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Editorial

Continuing the Journey of Education, Training and Research

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Issue 6, Volume 6 of the Journal of Training and Development has been published with the objectives of sharing the recent research findings in the field of Technical Vocational Education and Training (TVET) in research, training and development. This publication has a collection of valuable articles from TVET experts, scholars and educationalist. This training and development journals are considered to be valuable resources for the scholars, educationist and TVET experts and stakeholders.

This issue consists of seven articles on different aspects of Training and Development.

The first article by Jiwak Raj Bajrachrya examines the existing models and framework that has been used to integrate technology into Teaching and Training (2Ts). As described in numerous literatures, currently instructors use TPACK, SMAR, and TPACK-based ID models such as TPACK-COPR model, TPACK-IDDIRR1 model, and TPACK-IDDIRR2 model to achieve the specific goal of an effective 2Ts. He highlighted a few hurdles found in the empirical-based studies in the above-mentioned models and framework and how those hurdles could be alleviated by addressing an extraneous cognitive load of an instructors carrying out technology integration as well as future recommendations for research.

The article by Rajendra Bahadur Shrestha highlights the current situation, discovers issues, and share some feasible initiations of employer engagement in the TVET programme. The involvement of employer in TVET system is important to ensure the TVET is demand-driven, quality oriented, future focused and provides skills workers who contributes to the economy's growth. It also assists to develop responsive labour market skill needs, training design and development, training delivery and post training support. Employer involvement in TVET programs has long been a priority in many nations, however in Nepal, employer involvement in training delivery of TVET programme is under-explored.

The article by Thakur Prasad Bhatta aims to explore the governing issue of TVET in the framework of Nepal's federal government. He focuses on qualitative research approach in scrutinizing policy and practice of TVET in Nepal. This paper explores how the process of governing TVET in Nepal has remained highly centralized despite the rhetoric of decentralization as the main agenda of regulating development over the decades. Arguably, there is a reluctant tendency in devolving TVET as per the new structure of federal governance. Instead, like in other development sectors, disputes between the three levels of government –

federal, provincial, and local – are emerging in the case of TVET. He concludes the paper by drawing insights on the federal form of TVET governance.

The article by Dr. Prakash C. Bhattarai, Durga Prasad Baral and Prakash Kumar Paudel focus on establishing a TVET fund and sketches the possible alternative approaches with a reformed TVET structure. The literature review focuses on international practices of implementing TVET fund. In addition, the authors have collected opinions from TVET stakeholders on the establishment of a TVET fund in Nepal and based on the findings, they have proposed five possible models for TVET fund mechanism in Nepal. They revealed that all the models have their strengths and challenges, so it would be rational to adopt the idea of strengthening an existing structure rather than attempting to make it stand alone. Its effective implementation requires strong research and innovation, an effective implementing body and an independent quality assurance and accreditation system.

The instructors of TECS schools and their perspectives of profession is discussed by Bikash Ghaju, and Dr. Prakash C. Bhattarai. The authors focused to comprehend the experience of TECS instructors on their teaching profession. The narrative inquiry approach was utilized to study the cases in-depth for which four instructors from the Diploma in Civil Engineering program of two TECSs were purposively selected. The paper concludes that while instructors are interested in the teaching profession which assists in career growth but they are unwilling to work at remote TECS schools due to limited career advancement and earning opportunities.

Mobile technology has brought about innovative changes in all aspects of life, including interpersonal communication, the economics, and teaching and learning.. Shesha Kanta Pageni discusses the use of android mobile in education institute of Nepal. His paper is based on the persistence of encouraging the Mobile App for e-learning, which subsidizes access to e-learning resources and prompt communication for learning activities. He collected data through online survey, informal interaction and interview. He discovered that although the facilitators rarely used Mobile App, students used the Mobile App and they wanted the updated version with more user-friendly interface. He summarized that the responsibilities of institutions and facilitators are critical in creating and providing mobile-friendly learning options, and that the success of App use is dependent on facilitators' active role in technology learning facilitation.

Devendra Adhikari explores the life experiences of workers in the construction-sector during and after the COVID-pandemic. He implements a qualitative approach under the socio-constructionism paradigm and selected three participants from different sectors masonry, house-painting, and plumbing for in-depth interviews. He discovers that the COVID-pandemic has brought new resilient strategies in the lives of the construction workers such as maintaining high concern for personal safety and the well-being of their families and exploring employment opportunities of the construction sector.

Finally, the editorial team wishes to convey their profound gratitude to all of the authors who have contributed by sharing their relevant and significant creations. We would also like to express gratitude to the reviewers and TITI management team for their continuous support in publishing this journal. The team would also like to welcome articles from TVET experts, trainers and stakeholders in the field of training, development and research. We are also grateful to Tribhuvan University Central Library (TUCL) for providing their professionals support and encouragement to publish this journal online. Last but not least, we are thankful to the publisher for the publication of the print version of this journal.



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Technology Integration Models and Frameworks in Teaching and Training

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Abstract

The purpose of this study is to review the existing models and frameworks which has been implemented for technology integration during teaching and training. As discussed in the numerous literature Technological Pedagogical and Content Knowledge (TPACK), Substitution, Augmentation, Modification, Redefinition (SMAR), TPACK-based ID models such as TPACK-Comprehension, Observation of instruction, Practice of instruction, and Reflection on TPACK (TPACK-COPR) model, Introduce-TPACK, Demonstrate, Develop, Implement, Revise - a TPACK-based lesson, and Reflect on a TPACK-based lesson (TPACK-IDDIRR1) model, and TPACK-IDDIRR2 model have been applied by today's instructors and trainers to achieve the specific goal for effective teaching and training. This paper intends to highlight the key features of the above-mentioned models and frameworks with few hurdles as found in the empirical-based studies. It also discusses how those hurdles could be mitigated by addressing the extraneous cognitive load of instructors as well as trainers to carry out technology integration with future recommendations for the research. It was found that specific frameworks and models are limited to the macro-level concept but today's instructors, as well as trainers, are required to have adequate instructional guidance in chronological steps so that they could implement those models and frameworks in their teaching and training for productive outcomes.

Keywords: Cognitive Load, Extraneous, Framework, Technology Integration, TPACK

Technology Integration

Technology integration is very important in the twenty-first century learning society. Various components such as access to the technological resources, training for enhancing instructors' technical competencies, and favorable governmental plans and policies have been practiced to bring about technology integration. However, studies by numerous researchers revealed that these components

are still not sufficient because technology-equipped classrooms and instructors' technical competencies alone do not guarantee in practicing successful technology integration (Kim, Kim, Lee, Spector, & DeMeester, 2013; Polly, Mims, Shepherd, & Inan, 2010). Meanwhile, studies done by Brickner (1995) and Vataartiran and Karadeniz (2015) made a case for the importance of instructors' personal beliefs in technology integration because it was related to their

attitude towards technology integration. Other studies such as Bauer and Kenton (2005), Ertmer (2005) and Tsai and Chai (2012) revealed that instructors' competencies for creating technology-integrated lesson plans are of great importance because they are not able to carry out technology integration in the classroom, even with the presence of enough technological resources and having a positive attitude toward it. These studies highlighted the importance of instructors' competencies in designing and developing technology-integrated lesson plans because instructors are autonomous agents with the power to make decisions in their instruction.

A study done by Darnawati, Jamiludin, Mursidin, and Yuniar (2016) in Indonesia revealed that instructors were still incompetent in employing Instructional Design (ID) model such as ASSURE in creating a technology-integrated lesson plan for the classroom instruction because they lacked knowledge about the six-steps of the ASSURE model and were also very anxious about using technology in the classroom. This emphasizes that instructors from developing countries like Indonesia lack the required competencies to utilize the ID model itself for technology integration. Further, Mustafina (2016) argued that in the context of developing countries, there are gaps between instructors' existing level of competencies compared with the required level needed to employ ID models in practice. Therefore, even if, ID models were offered in the context of developing countries, there are still some limitations such as (i) the need of expert guidance to utilize the various steps of ID models, (ii) the lack of instructors' awareness about ID models, and (iii) the increased time and financial burden to the educational institutions. Typically, general ID models help instructors to integrate technology into teaching but they still demand some level of instructors' competencies about the models themselves, which could hinder the instructors from using such models

especially in the context of developing countries.

COVID-19 further highlights an extreme need of technology integration not only in the general education but also for training programs including vocational education. Numerous researchers and practitioners already argued that technology integration is crucial for an effective teaching and training in 2Ts (Bajracharya, 2014; Bajracharya, 2016; Hunter 2015; Jang & Tsai, 2012). So, today's instructors need to be aware about available technology models and framework including its advantages and hurdles before implementing in the practice.

SAMR Model

SAMR is a model developed to assist in integrating technology for classroom instruction. As defined by Hunter (2015, p.49), it "focused on explaining how instructors can consider technology integration in classroom teaching". SAMR is an acronym that stands for the four steps in the model developed by Puentedura (2006). Figure 1 illustrates the SAMR model in which the initial letter *S* that stands for *Substitution*, which means that technology acts as a direct tool without functional changes. At this step, new technology could be utilized instead of the old ones. The second letter *A* stands for *Augmentation*, where technology acts as a direct tool for functional improvement. Third, *M* refers to *Modification*, where technology allows for the redesigning of the task for significant enhancement of instruction. Finally, *R* stands for *Redefinition*, where technology allows for creativity in creating new functions. Among the four steps of this model, the initial two steps (*S* and *A*) are considered as enhancement and the final two (*M* and *R*) as transformation. The SAMR model supports and enables instructors to design and develop a lesson plan by infusing new technological tools. The major goal of the model is to enhance the learners' learning achievements.

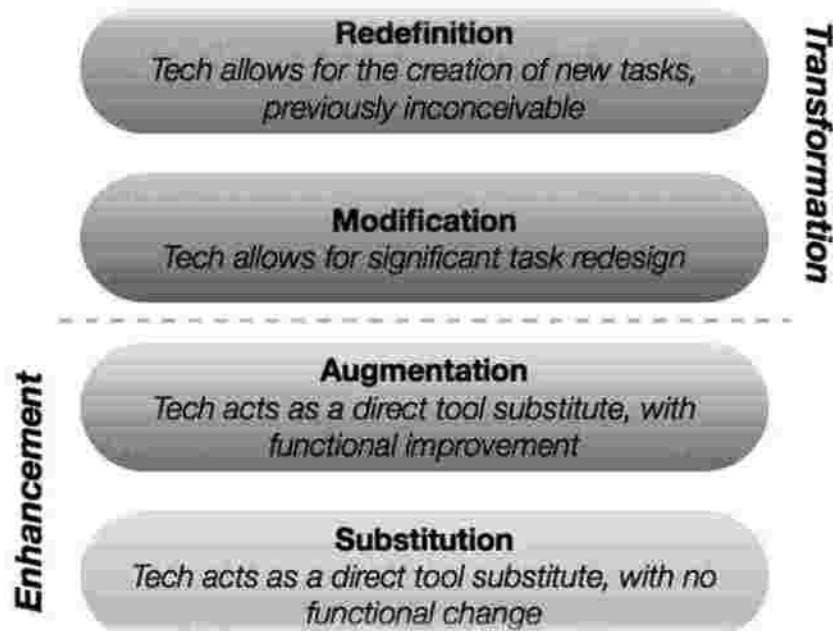


Figure: 1 SAMR Model
Source: Hunter, 2015, p.49

As highlighted by Melissa and Heather (2013), smartphones for educational applications and relevant educational websites assist to maximize the learning potential of elementary school learners by employing the four steps of the SAMR model to enhance the teaching and learning experiences of learners. In this study, learners were asked to use the educational application named *Quicklyst* for taking notes instead of using paper and a pencil. Further, learners were allowed to use smartphones in the classroom for note taking and were also permitted to share among the other learners for the enhancement of collaborative learning. Even more, learners were asked to create new ideas based on the classroom instruction that they had received in the class such as the creation of animation and so on. This is how the authors integrated new technologies in accordance with the four steps of the SAMR model. This revealed that the advancement of the technological tools enhances the learning experiences. However, the study still contains numerous issues such as the technical

competencies of instructors and learners, and the effectiveness of new technologies compared with an old technology. However, Jude, Kajura, and Birevu (2014) conducted a study in Uganda for carrying out technology integration in the classroom instruction. Based on the instructors' experiences regarding the use of the SMAR model, they found that four steps were very complicated to follow, even if, their pedagogical strategies resulted in improvements. Replacement of old technologies with new ones was not straightforward and needed detailed guidance to utilize those steps for carrying out technology integration during the classroom instruction. Thus, as researched by Linderoth (2013), even if, SAMR has been practiced for technology integration in the classroom instruction, it still lacks an established theoretical background, which needs to be investigated further. Even more, apart from the perspective of theory, the four steps of SAMR could create technology integration in the classroom instruction. However, the use of detailed guidance

for instructors to utilize those four steps has not been investigated yet. Thus, instructors could experience difficulties in technology integration as discussed above.

