHRD along with the literature that is available online regarding various aspects of TVET in Nepal.

Data Presentation

The data obtained from secondary sources for this study has been organized and presented in three categories. The first set of data shows the probable mismatch between demand and the supply of human resources. The second set shows the supply side aspect of human resources by presenting information on enrolment capacity versus the actual enrolment. Finally, the management of instructors is the third set of datasets presented in this study.

Dataset 1: Probable mismatch between demand and the supply of human resources

Reflecting upon the population age group of 10 years and above along with their involvement in any economic activity in the last 12 months preceding the 2021 census shows that 62.5 percent were engaged in some form of economic activity while 37.5 percent population were not engaged in any activity. As expected, and as given in Table 1, the percentage employed in the case of males is higher than that of females.

Table 1: Population (above 10 years) and the number of employed

Gender	Population	Employed	Percentage Employed
Female	12439247	7106988	57.1
Male	11519621	7876322	68.4
Total	**23958868**	**14983310**	**62.5**

Source: (National Statistics Office, 2021)

The question arises: which aspect of education, technical and vocational or the traditional academic institutions is responsible for generating employment in Nepal? The answer is not clear, however, it is believed that employment assurance is a shared responsibility involving multiple stakeholders including TVET and traditional academic institutions. In the case of Nepal and as Table 1 depicts, a collaborative approach is needed involving educational institutions, government, industries, and individuals to create a robust employment landscape because even with the increase in technical schools from 853 to 1591 schools in 2021 (Centre for Public Policy Dialogue, 2022), the number of unemployed populations is more than 35 percent. In another dataset, research conducted in 2016 showed that out of 2009 TVET graduates that were tracked,

only 42 percent of them were employed, 5 percent were working as volunteers while the remaining 46 percent had no employment (Accountability Initiative Private Limited, 2016). The same kind of study that was done in Sudan in 2016 had a 59 percent employment rate for the TVET graduates, which is 17 percent higher than that of Nepal (International Labour Organization, 2016). The study conducted in 2018 showed that out of 4727 graduates, only two-fifths (43.8 percent) were provided support about employment opportunities, meaning the majority were not supported at all (DEVTEC Nepal Private Limited, 2018). In this respect, the need for nationwide debate is necessary to assess whether the gap between the eligible population and the employed population is because of economic reasons, or whether it is related to curriculum or human resources not getting connected to the industries. Answers for such responses need to be explored through policy and program-level intervention; failing to do so would mean more brain drain resulting in Nepal falling into the remittance trap.

Dataset 2: Enrollment capacity versus actual enrollment

TVET opportunities in Nepal are available mainly in 6 sub/sectors; agriculture, engineering, health, forestry, hospitality, and others (it includes programs such as