TPACK Framework

A Technological Pedagogical and Content Knowledge (TPACK) framework builds on Shulman's (1986)

concept of Pedagogical and Content Knowledge (PCK) to explain how instructors' Technological Knowledge and PCK interact to carry out technology integration in the classroom instruction. This framework provides a visualized perspective of the three major pieces of knowledge required by instructors for technology integration.

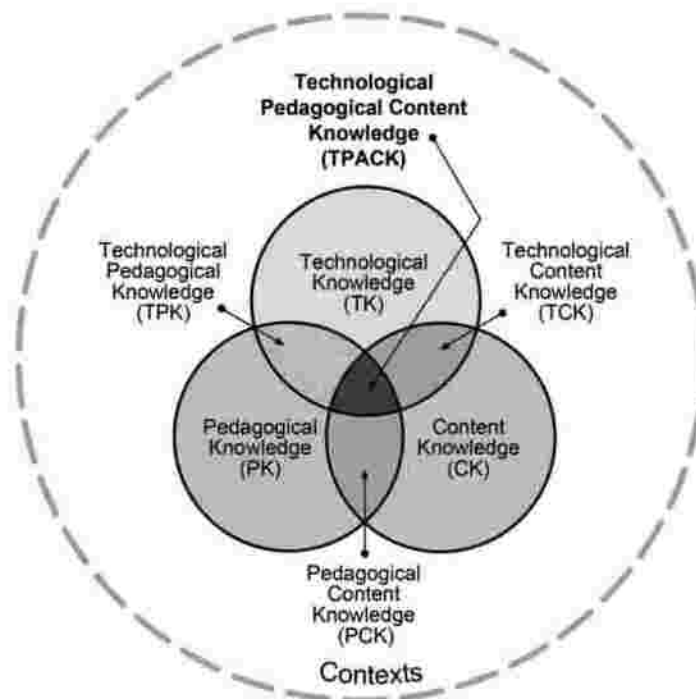


Figure: 2 TPACK Framework

Source: Koehler, and Mishra, 2008, p.16

TPACK is a combination of three knowledge required by instructors for carrying out technology integration and was based on content, pedagogy, and technology (Harris, Mishra, & Koehler, 2009; Jang & Tsai, 2012; Mishra & Koehler, 2006). It provides the three specific elements that instructors could consider in technology integration during 2Ts: *content* (knowing the subject matter), *pedagogy* (understanding how to teach), and *technology* (knowing technological tools and its applications). Figure 2 represents a TPACK framework that comprises seven different

forms of knowledge established after the intersection of three specific kinds of knowledge as *Content Knowledge, Pedagogical Knowledge, and Technological Knowledge*.

Content knowledge. *Content Knowledge (CK)* is the instructors' knowledge about the course matter including curricular knowledge (Mishra & Koehler, 2006). It includes the instructors' concepts, theories, ideas, and evidence (Shulman, 1986). It is one of the three main specific pieces of instructors'

knowledge regarding discipline and relevant contents. For instance, knowledgeable instructors of content could broaden a classroom instruction into real-life situations to help the learners connect with the material.

Pedagogical knowledge. *Pedagogical Knowledge* (PK) is the instructors' knowledge about instructional strategies that includes intensive competencies about the practices (Koehler & Mishra, 2008). Pedagogy is the science of teaching and consists of various techniques, and instructional strategies utilized during classroom instruction to enable learners to learn. It is also one of the three main specific areas of knowledge. Further, Koehler and Mishra (2008) explained that instructors with PK could utilize relevant instructional strategies during classroom instruction to further enhance the learners' learning regarding content. Mishra (2012) argued that PK is also part of the professional body of knowledge that assists in understanding the process of delivering instruction.

Technological knowledge. Technological Knowledge (TK) is the instructors' knowledge of technological tools, programs, and its applications. Since technology is always changing and updating, Mishra and Koehler (2006) found that instructors could experience difficulties to master their TK because of rapid transformation. It is one of the main areas of knowledge about TPACK that was added into Shulman's PCK, which represents "individual tools or techniques, and all tools and techniques and knowledge" (Mishra & Koehler, 2006, p.5). It refers to the instructors' knowledge about relevant and recent technologies such as internet, videos, smartphones, applications, Bluetooth, social media, online learning tools, and many more. It also includes computer skills including word processing, Excel, PowerPoint, etc. If the instructors have sound understanding about TK, they can have better options for technology integration. Instructors could also take advantage of the available technologies to enhance the learning and prepare the learners for the twenty-first century. Further, the instructors' attitude

towards technology makes a significant impact on utilizing technology during classroom instruction.

Pedagogical content knowledge. PCK is the most crucial knowledge that is associated with the instructors' instructional strategies to deliver the required content. As reported by Koehler and Mishra (2008), quality teaching is about the transformation of content with the adaptation of relevant pedagogical strategies regarding the material.

Technological content knowledge. *Technological Content Knowledge* (TCK) is a combination of TK and CK. As explained by Mishra and Koehler (2006), TCK is the understanding of how technology and content influence and constrain each other. The key concept of TCK is to represent content matters effectively with the adoption of appropriate technological applications. Thus, instructors with TK could deliver the required content. For instance, the implementation of educational software named Geometer's Sketchpad to provide a better conceptual understanding of geometry is an example of using TCK.

Technological pedagogical knowledge. *Technological Pedagogical Knowledge* (TPK) is about how teaching and learning changes when technologies are used (Mishra & Koehler, 2006). It is important to know the strengths, constraints, and affordances of the technologies before designing and developing a technology-integrated lesson plan. Instructors could examine various pedagogical strategies before considering any technologies for classroom instruction to achieve the learners' learning experiences such as engaging learners in the classroom and enhancing their learning outcomes.

A research conducted by Dalal, Archambault, and Shelton (2017) utilized a TPACK framework among instructors from developing countries. To investigate the instructors' competencies regarding TPACK and to create technology-integrated lesson plans, the authors employed a mixed-method research design including surveys and interviews. After the semester-

long course, the findings of the study revealed that even if instructors' competencies regarding TPACK had improved they still found difficulties to create a technology-integrated lesson plan for classroom instruction. Further, interview data revealed that even if instructors were competent in content, pedagogy, and technology, they were not able to create a technology-integrated lesson plan after being trained to use a TPACK framework. Thus, the authors concluded that having a high level of the instructors' knowledge of TPACK could not guarantee the enhancement of their competencies for carrying out technology integration. This was because TPACK lacks the structure to create a technology-integrated lesson plan. Further, Padmavathi (2016) argued that a TPACK framework requires detailed information to create a technology-integrated lesson plan. Thus, based on the evidence discussed above, a TPACK framework is not sufficient for creating a technology-integrated lesson plan to integrate content, pedagogy, and technology simultaneously. But still numerous studies have been carried out based on TPACK.

As discussed above, the SAMR model and the TPACK framework were developed specifically for technology integration. Both the SAMR model and the TPACK framework specify the key procedures and key knowledge required by the instructors for technology integration. However, they also consist of few drawbacks such as (i) the SAMR model is very difficult to implement in practice because it lacks detailed guideline for instructors, and (ii) the TPACK framework also lacks a detailed structure for creating a lesson plan by integrating content, pedagogy, and technology simultaneously. Thus to address such hurdles TPACK-based ID models has been developed which is discussed below.

TPACK-based Instructional Design Models

Despite having models including Instructional design models, SAMR, a TPACK framework has been increasingly utilized for technology integration in the classroom instruction. As argued by Kopcha, Ottenbreit-Leftwich, Jung, and Baser (2014), a TPACK framework is becoming popular because it

provides three specific elements, which need to be considered by instructors for carrying out technology integration (Bajracharya, 2019b). To provide a systematic ID model based on a TPACK-framework, three TPACK-based ID models have also been developed. The key focus of those models is to enhance the TPACK level of instructors. The three TPACK-based ID models have been developed to train the instructors to develop technology-integrated lessons.

(1) **TPACK-COPR model.** Jang and Chen (2010) developed a TPACK-based ID model for enhancing TPACK competencies of instructors in the science curriculum. The authors had developed a TPACK-COPR model based on PCK, a TPACK framework, and peer coaching as a theoretical background. This model includes four major phases such as TPACK Comprehension (C), Observation of instruction (O), Practice of instruction (P), and Reflection on TPACK (R). Jang and Chen (2010) implemented a TPACK-COPR model in a science course for 18 weeks, which was scheduled for two hours every day. The key purpose of this model was to enhance the competency level of TPACK among instructors. During the intervention period, instructors were assigned to understand a TPACK framework, which improved the technical competencies of instructors and its application for the initial four weeks. Then, instructors observed a TPACK based classroom instruction provided by the experts for two weeks. Further, instructors practiced a TPACK framework for nine weeks| by designing and developing a TPACK-based lesson plan. In this phase, instructors learned to make a lesson plan for classroom teaching. Finally, the reflection was carried out for three weeks to receive feedback from the experts. The findings revealed that the four phases of a TPACK-COPR model offered possible opportunities for instructors for designing and developing a lesson plan in the science course. However, based on the reflection notes,

instructors also had experienced difficulties in integrating content, pedagogy, and technology in creating a technology-integrated lesson plan. This implies that instructors with a high level of TPACK do not necessarily have sufficient competencies to design and develop technology integrated lesson plans on their own.

- (2) **TPACK-IDDIRR1 model.** TPACK-IDDIRR1 is a procedural ID model developed by Lee and Kim (2014a), and stands for Introduce - TPACK, Demonstrate, Develop, Implement, Revise - a TPACK - based lesson, and Reflect on a TPACK based lesson. The purpose of this model is to develop an ID model for instructors to enhance their TPACK competencies in multidisciplinary courses for carrying out technology integration. Among the six phases, the initial two were carried out by the instructors to provide the concept of a TPACK framework and demonstrate a TPACK based lesson for instructors. After that, the remaining four phases were performed by trainees. Except for the developmental phase, the implement, revise, and reflection stages were carried out multiple times to enhance the competencies of instructors regarding a TPACK framework. The model was based on the TPACK, learning by design approach, and ID models for technology integration as a theoretical foundation.
- (3) **TPACK-IDDIRR2 model.** TPACK-IDDIRR2 is an elaborated version of TPACK-IDDIRR1. This model is also a procedural ID model developed by Lee and Kim (2014b), which was divided into three steps. Step 1 focuses on how to understand a TPACK framework including an initial phase as Introduction of TPACK by instructors that provides TPACK teaching examples, in which trainees explore, discuss, and create TPACK examples and its related domains. Secondly, step 2 involves engaging in TPACK activities, and consists of three major phases: Develop, Reflect on, and Revise and Gain feedback. In this step, instructors are engaged in a TPACK-based lesson plan with

three different types of technologies for three times. Finally, step 3 is to practice TPACK that included four major phases consisting of Develop, Gain feedback, Implement, and Reflect on and Revise. In both of the steps, a learning TPACK by design approach is practiced similar to the TPACK-IDDIRR1 model.

Three TPACK-based ID models are part of a crucial set of knowledge that instructors have to know for enhancing their competencies regarding a TPACK framework. The aforementioned three models provide various steps and phases along with their functions, but still lack detailed guidance to utilize those steps and phases, which could be considered as a limitation. Further, structural procedures to design and develop a technology-based lesson plan were not offered to integrate content, pedagogy, and technology simultaneously.

As highlighted by Bajracharya (2019a) since those models were constructed in the developed countries, it can be assumed that the first-order barrier (technological resources and trainings) might not exist in their contexts. Also, based on the various phases of those models, instructors also experienced difficulties to follow the processes of TPACK-based ID models because of the lack of enough guidance.

The primary goal of TPACK-based ID models is to enhance TPACK competencies of instructors for carrying out technology integration in the classroom instruction but these models possess limitations in terms of (i) how instructors utilize a TPACK-based ID model (ii) instructors' competencies for creating technology-integrated lesson plans and (iii) changes in the learning experiences of instructors after using those models. However, the key component of the ID model is to help instructors, which was not investigated during the implementation of TPACK-based ID models among trainees.

Therefore, to address these gaps found in the literature, a new ID model for instructors needs to be considered for creating a technology-integrated

lesson plan to carry out technology integration in the classroom instruction. A TPACK-integrated ID model needs to be developed and validated in future studies by considering the three elements of TPACK and a generic ID model.

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Initiations of Employer Engagement in Training Delivery of TVET Programmes

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Abstract

Engagement of employers in the Technical Vocational Education and Training (TVET) system is needed not only to increase the training capacity but to ensure the TVET is demand-driven, quality oriented, future focused and provides the economy with the skilled workers it needs. Employer engagement in TVET system covers a spectrum of cooperation and involves small participation to build the trust required to develop more robust long-term engagement strategies. Developing engagements with employer and employer's associations at all levels of the training programmes life cycle facilitate the development of workable solutions for training-to-work transitions. The employer has a crucial role to play in the delivery of training programmes. Engagement of employer is an essential component of overall training programmes and leads to developing responsive labour market skill needs, supporting priority economic sectors, training design and development, training delivery and post training support to develop ongoing dialogue with employer and employer associations. The need to increase the engagement of employers in TVET programmes has been known for many years in the country, however, employer engagement in training delivery of TVET programme is under-explored in Nepal. This article addresses the existing situation, explores issues, and share some practicable initiations of employer engagement in the TVET programme.

Keywords: Employer engagement, Industry Institute Linkage, Public Private Partnership, Training Delivery, Workplace based Training

Introduction

Technical Vocational Education and Training (TVET) system all over the world have realized that there should be joint efforts between public and private sector to provide technical training programmes. As the private sector is the major employer of TVET graduates, it is essential that employers should have a key role in all stages of training programme. The engagement of private sectors, such as private

companies, employers, employer associations, chambers, professional bodies, and employee unions, can enhance the integration of training delivery in the training cycle and ensure the trainees acquire skills needed by the industry.

In most of the developing countries, the TVET system is hampered by poorly coordinated, outdated curricula as well as traditional training delivery strategies

(Mathew, n.d.). Similarly, instructors generally lack workplace based practical experiences and relevant classroom equipment. TVET managers and instructors often fail to recognize their roles in promoting employment and employability (Blank, William E. (1982): Handbook for developing competency-based Training Programs). This realization resulted in the designing of more relevant and innovative approaches in the delivery of TVET programmes. One of them is to engage employers in the actual delivery of the training programme. The engagement of employers can be made in various areas of the training delivery stage of TVET programme. Some of the possible areas of engagement are on-the-job training (OJT), workplace-based training, industrial field visits, industrial exposure, industrial attachment, industrial immersion, exchange of faculty, industry-based project assignments, production-cum-training centre, participation in training programme evaluation, post training support, joint seminars and conferences, entrepreneurship development etc (Rajput. 2019).

The main objective of this article is to examine the situation of the collaborative approaches and practices of employers and the communities in the training delivery of the Nepali TVET programmes. While doing so, I also explored the issues and challenges of such engagement and highlighted some innovative initiations, taking the case of Dakchyata: TVET Practical Partnership Programme. The programme is led by Ministry of Education, Science and Technology, managed by British Council and funded by European Union (EU) Delegation to Nepal. It is a skills development programme to strengthen and implement a more effective policy in the TVET sector and responsive to labour market needs by engaging the private sector in the TVET programmes. The views expressed in this article are my own and does not entitle to my organizations where I worked. The article is primarily based on review of the current practices and desk review of the country practices on employers' engagement in the training delivery stage.

Theoretical Perspectives of Employers' Engagement in Training Delivery of the TVET Programme

According to UNESCO (2009), Public Private Partnership (PPP) is perceived as a mechanism to shift from a supply-driven to a supply and demand-driven approach that is needed to address youth unemployment. While supply driven training means producing skilled manpower needed for economic development without referring to the employers' needs. Demand driven is customized to respond directly to specific requirements of employers' needs in the labour market and usually leads to employment or self-employment.

PPPs in TVET can be identified as "a formal relationship with shared responsibilities between public and private sector actors in co-operation to achieve mutual goals that may take the form of a joint business venture, a joint education and training agreement, or a social partnership structured around a social agenda" (Kruss, 2017). The key concepts of linkage between industry and institution in the TVET system might be defined as any arrangement between TVET institutions and industries that requires mutual coordination and/or exchange of resources and activities (Khambayat, 2018). In a market economy, public-private partnerships (PPPs) act as bridges to link education and employers. The term is used as shorthand for a range of public policies, funding systems, and curriculum frameworks that have as a shared goal a tightened level of communication among educators and employers (Hawley 2007).

Employer engagement is defined as a range of activities, initiatives and approaches which are best conceptualised as a continuum (Kettle 2018). It includes responsive teaching and learning developments for upskilling and developing people already in work as well as fostering capability and attributes to enhance the employability of students in higher education.

Caves et al. (2016) developed a rubric of the employer

engagement in delivery phase of the TVET system as “no engagement during training phase to irregular non-productive workplace learning without curriculum (i.e., job shadow,) to productive workplace learning (i.e., internships) without curriculum to productive workplace learning with curriculum.

Practices of Employers’ Engagement in Training Delivery in Nepali TVET Programme

At the crossroad of professional careers as a TVET practitioner, I found several practices of employers’ engagement in the delivery of Nepali TVET programme. Some of them are briefly explained below:

Butwal Technical Institute (BTI) has been running the apprenticeship course in some of the industrial trades (Mechanical, Plumber and Electrician) since its establishment in 1963. The trainees receive classroom instruction followed by comprehensive practical and on-the-job training in collaboration with the affiliated private industries. In this training delivery approach, trainees will spend more than 80% of their training period at the workplaces receiving direct instruction from industry professionals. This approach to training delivery has been replicated now by CTEVT in the name of Industrial Apprenticeship Training Program (Nepali Translation: Aaudhogik Prasikshyarthi) from 2019. The 24-month period Apprenticeship training programme is being implemented with financial assistance from the Enhanced Skills for Sustainable Rewarding Employment (ENSSURE) project. The Industrial Trainee Training Apprenticeship Programme is being implemented now in Electrical Engineering, Information Technology, Hotel Management, Automobile Engineering, and Mechanical Engineering.

Considering the importance of Public Private Partnership in skill development for enhancing national productivity and poverty reduction, Government of Nepal and Federation of Nepalese Chamber of Commerce and Industry (FNCCI) came

up with an idea of establishing the “Elam Parshikshan Kendra (Trade Schools)” in the year 2003. This approach was a realization of the Government and Industry and business sector that mutual collaboration is essential between the two in order to make vocational training programs need responsive and relevant to the needs and requirements of the community and the individual. However, the Government and business communities were not able to continue the partnership agreement after 2009.

Public and Community Technical Schools/institutes have been practicing joint management committees which consist of representatives from private and public sectors. In the same way, some privately owned technical schools have also been involving representatives from the public sector in their school management committee (www.ctevt.org.np). Similarly, some of the CTEVT Technical Schools are also practising Enterprise Advisory and Partnership Committee (EAPC) where more employers and employer associations are members of the committee in order to link the school’s programmes to the local employers specially in the organization of On-the-Job Training programme for the trainees of the schools (Skills for Employment Project 2014).

Private Technical Training Providers in Nepal have been organizing Industrial Exposure Visits for their trainees in order to expose them to the real-world work of the country. Industrial exposure bridges the gap between theoretical training and practical learning and thus helps TVET trainees to apply their technical knowledge in a real-life environment. It broadens the outlook of trainees towards different workforces among various industries by alerting them regarding different rules and regulations as well as varieties of industrial practices outside the classroom environment. It familiarizes trainees with manufacturing, designing, testing and analysis, products and automation etc.

Issues and Challenges of Employers' Engagement in the Training Delivery in Nepali TVET Programmes

There are several issues, problems, and challenges in engaging employers in training delivery in the country. I have captured and elaborated some of them from my practical experiences as below:

The employers also hesitate to provide On-the-Job Training, Apprenticeship Training and Traineeship because of the law and labour act provision. Big industries are reluctant to accept the trainees of the technical training institutes for on-the-job training because the trainees lack adequate technical expertise and are also concerned about the wear and tear of their tools and equipment.

Small and cottage sized industries do not have adequate necessary resources such as space, tools, and equipment to accommodate the on-the-job trainees. Similarly, these industries lack craft persons (supervisors) to provide appropriate training to the trainees.

The main concern associated with an extensive work placement approach to the delivery of TVET is the traditional timetable. There are some schools that would like to confine vocational education and training within the school gates preferring not to acknowledge how on-the-job training brings life to vocational education. The logistics of the school site, particularly concerning the primacy of the traditional school timetable can dictate and restrict which model of learning each student may have access.

The provision to provide wages and salary to the trainees is also another challenge with regards to on-the-job training and apprenticeship. The employers rarely cover such expenses and in worse cases, some employers expect adverse practices in engaging trainees in their workplace citing different reasons. The solution to this problem is not straightforward. Employers are generally willing to take on-the-job trainees and apprentices because they do not have to pay full wages of workers who do not have the

required skills, and they are eligible for monetary incentives.

Butwal Technical Institute started Apprenticeship Training Programme in 1963. Only in recent year, some donors funded TVET projects such as Enhanced Skills for Sustainable and Rewarding Employment (ENSSURE) have replicated Apprenticeship Training Programme in some of the trades.

Initiations of Employers Engagement in the training delivery of training providers taking the case of Dakchyata: TVET Practical Partnership Programme

Employer engagement in TVET, being the missing link, has been one of the major corner stones to be addressed by the EU-funded TVET Practical Partnership Programme. The overall objective of Dakchyata, a project under the above programme, is to spearhead interventions in the TVET Sector of Nepal by finding new and practical ways to engage the private sector specially employers of the concerned occupational sectors in further developments of TVET, thereby strengthening relevance and employability. This is sought achieved by enhancing active, practical, productive, and meaningful engagement of employers and employer associations in the overall cycle of TVET sector: analysis, design, development, implementation and evaluation phases of the TVET system.

Here, I have explained in brief some of the practices initiated by Dakchyata: TVET Practical Partnership programme in the areas of employers' engagement in the training delivery of TVET programmes of the country and sources of the information drawn on here are from the Dakchyata documentation system (www.dakchyata-Nepal.org) and my own review of the literature.

Dakchyata has prepared different models where more and more employer's engagement in training is sought through private TVET providers either through private training institutes or employer associations (Pradhan, 2017). In these models, employers are

becoming increasingly involved by actively influencing and making decisions in the design and delivery of the TVET programmes while the training providers are giving space, for this shift to happen. These models have been prepared by reviewing international practices specially in Asia and African countries and moulded through extensive national employers and employer consultations and taking in the context of the development of TVET system in Nepal. At present, ten private TVET providers have started to implement these models in construction, tourism and agriculture sector throughout the country by practical partnership fund. Some of the models are explained briefly below where the role of employers and their engagement increases in the training delivery stage of the TVET programmes.