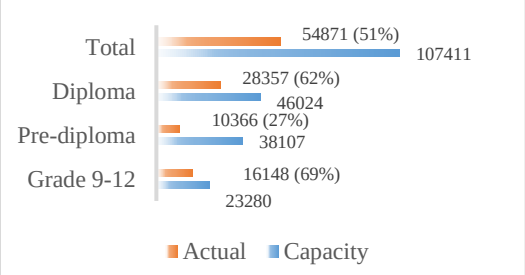

Figure 1: Enrollment capacity versus actual enrollment

entrepreneurship development, computer application, social work, and music). Out of 1591 schools in 2021, the CTEVT led 1106 schools to implement various courses through technical education in community schools (TECS), affiliated private schools, constituent schools, and partnership schools offering pre-diploma and diploma courses. The remaining 485 schools are operated through community schools led by CEHRD. Grade 8 graduation is the only criterion for students to be enrolled in the CEHRD-led technical stream while the entry criterion for the CTEVT-led pre-diploma and diploma course is the SEE completion certificate. To ensure that the TVET program provides the best result, each program has an approved enrollment capacity which is/can be different for CEHRD and CTEVT-led TVET programs. Figure 1 shows that CEHRD and CTEVT-led programs have only been able to attract 51% of students out of the total TVET capacity (Centre for Public Policy Dialogue, 2022). While the classes are relatively empty as shown in Figure 1, a recent tracer study conducted by Pokhara Technical School showed that out of 27 diploma graduates in hotel management, 44 percent of the students are still without employment (Pokhara Technical School, 2080 BS). Similarly, the report submitted by the Centre for Public Policy Dialogue (2022) showed a mismatch between the SEE results publication time and the CTEVT entrance examination events resulting in subsequent delay of enrollment leading to potential students getting enrolled in traditional academic courses. Scenarios like these need to be discussed at all levels so that the compatibility between education and the economy along with the timing between the examination and the entrance period is solved. Failing to do so would mean skilled TVET graduates will also go abroad for better economic opportunities, leaving Nepal with semi-skilled and unskilled human resources.

Dataset 3: Management of instructors

The CEHRD-based technical stream has approved a quota of 7 instructors. A study (Centre for Public Policy Dialogue, 2022) shows that the 485 such schools have an average of 3.9 instructors, and 2 assistant instructors, thus giving a total of 5.9 instructors per school. It also implies that an average of 1.1 instructors are missing from each school. To manage the classes, the schools are compelled to use teachers from general education or hire teachers through their private sources to complement the teacher deficit issue. In addition, only 20.1 percent of instructors and

9.6 percent of assistant instructors have had teacher professional development training so far. Only 7.4 percent of instructors have received industry-based training while this percentage is 7.8 in the case of assistant instructors.

The study shows that CTEVT-led pre-diploma courses have an average of 2.88 total instructors with a shortfall of 0.12 percent of average human resources. In the case of diploma, the study shows that there is an average of 6.13 instructors in each school thus indicating that human resources are a major issue in the technical stream. Annual turnover of 22.4 percent diploma level instructors and 6.8 percent pre-diploma level instructors further add complexity in assuring required human resources in the technical stream. While the actual enrollment is only 51 percent of the total capacity, some students who are in classrooms are also likely to underperform because of insufficient instructors. Such a scenario therefore needs to be discussed or else students, even when they graduate, will not be able to compete in the job market.

Conclusion

The scope of TVET is vast as it equips individuals with practical skills that are needed to compete in the world of work. It also addresses youth unemployment, fosters economic development, and promotes social inclusion. Despite such opportunities, this article shows that there is a mismatch between the demand and supply of human resources as 50 percent of the TVET graduates have remained unemployed. This contradicts the progressivist foundation that positions TVET programs to address the needs and interests of both students and society and therefore advocates for discussions at all government levels regarding the effectiveness of the program.

The dataset presented in this article shows that classes are relatively empty. There could be many reasons, however, this article based on data and figures given above concludes that such reasons could be a) TVET courses are not connected to industry b) the lack of sufficient instructors in schools resulting in incompetent TVET graduates in the job market, or c) the economy does not have sufficient industries to cope up with the supply of human resources. The empty classrooms again contradict the progressivist, critical theorist, and pragmatist approach of delivering practical skills and knowledge to students, addressing inequality in education through the expansion of TVET schools and distribution of scholarships, and addressing the curriculum that meets the needs of society, and therefore remedial measures need to be undertaken to enroll more students in TVET schools.

This article also shows that schools have a shortage of instructors. The majority of the available instructors are also not trained. Many conclusions can be drawn from this shortage and the training status, however, this article based on the available data and figures concludes that such shortage to some extent, might have been reflected in students not being able to compete in the job market. The tracer study reports also showed that TVET graduates have not been able to compete in the job market thus arguing for a more pragmatist approach to teaching and learning practices in TVET schools.

To conclude, this article suggests the need for a nationwide debate along with a plan of action to improve all aspects of TVET programs. This would ensure that TVET programs are connected to the job market and these programs generate workforces that are practical, progressive, and adept at solving problems. It is essential to adhere to this process if Nepal aims to cultivate self-reliant and self-employed individuals as a way of reducing unemployment in the country.

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