Training and Market Outlet Model (TMOM)

This model is a hallmark of Singapore skills system which adopts a practice, and application-oriented training approach that combines the learning and working environment from which realistic and relevant learning experiences arise. It is a technical & vocational education and training (TVET) methodology also known as “Teaching Factory Model (TFM)” developed by the Nanyang Polytechnic (NYP) in Singapore which emulates and integrates real-life industrial environment through hands-on and real-life application-oriented project work which is an integral component of the methodology. The Teaching Factory Concept makes learning more effective and efficient for students as it takes place in a realistic work of world environment. It integrates real-life industrial environment with the classroom teaching and learning environment. Students become more practice-oriented and focused on product development and problem-solving approaches. This practice-oriented training also increases the confidence and make them productive immediately upon employment (<https://my.southsouth-galaxy.org/en/solutions/detail/the-teaching-factory-concept>). In the developed model, both theoretical and practical training will be provided inside the premises of the training institute and gives

the trainees an opportunity to work in the actual work setting of the business set-up operated by the institute itself. The trainees will earn while learning when they work in the business outlet or production unit or market outlet or factory operated by the training institute itself. The products or services produced or rendered by the trainees during the training will be sold to the market. There is a learn-earn approach in this model for the trainees. There is on-the-job training in the market outlet and its relation to market relevance is obvious, but the employer’s side plays no direct role in this model. Thus, training institute is the key player in this model. The competency assessment will be conducted while performing the tasks in the market outlet. The final assessment will be conducted on the basic skills standard of the National Skills Testing Board (NSTB/CTEVT). Most of the implementing partners of Dakchyata under hospitality trade are practicing the model and capturing the lessons learnt.

Semi-Apprenticeship and Employment Model

Since large portion of the Nepali economy and employment opportunities are in nonformal and informal sector, developing skilled human resources for these sectors would be much easier by organizing unstructured training delivery modality. Informal and non-formal learning require different pedagogical models from those applied in traditional formal learning environments. Coffield (2000) argues that informal learning is indispensable, as it is how we acquire the everyday knowledge, practices, values and cultural norms required to live in society. As such, lifelong learning must be understood beyond the limited structures of conventional formal learning and the mindset changed to include informal and non-formal learning. The model is developed by reviewing the practices made in southeast Asia and based on the experiences of the national TVET practitioners of the country (Pradhan, 2017).

Thus, under this model, employers and training institutes work together to train the people. Theoretical and foundation trade related practical portion including occupational health and safety

training will be imparted in the training institute which has weightage of 20 percent of the total training period. 80 percent of practical training will be provided in the industry work site as a longer duration On-the-Job training (OJT). The training institute provides instructors who have strong instructional and occupational skills as roving instructors to train and supervise the trainees on the work sites. This model is also applicable for providing further training to existing workers of the employers to upgrade and reskill their skills at the work site of industry. In this model, the role of the training institute at classroom is limited, and the major role would be played by the employers and the roving instructors providing by the institutes. Even so, both the employer and the training institute play key roles in skilling the trainees. Such practices are more applicable where informal sector play a vital role in the economy of the country. Countries like Cambodia, Vietnam, South Asia as well as African countries have been successfully implementing such approaches of training needs analysis and training delivery (Shrestha, R.B. 2016). At present, many Dakchyata's implementing partners are practicing the model of training delivery. For the certification and recognition of learned skills and knowledge, a skill test will be conducted for career path.

Informal Apprenticeship and Employment Model

In this model, more than 90% of the practical training will be imparted within a business or industry by learning by doing and only 10% theoretical sessions will be provided at the training institutes. Informal apprenticeship refers to the system by which a trainee acquires the skills for an occupation in a micro and small enterprises, learning and working side by side with an experienced practitioner. A leading role of the employer is even more outspoken in this model. It is the training system of the informal economy. This model clearly underlines an employer led training approach and trainees will get wages when they work and learn in industry. Informal apprenticeships have been a traditional solution for skills development training in developing countries

like Nepal. In this type of apprenticeship, the arrangements of the training have neither legal status under existing legislation nor fall under the formal institutional regulation of any public sector TVET authorities. The model follows informal rules such as social norms, customs, or cultural values. These informal rules are socially enforced by informal mechanisms such as reputation, reciprocity, social sanctions, religious beliefs and so forth. There will be informal training agreement between training institute and employer/enterprise. It is a cost-effective training system since tools and equipment are already available in the enterprise and do not have to be purchased for training purposes. This model is borrowed from the ILO programme in Tanzania. ILO (2009) stated "Informal apprenticeship refers to the system by which a young apprentice acquires the skills for a trade or craft in a micro or small enterprise learning and working side by side with an experienced practitioner. Apprentice and master craftsman conclude a training agreement that is embedded in local norms and traditions of a society. Apprentices learn technical skills and are inducted into a business culture and network which makes it easier for them to find jobs or start businesses when finishing their apprenticeship" (A resource guide for Africa – upgrading informal apprenticeship).

The competency assessment on product or project or problem or unit will be periodically conducted jointly by the training institute and employer to make the trainee competent for the job. To validate the training, the contents of approved curriculum of CTEVT will be fully followed, and the skill test will be conducted immediately after the completion of the training.

Field based Agriculture Training Model

Under this model, the agriculture training provider collaborates with farmers' association, agricultural cooperatives, agriculture value chain actors for delivering the training. A model farm site is established among the farm of the trainees and practical demonstration of the crop or vegetable life cycle will be demonstrated in the selected model

farm site. A model farm serves as a learning centres for efficient techniques of agriculture, organic farming, and marketing of rural people. All learning takes place through group activity and are field based which empowers farmers to solve their own field problems with the assistance and guidance from experienced instructors. Trainees will further practice the learned skills individually in their own farm site. Training in a real farm along with gaining enterprising skills including product pricing methods and market linkage are critical features of this model. Additional training on entrepreneurial skills, value chain concept including financial and market linkage is also provided. For this model to be successful, trainers work with farmers in the farm environment with only very limited institute-based training for fundamental concepts, principles, and processes. The model encourages partnerships with local organisations to share knowledge and measure the benefits for farmers, families, and communities. It also links farmers and farmers' group with District Agriculture Offices, marketing channel such as wholesaler, collectors, retailers, and agricultural cooperatives.

The model has been prepared based on the Farmer Field School Approach (FFS) developed by Food and Agriculture Organization of the United Nations and Partners nearly 25 years ago in Southeast Asia as an alternative to the prevailing top-down extension method of the green revolution (A guidelines of Farmer Field School, Regional office for Asia and Pacific, Food and Agriculture Organization of the United Nations, 2021).

A skills test will be conducted in the cooperation with National Skills Testing Board/CTEVT. Most of the agriculture related grantees are piloting this model and generating lessons learned and good practices.

Space and Training Facilities Sharing model

Another model of partnering between training providers and employers is space and training facilities sharing model where both agencies share

their available spaces and equipment to implement training programmes. The main objective of this model is to make use of the unused or underused training space, tools, and equipment with the training providers. Business and Industry Associations and employers of the enterprises could take benefit of the unused or underused training facility/infrastructure and conduct training under their own management in the premises of the training institute. In the same way, training providers could take benefits of utilizing industry machine and equipment to train their trainees at industry workplace. The model is a cost-effective training system since the unused or underused physical as well as human resources of both the training providers and the employers could be used for the training purposes and save the expensive training cost. This approach mutually benefits both the training providers and employers who are working together by optimally utilizing their available physical and human resources in need of trained workforce. Some of the Dakchyata's grantees are at currently applying this approach (Shrestha, 2021).

At present, ten-private led TVET providers including employer associations are piloting and practicing the above models in their skills development programmes. Dakchyata is capturing and documenting their lessons learnt: what worked and what did not work. Lessons learnt from the implementing partnership pilot models (PP models) by ten private technical training providers would be reported back to the policy makers to explore possibilities of scaling up and replicating the sense of the successful PP models. The action will also encourage good practices to be replicated in other industrial sectors of the country. These lessons would also be shared with other TVET stakeholders so that they can benefit from these practices and explore possibilities of scaling up and replicating them in other industrial sectors across the country.

Conclusions

Employer engagement is not the same as "job placement" nor is it synonymous with "marketing to employers". Successful engagement translates

into a partnership or mutual support and understanding between TVET programmes and employers. Thus, promoting partnership between TVET providers and employers requires the availability of a legal framework that supports the establishment and enhancement of partnership. Engagement of employers and employer associations in TVET programmes should be guided by policies developed at the national level. Stakeholders' awareness and sensitization of the importance of public private partnerships in TVET system should be enhanced from federal to province and local level. There should be availability of appropriate structures within the TVET system that allows effective partnership at different levels: federal, provincial, and local as well as sectors through establishing councils, boards, and committees with representatives from all related stakeholders.

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Governing TVET in Federal Nepal: Centralized or Decentralized Management ?

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Abstract

With the increasing recognition of the need for skilled human resources in developing countries, the role of technical and vocational education and training (TVET) has been an important part of the education system. However, in spite of such a vital role of TVET, challenges exist in designing, planning and implementing it while governing effectively. Such context has raised the issue of governing TVET among educationists, policy makers and all stakeholders to achieve its intended goals. The TVET governing issue has been of serious concern to its stakeholders in Nepal with the introduction of the federal structure in 2015. Hence this paper aims to explore the governing issue of TVET in the context of federal governance of Nepal. For this, this paper employs qualitative research approach in analyzing policy and practice of TVET in Nepal. This paper explores that the process of governing TVET in Nepal has remained highly centralized in spite of rhetoric of decentralization as the main agenda of governing development over the decades. Arguably, there is a reluctant tendency in devolving TVET as per the new structure of federal governance. Instead, conflicts among three levels of governments – federal, provincial and local – are emerging in the case of TVET similar to other development sectors. Hence, for sustainable operation and management of TVET this paper argues that the policy and practice of the TVET need to be guided by the concept of multilevel governance with collaboration among the three levels of government as envisaged by the new federal constitution.

Keywords: Centralist mentality; Decentralization; Federal Nepal, Policy implementation; TVET governance,

Introduction

Technical and vocational education and training (TVET) has been an important priority of the educational policy since a long time ago with the recognition of the role of knowledgeable and skilled

human resources for economic development (Almeida, Behrman & Robalino, 2012). With this recognition, along with the generic education, the role of TVET has been an important part of the education system. Furthermore, the shift from

vocational schooling as an academic course to the specialized skills training focused on employment has established TVET as an important educational program. For the popularity of the TVET there are multiple reasons – curbing youth unemployment, augmenting economic growth, reducing poverty and developing human capital (Singh, 2005). Thus, the concept of TVET is associated with the economy and employment. This is the aspect that distinguishes it from general education. Hence, there would not be the rationality of TVET if it had no direct linkage with the economy and employment.

However, in spite of such a wide range of benefits attributed to TVET, challenges exist in designing, planning, implementing and addressing the skills needs in developing countries (Russell, 2015). It is argued that TVET has been facing a challenge for economies whose labor market is highly dynamic (Asian Development Bank [ADB], 2009). Particularly, as the study further states, TVET is not only a subsector of education, it has linkages with both the formal and informal labor markets and dealt by various ministries for its development resulting into complexity of planning and implementation for educational authority. One of the problems of TVET is that often the government performed both roles – policy making and regulating and providing training which has caused inefficiency of TVET sector and not meeting the needs of labor market for the economy particularly in developing countries (ADB, 2009). Indeed, Russell (2015) argues that fragmented TVET has affected the efficiency in management and maintaining quality of TVET sector (Russell, 2015). In his view, it is highly complex in bringing coherence in the effective coordination among multiple aspects and stakeholders of TVET in the absence of clear vision and goals. Such context has raised the issue of governing TVET among educationists, policy makers and all stakeholders to achieve its intended goals.

The challenges of TVET emerged in many developing countries resonate in the context of Nepal. The goal of the government of Nepal is “Prosperous Nepal

and Happy Nepali”. It demands for the effective management of the dynamic TVET sector in Nepal for the economic development and employment. This goal entails an excessively higher role of TVET in economic development. Since the development has been the main agenda of the country, the importance of education in general and technical and vocational education in particular remains high. It is reflected well in the 15th Plan (2019/20-2023/24) of the government (National Planning Commission [NPC], 2020) as it states that on the one hand, there is the need for human resources required to the market, which is not available, and on the other hand, the human resources developed are not getting jobs. To address this situation, the 15th Plan aims to “ensure expansion and quality of inclusive and equitable access in technical education and vocational skills development”. To achieve this objective, Nepal has to restructure the TVET governance from the past centralized governance system to federalized governance as per the constitution. However, there is no clear direction for governing the TVET in federal Nepal (Ministry of Education, Science and Technology [MoEST], 2018; Renold, Bolli, & Caves, 2018). With the above background of TVET and its governing, this paper discusses the emergent issues from the past practice and the possible framework in governing TVET in the newly introduced federal governance. Hence this paper aims to explore the governing issue of TVET in the context of the federal structuring of Nepal.

This is an analytical paper on TVET governance informed by qualitative research tradition. It draws data from the literatures relevant to developing countries and studies on policy and practices of TVET in Nepal. Documents, particularly policy-related and relevant literature on both theoretical and empirical findings were reviewed. In addition, this paper is embedded with professional experience and insights of the researcher. I have organized this paper into four sections. First, I will discuss conceptual and emerging issues of governing TVET. In the second section, I will make an analysis of the TVET governance in Nepal. In doing so, in the

beginning I discuss the evolution of TVET governing policy and practice, particularly focusing on the past TVET policy of 2012. Then, I generate discussions on the possible framework of TVET governance in federal Nepal considering the new TVET Policy which is integrated into the Education Policy of 2019. Finally, I conclude the paper drawing insights on the federal form of TVET governance.

Governing TVET: Concepts and Issues

Governance and governing have been defined as the “processes of management and rule” (Tiihonen, 2004, p.18). Furthermore, these terms refer to the process for identifying the common goals and achieving those goals (Sharma, 2018). According to the World Bank, governance has been defined as “management of a country’s economic and social resources for purposes of development” (cited in Wilson, 2000, p. 52). We can consider this concept of governance to discuss TVET governance as it is related to the economy and development through mobilization of human and natural resources. Governing TVET concerns the role of government and other stakeholders in the planning, implementation and management of skills development in the country. Hence, it is essential to note that governance entails distribution of power among the stakeholders at different level of governing tiers.

While discussing TVET governance, there can be found arguments both in favor of the state and market and some argue for the balanced role of the state and market in TVET governance (Russell, 2015). It is also argued that both the government and the market experienced failures in appropriately developing TVET as per the need of the economy (Almeida, Behrman & Robalino, 2012). Whatever the case, the context is important to pursue a specific policy of governance as the context varies from one country to another and one place to another place within a country. Therefore, it is viewed to involve local governments and both private and public institutions in providing training with a clear national regulatory framework (Almeida, Behrman & Robalino, 2012).

It is viewed that governance is an intricate and dynamic concept which is influenced by the socioeconomic and cultural context of a country (European Training Foundation [ETF], 2013).

In addition to the state vs. market’s role in TVET management, there is an issue of centralized and decentralized TVET governance. Indeed, both the centralized and decentralized forms of governance are in practice. Renold and Caves (2017) discuss the Rauner’s governance models that “range from fragmented to coordinated and from input-orientated to output-orientated” (p. v). The Rauner’s model is framed in terms of the mode of delivery rather than the decision making whether it is centralized or decentralized. There is higher degree of centralization in the TVET sector as the training providers face a number of controlling conditions in planning and managing the training institutions and enrolling the students (Almeida, Behrman & Robalino, 2012).

There is an increasing trend for favoring decentralized TVET governance over the centralized one. According to the ADB (2009), centralized systems suffer from lengthy decision-making processes, remoteness from clients, and rigidity to change (p.20). But there are many benefits attributed to decentralized TVET governance. Particularly, as ADB argues, the decentralized governance training programs are designed to meet the needs of the local market and the local resource is efficiently managed. Decentralized governance is justified and advocated in terms of various qualities it delivers – from equitable development to policy efficiency to democratic accountability (Muller, 2015). Involvement of various stakeholders across multiple sectors (ADB, 2009) has made the governing issue of TVET increasingly challenging. It is obvious that the effectiveness of TVET lies in its governance. The question arises what the appropriate mode of governing TVET can be. In discussing it, we cannot ignore the goal of TVET and the context where the TVET is being implemented.

Rationale for decentralized governance comes from

the reality of a gap between the production of TVET schools and the need for the economy when TVET is run through a centralized governance system. Langer (2013) argues “Needs assessment and the cooperation with the local economy ensure that produced skills match the demand” (p.12). According to ADB (2009), if designed well and implemented carefully, decentralized management can address the various shortcomings of centralized management of TVET as the centralized system inherits a rigid structure that is time-consuming and inflexible to the situation.

While the decentralized management allows flexible response to the local needs and matches local employment and can be innovative in designing training according to the local context (ADB, 2009). Graham and Dean (2018) have described the TVET governance from the perspectives of autonomy and responding local needs. They argue for high level of devolution in TVET governance that provides autonomy to TVET providers and allows them to work as per the needs of the economy of a country and helps TVET institutions to make responsive decisions as per the local need and prepare realistic planning at the local level. It is argued that central authorities will not be able to identify the local needs and be unable to build on local knowledge and address the different kinds of interests and local needs (Graham & Dean, 2018). For the effective working of TVET, it becomes essential to devolve the rights of fund management so that local level designs the training as per the local specific needs of the labour market as the needs differ from place to place (Local Government Association, 2017).

In addition to the issue of whether centralized or decentralized form of governance is the best form of governance, there are other issues of TVET governance namely “institutional fragmentation, ineffective involvement of social partners and other non-state stakeholders, weak engagement of regional and local actors and gaps in policy implementation” (ETF, 2013, p.8). In order to address the problem of governance in TVET, multilevel governance is

increasingly advocated. It is viewed that the multilevel approach provides appropriate roles to all stakeholders and link with the TVET policy premise and emphasizes accountability and capacity building as important elements of effective multilevel governance of TVET (ETF, 2013). Furthermore, the most essential aspects of effective TVET governance are formulation of a common visionary goal, establishment of an effective institutional mechanism, provision of need-based capacity building and training program for all stakeholders and adequate use of technologies and networks (ETF, 2013). In this regard, a challenge that governments need to address is the issue of “the unhelpful dichotomy of state interventionism vs. neo-liberal laissez-faire regimen (Russell, 2015, p.14). For this, the role of government becomes vital. The main issue is strengthening the role of the state and its associated stakeholders at all levels for enhancing the governance and funding mechanism of TVET management and financing (Russell, 2015).

Another issue that comes often in TVET governance is establishing national authority to support and regulate the TVET sector. Particularly emphasis has been given for an independent national authority which does not involve in providing training itself but to regulate effectively the training services with autonomous decision making power for partnership building with all stakeholders including employers (ADB, 2009; Almeida, Behrman & Robalino, 2012). Almeida, Behrman & Robalino (2012) urge “to establish an effective institutional and regulatory framework with a clear delegation of roles and responsibilities between central and local governments and the different institutions (public and private) involved in the provision of training” (p. 60). They further argue that such organizations can improve the level of services of training providers using the roles assigned to them and promote competition among the providers coordinating all stakeholders of the subsector. However, they comment that existing practice across the countries reveals that there is a centralized mode of governance that curtails the independency of training providers

to design the contents of the training and arrange inputs as per the local level requirements (Robalino, Almeida, & Behrman, 2012).

Accountability has been a pertinent issue of TVET governance as beneficiaries do not have rights to make decisions over the schemes of training providers (Robalino, Almeida, & Behrman, 2012). Where lies the power and resources determine the decision making ability of any institution. Particularly fragmented accountability leads to many problems in TVET management, and to overcome this problem there is increasing practice of establishing regulating and advisory authority at the national level which is supposed to promote accountability and harmony allowing the decision making role to training institutions themselves (ADB, 2009). Hence, ADB (2009) advocates to provide the role of training provider to the private sector with the assumptions that this strategy will make the TVET cost effective and flexible in responding to the needs of the labor market with linkage to industry. However, it suggests that considering the capacity differences of training institutions while implementing decentralization policy as the training centers in less accessible areas may not benefit if the policy does not consider their particular needs.

Finally, according to Caves and Renold (2018), good governance “is a prerequisite for efficient and effective TVET processes and indeed for having a system of TVET at all” (p.2). They explain governance in terms of inputs and outputs orientation of TVET management where input-oriented governance appears more centralized as it provides low autonomy to stakeholders outside the central authorities while the output oriented governance concerns the results allowing autonomy regarding the process. Hence, they advocate multilevel governance that strengthens coordination instead of disintegration and focuses on results instead of inputs.

Much of the reform depends upon the effective policy making process. Robalino, Almeida, & Behrman (2012) argue that the policy making process relies heavily upon the role of political actors who have willingness to solve the issues and commitments for implementation. Furthermore, they argue that such actions depend upon the visionary leadership and the enabling environment for political collaboration. Making policy right is not enough, its implementation is crucial to produce impacts from the policy. Hence, it is argued that for the proper implementation of the training policy there needs to be a mechanism with policy makers to ensure the delivery of the training with the right content and quality (Robalino, Almeida, & Behrman, 2012).

With above conceptual background on TVET governance and its various issues, now I move to the next part of this paper where I discuss the TVET governance in the context of Nepal. In this part, at first, I present an overview of the evolution of TVET in Nepal focusing on the past TVET Policy of 2012. Then I discuss emergent issues of TVET resulting from the past policy and practices. After that, I discuss the issue of governance of TVET in federal Nepal, including the TVET policy as integrated in Education Policy 2019.

Evolution of TVET Governance in Nepal: An Overview

It can be found in education history that Nepal has considered TVET an essential component of its education system since long ago (Adhikari, 2005). Particularly, it got high priority when the National Education System Plan (NESP) of 1971 introduced vocational subjects in the secondary schools throughout the country (ADB, 2015). However, the NESP did not go a long way. In the early 1980s, there had been an important shift from the school-level vocational education to a separate wing of TVET. This concept came into practice with the establishment of CTEVT in 1988.

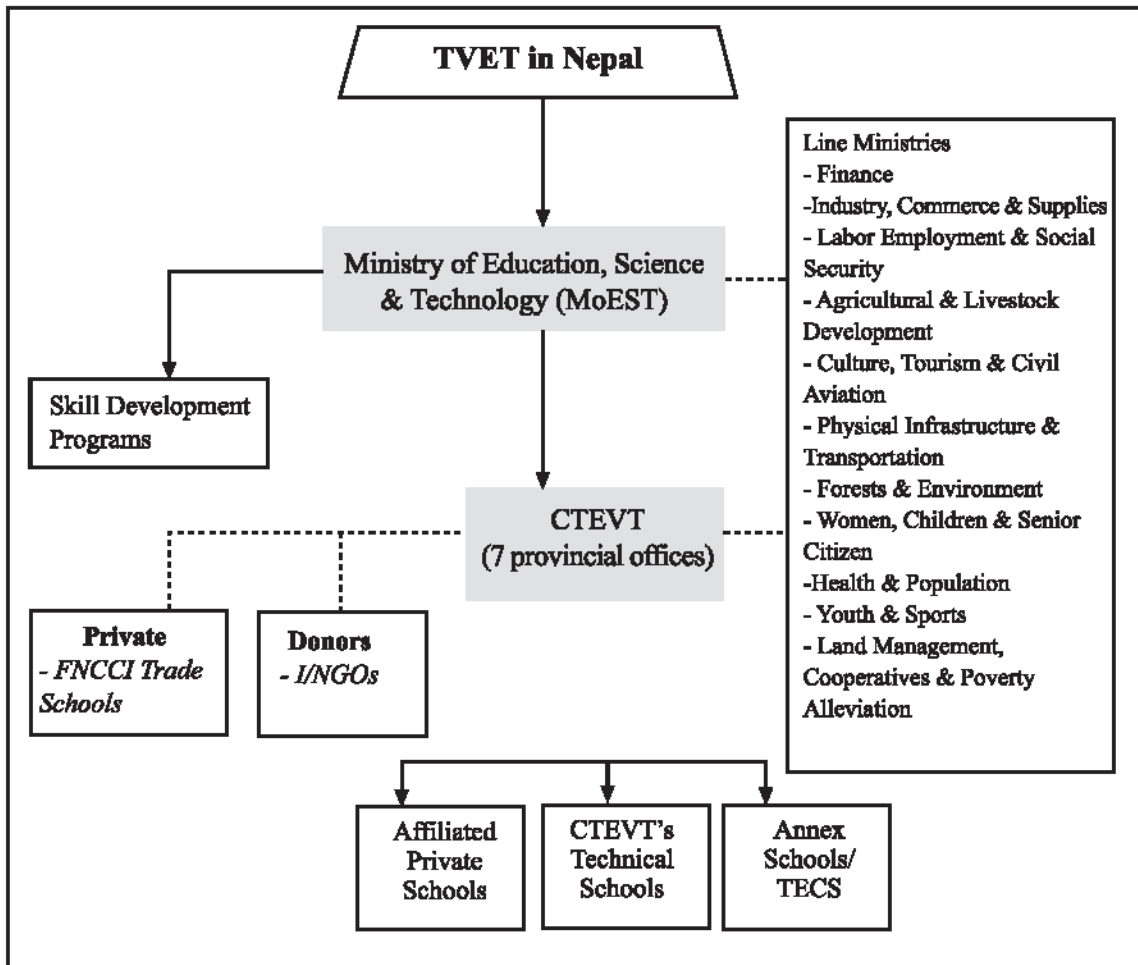


Figure 1: TVET governance's structure in Nepal (Author's construct)

(Sources:ADB, 2015; MoEST, 2018; CTEVT, 2020)

The Council for Technical Education and Vocational Training (CTEVT) Act, 1988 mandates the CTEVT to work as the central authority for planning and managing of TVET sector in the country. Major responsibilities of CEVT are “(i) regulating and upgrading the standard of TVET; (ii) maintaining coordination among different agencies providing TVET programs; (iii) assuring TVET quality by producing qualified instructors, curriculum developers, managers, and professionals for TVET institutions; and (iv) assessing students and issuing certificates” (ADB, 2015, p. xi). In addition, the operation of technical and vocational education has

been the main task of the CTEVT. In addition to the CTEVT act, TVET Policy, 2012 was introduced to direct the whole TVET sector including the role of the CTEVT.

Though the CTEVT is the main entity for TVET in Nepal, there are various agencies working in TVET. Including the Ministry of Education, Science and Technology (MoEST) there are 12 central ministries which are running TVET in a parallel manner. It needs to be noted that MoEST, which is responsible for regulating the TVET, also runs TVET programs on its own. Similarly, there are private agencies and

donors supported INGOs that are running TVET activities. Within the CTEVT system, there are three types of TVET institutes. First, there are technical schools and polytechnic institutions that are run directly by CTEVT with the public funding. Second, there are private agencies' technical schools running by private agencies affiliated with the CTEVT, and third are the annexed public schools partially supported by CTEVT for their funding. Thus, it appears that both the profit making and non-profit making agencies have been working in the field of TVET. The situation is such that a large number of stakeholders working in the TVET sector without any common framework contribute to economy at large. It is viewed that "the many laws, policies, and plans related to TVET in Nepal create an unclear and conflicting framework" (Caves & Renold, 2018, p.17).

In such a context, Nepal has undergone significant governance restructuring in the federal model through the new constitution of Nepal promulgated in 2015. The new constitution has stated its policy in article 51 (h) "to prepare human resources that are competent, competitive...while making education scientific, technical, vocational, empirical, employment and people-centered" (Government of Nepal, 2016, p.36) which should guide and set the scope of TVET in Nepal. However, before entering into the discussion of the TVET governance in federal Nepal it is imperative and essential to explore the emergent governance issues of the existing policy and practice that provides insights for the governing TVET in federal Nepal. I, therefore, in the remaining sections of this part discuss four emergent issues, viz. centralized governance, poor coordination and high fragmentation, political hindrance in policy implementation, and quality issue and institutional capacity. Just after the discussion of these four emergent issues, I present a possible model of TVET governance in federal Nepal. In the final part of this paper, I draw a conclusion.

Centralized Governance

The TVET sector in Nepal is highly centralized.

Looking into the practice of CTEVT and other agencies working in the TVET sector reveals that their activities are centrally managed and controlled. Since the new TVET policy 2019 is not implemented at its full extent, which largely depends on the new TVET act which is yet in formulation process, a discussion on the past governing practice is noteworthy here. So, while looking into the past, it is found that the TVET policy 2012 had some objectives that directed towards decentralization, but its implementation strategies were not sufficient to ensure the mechanism for the decentralization. It shows that in the past too though the country had been pursuing the decentralization reforms over the decades, it had not influenced the TVET sector for its decentralization. Furthermore, though the general education, particularly school education was decentralized to some extent, the TVET sector remained under the full control of central level agencies. As a consequence, the TVET governance in the past was highly bureaucratic and process oriented with no autonomy to local level institutions for their own planning and management (ADB, 2015).

As mentioned at the beginning of this section, TVET in Nepal is directly governed under MOEST through CTEVT. TVET outside the CTEVT is also controlled by the central agencies of the government, the private sector and INGOs. Though the CTEVT activities have been managed through its regional offices in the past and now through provincial offices, they were and are only the extended wings with central level's direct management. Since the province offices are fully controlled through the federal level instead of the province government, it remains centralized as it was in the past. As a consequence, the TVET programs have been supply-driven and centrally imposed that ignore the changing local needs of economy for skilled labors (ADB, 2015). Furthermore, it is viewed that the ministries which are involved in TVET make decisions at the central level without consulting the private institutions and local communities (ADB, 2015).

Thus, centralization of TVET governance has been a hindering tendency of TVET governing in Nepal. On the one side, the Ministry of Education, Science and Technology seems reluctant to allow the CTEVT to act as an autonomous institution, and on the other side CTEVT itself did not exercise the local needs-based policy providing autonomy to the technical schools across the country. Even in the federal governance, the CTEVT's role has not been changed from the existing practice. And the MoEST has also been implementing TVET programs itself instead of focusing on policy and monitoring and regulation. As the whole education system in Nepal is crippled with centralist mentality, the TVET sector has also faced the same kind of tendency.

Thus, though there is popularity of participatory and bottom-up approach in other development sectors, TVET sector in Nepal has not practiced the "local participatory planning and monitoring practices to ensure efficient operation of TVET institutions" (ADB, 2015, p. 41). It is argued that the central level is unwilling to devolve the rights and responsibilities to sub national and local level institutions not to lose the privilege over resources accrued to the TVET sector (ADB, 2015). Overall, TVET in Nepal has so far remained in a highly centralized and non-participatory development practice.

Poor Coordination and High Fragmentation

It is paradoxical that the TVET is not only centralized, it is also highly fragmented. It reflects the absence of a strong institution for policy making and regulating the TVET sector as all are equally involved only in implementation, including the ministry and CTEVT. Indeed, TVET governance in Nepal has been facing the problem of poor coordination among the various stakeholders working in TVET (Ministry of Education, 2017). Normally, centralization unifies and consolidates all agencies and activities with a strong central command. However, the TVET in Nepal is not organized well reflecting the lack of overall guiding framework committed by all stakeholders and weak institutional leadership of CTEVT (ADB, 2015). The situation is such that a

number of ministries and organizations have been working in the TVET sector (MoEST, 2018) without meaningful coordination. It is argued that poor coordination has not only disintegrated the TVET sector, but it has affected the quality of TVET and created parallel governance of TVET system (King & Palmer, 2010).

However, coordination among TVET actors was complex in spite of TVET policy 2012 and operation of CTEVT since long ago. As the task force report states, the coordination is one of the challenges in the TVET sector of Nepal (MoEST, 2018). For such a situation different acts and rules with various ministries have played a role. There is lack of an overall framework to overcome confusion and conflicts among the TVET stakeholders (Caves & Renold, 2018). Thus, governing TVET has been a major challenge in Nepal as there is no coordination among the various ministries that are engaged in TVET.

Indeed, all stakeholders often do have tendencies to work in their own way and mobilize resources for their comforts instead of the overall priority of the country. This could not be checked due to the lack of efforts to create a harmonized TVET sector. Instead, activities that fragment the TVET sector are increasingly in practice. It is interesting to note that the ministry of education itself has been running TVET programs like EVENT as there is CTEVT under it for the same purpose. The poor coordination and fragmentation have been such problems that the CTEVT alone cannot address them as these problems are within various central level ministries. Though the CTEVT is an apex institution to govern the TVET, there are several ministries that are running TVET programs which cannot be regulated by the CTEVT as it is under the ministry of education but not as an autonomous institution with rights to regulate the works of other ministries.

Thus, there is a strong tendency to ignore the framework of professional autonomous institution (ADB, 2015) and fulfilling self-interests holding the

resources and facilities accrued for the TVET sector. Hence, it is rightly pointed out that “the government’s role in TVET must change from implementation to facilitation, from traditional to modern, and from rigid to flexible” (ADB, 2015, p.32). This past experience of poor coordination and fragmentation is a strong lesson to consider while restructuring the TVET governance in federal Nepal.

Political Hindrance in Policy Implementation

Political interference has played a crucial role in weak implementation of TVET policy in Nepal. Such interference hindered the CTEVT to act and develop as a professional autonomous organization. It is viewed that in reality CTEVT “has become a political and formality institution rather than an autonomous, dynamic, and leading organization in charge with effective management of TVET” (ADB, 2015, p.43). It is ironic that the role of the liaison ministry itself is hindering the promotion of integrated TVET sector as mentioned above playing a role in implementation instead of policy development and regulation for quality technical and vocational education. Indeed, the MoEST itself has been running various skill development programs and introduced vocational education in the generic school system (MoEST, 2018) contradicting with the CTEVT’s role of apex professional organization for TVET. Thus, the role of the ministry is not for developing professional autonomous TVET sector but as a tool of political game in mobilizing resources and power through the interference to the TVET sector.

Excessive expansion of private schools without expanding the capacity of CTEVT to regulate them in maintaining quality standards is also the consequence of political interference. Such unplanned privatization has made the TVET expensive, excluding the marginal communities from its access (MoEST, 2018). For such practice, there is a role of attitude of politicians and high-level bureaucrats to hold power mobilizing resources accrued for TVET for their own interests. Indeed, there is “Excessive political interference and influence on all the organizations involved in TVET hinder their ability

to effectively carry out their activities” (ADB, 2015, p.43). This reflects the poor political commitment to promote TVET in Nepal (MoEST, 2018). Therefore, there is a need for commitment of all political actors on the nationally formulated policy and programs and the executing agencies must implement them efficiently with provision of adequate resources and proper mechanism for monitoring (ADB, 2015).

Indeed, policy implementation is an important governance issue which is less discussed in comparison to its impact. Contrary to this reality, there is excessive tendency in introducing new policies without proper implementation of existing policies and their reviews based on the experience of implementation. “In the past 10 years, TVET has undergone several experiments that aimed to develop and expand TVET with the assistance of various support agencies” (ADB, 2015, p.32). It doesn’t mean that there were not some efforts. The issue is that such reviews did not explore sufficiently the political dimension of TVET governance. Past reviews appear more technical and focus on formal institutional arrangements. Though it is clear that there is political interference in practicing TVET policy, the issue of autonomy of CTEVT for its functioning as a professional institute is lacking. This clearly suggests that there is a need for strong authority in federal Nepal to coordinate and manage the TVET sector in collaboration with the three levels of government – federal, provincial and local.

Quality Issue and Institutional Capacity

There are certain implications of the present governance system of TVET in Nepal. The uncoordinated and fragmented TVET has produced skilled people that do not match the requirement of the market (ADB, 2015; MoEST, 2018). This reflects the inadequate quality of the TVET graduates. In addition, due to the centralized feature of TVET governance, it has been supply driven. Some of the issues of Nepal’s TVET are less access of marginal communities and the gap between market needs of skills and skill training programs (World Bank, 2017)

Specifically, the quality issue aroused with the rapid expansion of the CTEVT affiliated private schools. Private schools have been established without adequate physical infrastructures and instructors. But, the CTEVT has a limited level of capacity to regulate and monitor the private schools. The issue of quality is not limited only to the private schools. The problem is also observed with the community schools where MoEST has recently introduced vocational education.

Indeed, the introduction of TVET in the community schools without considering the provision of infrastructure has raised the question of quality issue. The ineffectiveness of the school-level vocational education under the MOEST parallel to CTEVT program was also indicated by a recent report on TVET (MoEST, 2018). It is essential to note that the quality issue is not only a technical matter, it is a governing issue. This is because this entails reviewing the existing capacity while expanding the TVET sector.

In such a context, the government is pursuing aggressive policy of establishing one technical school at one local level. This will aggravate the crisis of capacity with the increasing demand for TVET expansion and very poor institutional capacity of TVET authority. To address such discrepancy between demand and supply-side of TVET, there is a necessity of capable leadership and professional team to successfully drive the TVET sector in Nepal (MoEST, 2018). It needs to consider the past practice here that the both roles of CTEVT as implementer and regulator have raised the issue of maintaining professional quality and accountability (ADB, 2015). Overall, the problem is that the capacity of TVET institutions is not appropriate even to maintain the quality of ongoing TVET activities (MoEST, 2018). Hence, on the one hand, the present TVET doesn't meet the needs of the country at large while the capacity level is inadequate.

TVET in Federal Nepal: Centralized to Decentralized Governance

Most of the studies have urged to restructure the TVET governing system to address the various problems accrued from the present policy and practice (ADB, 2015; MOEST, 2018; Renold, Bolli & Caves, 2018; Renold & Caves, 2017). But, "there is great uncertainty about how the TVET sector will be federalized" (Renold, Bolli, & Caves, 2018, p.36). The issue of governing TVET in federal Nepal is the question of whether to decentralize the existing centralized management of TVET or not. Indeed, the decentralization through federal governance is unprecedented in the history of Nepal's decentralization reforms as the power of the three levels of governments has been defined constitutionally. Decentralization of TVET though intends to provide autonomy to all specific levels of government, it becomes essential "to balance multilevel decentralization with central-level standardization" (Renold & Caves, 2017, p.5).

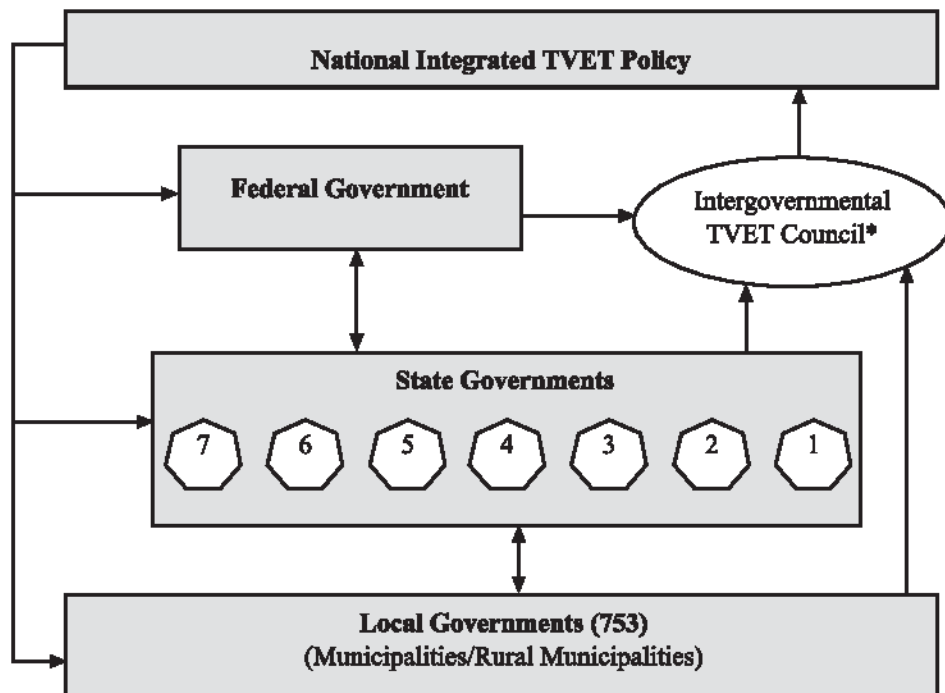
While considering a possible modality of federalization of TVET, it is essential to consider the need for an autonomous TVET entity in each province of Nepal to govern the TVET sector following the spirit of the constitution. Here, again, it becomes essential to consider the issue of fragmented TVET and develop an integrated framework to allow all levels of government to work simultaneously within the framework. While restructuring TVET governance in Nepal, it should be guided by the "principles of cooperation, coexistence and coordination" (Government of Nepal, 2016, p.150) as stated in the constitution for building the relationship among the three levels – federal, provincial and local.

It is argued that centralized TVET governance with its rigid institutional arrangement which follows the top-down approach of bureaucratic management is less effective in mobilizing TVET providers providing autonomy to them to address the local needs (Russell, 2015). The discrepancy between the local needs and supplied skills is considered the consequence of

centralized TVET governance. So, instead of it, “A multi-level governance system covering and linking policy making (macro), institutional administration (meso), as well as training delivery and assessment (micro) of TVET” (Russell, 2015, p.4) has been suggested. Exploring the best model of TVET governance according to Caves and Renold (2018) depends upon addressing the problem of governance and absorption of TVET graduates into the economy.

Based on the discussions made above in this paper, it appears essential to restructure the TVET governance in Nepal both to address the existing emergent issues and to follow the spirit of federal governance. Recent research by Renold and Caves

(2017) recommends an Umbrella Act to integrate the TVET activities and establish multilevel governance in federal Nepal. However, their suggestion to bring TVET under a single ministry can be problematic in view of past practice of MoEST. Instead, the suggestion “to set up a steering committee headed by someone with strong leadership capabilities to organize buy-in from all relevant stakeholders to organize the transition process from the current state to the implementation of a new TVET Umbrella Act” (Renold & Caves, 2017, p.ix) appears appropriate to address the problem of ownership and fragmentation of TVET and to overcome the monopoly leadership of MoEST in the past.



* (Renold, Bolli, & Caves, 2018)

Figure 2: A possible structure of TVET in federal Nepal

The role of MoEST needs to be reviewed while federalizing TVET in Nepal. Though it appears a straightforward possibility in view of past practice to give a lead role to MoEST and its TVET division

in formulating TVET policy in federal Nepal (Renold, Bolli, & Caves, 2018). This needs to be acceptable for all stakeholders of TVET as the role of MoEST was to centralize the TVET within its controlling

grip as discussed above in this paper. It is rightly pointed out that “there are major threats from the tendency to favor the status quo, fear of losing power to control over a function that moves to a different level, and resistance to change” (Renold & Caves, 2018, p. viii). Indeed, there is a high possibility that central authorities use all three kinds of powers – decision making, agenda setting and ideological power (Lukes, 2005). It needs to be noted here that if the policy formulation is given only to the central level, the agenda setting power can be used by the authorities in their favor over the provincial and local level governments.

Meanwhile, there is a new education policy recently introduced (MoEST, 2019) that has TVET component. The education policy has envisioned an entity at the federal level – the National Technical and Vocational Education Training Council (NTVETC) – through which TVET sector will be operated to produce skilled technical human resources (MoEST, 2019). The policy further mentions that there will be legal provisions which will include all aspects of TVET for its development. Regarding the role of the province, the education policy, 2019 states that the provinces need to formulate their own acts aligned with the federal act to conduct TVET programs in their respective provinces. While the role of the local government as per the Education Policy is to closely manage, monitor and inspect the programs conducted (MoEST, 2019, p.22). Though the policy has indicated the role of federal, province and local level, there is no clarity as all levels are deemed responsible for conducting TVET which needs to be clarified in the forthcoming act to avoid duplication and to make each level accountable for a specific set of tasks as per the spirit of the constitution. The 15th Plan has also stated that “an integrated technical and vocational education and skills development laws will be formulated (National Planning Commission, 2020, p.235).

In such a context, considering the need of restructuring the TVET sector in the federal governance system, the TVET governance framework

as it is depicted in the figure 2 seems plausible. Considering the multi-sectoral linkages of TVET, it is essential to have a national integrated policy to guide the multi-stakeholders involved at different government levels. Based on the national integrated policy, the essentials act, rules and regulations can be derived. There can be active participation of all levels of government and stakeholders through the intergovernmental TVET council. This council will be instrumental in building common ownership of the TVET sector and act as a professional leader of the sector too.

Conclusion

Nepal’s TVET sector has undergone through a highly centralized mode of governance. Hence, it’s restructuring in the new federal governance structure faces challenges as the process of restructuring entails losing power and resources from the central authorities who have enjoyed these hitherto. The federalization of TVET governance therefore needs to be radical instead of incremental as the latter one can be diluted in the course of time through the nexus of politicians and bureaucrats. Multilevel governance is helpful to the functioning of the TVET sector with the clear roles and responsibilities assigned to each level of government as per the national integrated policy. This concept provides an avenue for power sharing and overcoming conflicts among the stakeholders. This can be possible with strong willingness and commitment of the leaderships with both the political and bureaucracy fronts to develop enabling collaborative culture for the working of TVET sector.

Note

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Technical and Vocational Education and Training Fund in Nepal: Present Practice and Way Forward

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Abstract

In the last few decades, Technical and Vocational Education and Training (TVET) expanded significantly in Nepal. However, the actors of TVET are uncoordinated and are implementing programmes with fragmented governance. The international experience shows TVET fund is one of the approaches to coordinate fragmented TVET stakeholders and enhance the quality of TVET. In absence of such an integrated TVET fund in Nepal, this paper urges for establishing TVET fund and sketches the possible approaches with reformed TVET structure. For this, first, we reviewed the literature particularly the perceived international practices of implementing TVET fund. Further, we arranged an interaction with TVET stakeholders and collected their views on the establishment of the TVET fund in Nepal. Based on findings of the research, the paper provides five possible models for establishing TVET fund mechanism in Nepal. All the models have their strengths and challenges, so it would be rational to adopt the idea of strengthening existing structure rather than making it stand alone. For this, a developing strong research and innovation, effective implementing body, and independent quality assurance and accreditation system is equally important for its effective implementation.

Keywords: Coordinated TVET system, TVET Fund, TVET Governance, TVET in Nepal

Background

Access to education for all citizens gained priority in Nepal only after the establishment of democracy in 1951. General education, however, emerged as the main stream of schooling. In the recent decades, Technical and Vocational Education and Training (TVET) also has gained its attention in Nepal. It has also been considered useful for the youths, mostly

for those, who enter the job market without or with very little skills (Bhattarai, 2021). In this sense, TVET has become synonymous with skill enhancement that supports youths for gainful employment. Formal development of TVET in Nepal began much later compared to the traditional mode of education which has continued for centuries (Kafle, 2007). Artistic skills used in ancient cities of Nepal,

vocational skills learning practiced in community and family are some evidences that TVET existed in Nepal long ago. Araniko and his friends' journey to neighbouring country China as a skillful architect is one of the examples that Nepali skills had recognition not only in the country but also at the international level. However, these skills were informally transferred from one generation to another within the family and in their clan in the community (Adhikary, 2012; Poudel, 2020). These skills are still traditionally learned in an informal setting and are mostly on the verge of extinction before they get recognized (Parajuli, 2014). TVET has great scope of mainstreaming such skills informal learning system and contributing to the national economy linking these skills to the modern economy (CTEVT, 2016).

TVET also contributes to modern industry and enterprises. On one hand, it is a means for skilling youth with job-specific skills according to the demand of job market. On the other hand, TVET graduates can be creators and entrepreneurs contributing to reduce the issue of unemployment in the country. The modern TVET which was groomed mostly after the 1950s has concentrated to contribute to the present-day economy. The establishment of a training center (present Pulchowk Engineering College) in 1942 is taken as a significant step to establish a modern formal TVET system in Nepal (Ministry of Education Science and Technology [MOEST], 2018). However, TVET could gain attention in the periodic plan only after the commencement of the first periodic plan in 1956. Subsequently, it was also included in the education policy, which provisioned for Village Development Training Center (VDTC) for preparing basic level skilled human resources while professional training was introduced in secondary schools for producing medium-level skilled human resources (Ministry of Education [MOE], 1971).

The youth employment situation is considered as one of the key indicators of a country's development (Bhatta, 2014). TVET supports the youths in enhancing their skills and preparing them for employment. Council for Technical Education and

Vocational Training (CTEVT) was established in 1989 in Nepal to prepare TVET related policies and plans, implement TVET programmes, coordinating among stakeholders and making quality TVET accessible to all (National Planning Commission [NPC], 1988). In parallel with CTEVT, about 12 ministries including the Ministry of Education Science and Technology, are also executing TVET related programmes (MOEST, 2018). Various development partners are supporting these different government agencies to implement both short-term and long-term TVET programmes. Besides, with the aim of recognizing prior learned skills and linking them with the labour market, the skill testing system in the country has been in operation since 1983 under the name of National Skill Testing Authority (NSTA) and National Skill Testing Board (NSTB). This shows, in Nepal, TVET development has taken a pace quantitatively, however, many issues have been raised such as duplication of programmes, difficulty in tracking the total expenditure made in TVET, access to TVET programme, etc., because of the fragmented implementation of TVET. In this situation, an integrated TVET fund coordinated with all levels of government and implementing agencies has become a need.

Initiatives for TVET Fund Management in Nepal

TVET fund is an integrated fund approach for coordinating TVET programmes implemented by various stakeholders across the country (Asian Development Bank [ADB], 2015; Sharma, 2013). Many initiatives can be traced back in Nepal for coordinated regulative TVET fund mechanism, however, these efforts have not been substantiated in practice yet. Hofstetter (2014) claims the importance of TVET fund in Nepal. For this, he has emphasized equal access, appropriate plans and strategies, quality of the programmes, and sustainability of fund management. Hofstetter also proposes three types of TVET fund mechanism, first pre-employment training fund for all who require skills and employment possibilities. The second mechanism is enterprise training fund for employees

of industries who need skill training and upgrading. The third is equity-oriented training fund for underprivileged groups. However, for the effective implementation of these programmes, collaboration among relevant stakeholders is equally important (Bhattarai, 2021). Lamsal (2011) posits that partnership among the actors of TVET, including development partners, is crucial for making the TVET sector effective.

Few more substantive efforts have been made by the Government of Nepal at the policy level for establishing TVET fund. The TVET Policy 2012 explains the provision for TVET fund to manage the TVET sector. Similarly, Education Policy 2019 also directs to establish TVET Fund in collaboration of government, private sectors, cooperative, and community (MoEST, 2019). The Fifteenth Periodic Plan envisions government as key stakeholder however also anticipates the contribution of other stakeholders such as private sector, community people and cooperatives for financing education including TVET (NPC, 2020). The fund mechanism has a mandate for coordinating among the TVET providers, including development partners, and forming an integrated funding mechanism. With objectives of establishing the fund mechanism envisioned by policy, a coordination committee has also been formed at the secretarial level in the past and discourse has been initiated presenting different option papers.

Practice of TVET Fund at International Level

There are various practices for executing TVET fund across the world, however, these practices differ according to the government's resources and national context. Although there are differences in the modality of TVET fund, there are common basic features that are generally found in practice in many countries. According to Johanson (2009), there are three common features a) involvement of employers, b) coordination among the programme implementing stakeholders, and c) sustainable fund source and fund mechanism that makes successful in implementing TVET fund.

Skilling Australian Fund, for evidence, relies on national employers. Having the aim of skilling Australian youth with industrial and other types of employment skills, a certain levy is charged from the businesses that benefit from employing skilled migrants to generate revenue for the fund (Australian Government, 2021). However, TVET fund in the context of developing countries is more emphasized in coordinating among the TVET implementing stakeholders. In India, the fund is generated in a Public Trust under National Development Cooperation. Ministry of Skill Development and Entrepreneurship is in charge of TVET under which the National Development Agency works as a think tank and the Director General of Training implements the programmes in the country (Ministry of Skill Development and Entrepreneurship, 2015). Along with the establishment of a separate ministry for TVET, many popular programmes such as Skill India are also implemented in the direct chair of the prime minister. Nevertheless, these programmes are also criticized for their sustainability and quality of skills it imparts to the youth.

Similarly, in Bangladesh, the National Skill Development Fund is established under the chair of the prime minister. The Ministry of Finance is responsible to manage the fund. Along with this, the Director of Technical Education prepares plans and strategies, Bangladesh Technical Education Board monitors, and National Skill Development Authority implements the programme (Government of the Peoples Republic of Bangladesh, 2019). TVET fund in Bangladesh was established in 2019, in this sense, it would be too early to generalize about its result and effectiveness.

Compared to Bangladesh and India, Sri Lanka has a long experience of TVET fund. Under the Ministry of Skills Development, Vocational Education, Research and Innovation in Sri Lanka, Vocational Training Authority manages the Vocational Training Development Fund which was established in 1999 (Parliament of Democratic Socialist Republic of Sri Lanka, 1990). Although Sri Lanka gains a long

experience of having TVET fund mechanism, there are issues like weak collaboration among the TVET implementing stakeholders which is also interpreted as a result of an imbalance in power-sharing (ADB, 2016).

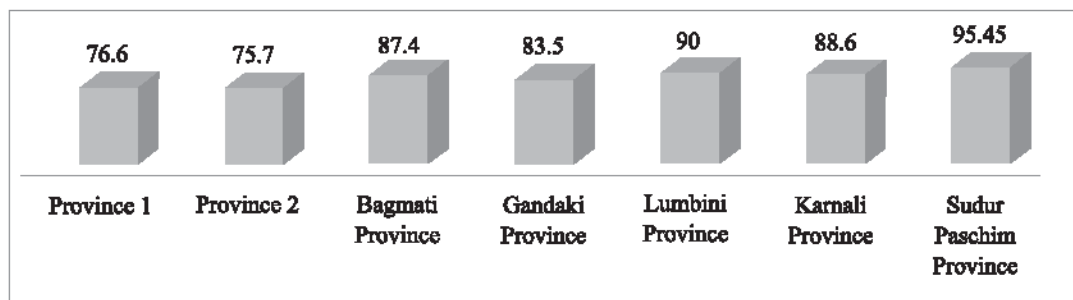
Rationale for TVET Fund in Nepal

There has been a continuous effort for establishing TVET fund in Nepal but it has not gained any significant achievement. In the absence of such integrated system in TVET, the challenges are added

with growing expansion of TVET implementing institutions across the country. A report states that over 84% of local governments have at least a TVET institute (CTEVT, 2020). The government of Nepal also aims to ensure the availability of at least one TVET institute in all the municipalities. So, this number seems to be increasing soon. Along with this, all levels of governments are also providing different non-formal programmes targeting the youths and their employment.

Figure 1:

Availability of TVET in Local Governments by Province.



Source: CTEVT, 2020; CEHRD, 2020

With the development of TVET, youths are expected to enhance their skills and get prepared as basic and middle level skilled human resources. TVET in Nepal has also been instrumental in preparing youths for the labour market with their learned skills. However, these achievements are not as per expectation. Central Bureau of Statistics (2019) reveals about 80 % of youths who are in employment had less than secondary level qualifications. This shows a large number of youths enter the labour market with insufficient occupational skills required for their job. In such a situation, the youths learn required skills for their profession during their job, however, they are paid very low. On the other hand, employers have to invest themselves in developing their employees' occupational skills. The report of Asian Development Bank (2015) also shows about 90% of youths who were in employment learnt their occupational skills during their job. In this situation,

either there is an issue of the skill gap in the employee such that the industries and business get employees without the required and relevant skills for the labour market, or the employer has to invest on their own to groom the employee for their company. Likewise, the issue of skills has also been felt in the youths who migrate from Nepal to different countries in Gulf, Malaysia and even to India. About 60% of youths are found going abroad without receiving specific occupational skills (Ministry of Labour, Employment and Social Security [MoLESS], 2020). It has also been reported that they receive comparatively low wages than the labour migrants who had acquired specific occupational skills. These data show the importance of TVET with its expansion to make accessible to all and maintain its quality so that the youths will become competent enough to perform their skills according to the requirement of the labour market.

This existing scenario shows, on one hand, there is a growing expansion of TVET institutions, on the other hand, the access to quality TVET is far from reach for the youths. In this regard, it is obvious that the TVET system in Nepal needs significant attention to strengthen and make it accessible to all the youth so that their skills are enhanced which in turn increases their income and improves their quality of life. Likewise, there is a fragmented TVET system where multiple and multi-level stakeholders are engaged in implementing the programmes. In such a situation, it has neither been possible to assess the quality of provided programmes nor be able to keep record of the provided programmes and their expenditures. This has raised a pertinent question on the quality and effectiveness of the TVET programmes. Thus, the situation demands an integrated approach to coordinate the TVET system in total and track the fragmented TVET programmes. The establishment of the TVET fund can be an approach to fulfill the gap in the present context. The TVET fund not only supports coordination among the stakeholders who are fragmented but also helps to reduce the duplication of programmes, ultimately increasing the relevancy and quality of TVET.

Present Financing Modality of TVET in Nepal
In Nepal, the integrated TVET fund system has not been institutionalized yet, although, it has been a matter of discussion for a long time. Financing in TVET is scattered along with the involvement of many ministries that are simultaneously providing TVET programmes in their respective fields. Following are some sources of TVET financing in practice in Nepal.

Regular Budget of Government

One of the major sources of financing TVET in Nepal is the government's regular fiscal budget. Different ministries receive a regular budget every year for their regular programmes related to TVET. These ministries run both long-term and short-term TVET programmes through their departments and training centres across the country. These budgets

are allocated according to the annual programme of the government. Along with these training centers, TVET schools and polytechnics under CTEVT also receive a regular budget from the government to provide these programmes. Generally, the cost for short-term vocational training programmes provided through government agencies are managed through the government budget, however, development partners considerably provide financial support to run such programmes. In case of long-term courses, students pay a certain charge on their own. For example, technical stream in community schools run by the Center for Education and Human Resource Development (CEHRD) under the Ministry of Education, Science and Technology and the pre-diploma and diploma level courses of CTEVT are long-term programmes. Short-term programmes related to various occupations are mostly non-formal in nature and are provided by different ministries through their training institutions (Baral et al., 2019).

Private Sector's Investment

TVET institutes rapidly expanded in Nepal along with the liberal market policy in the country. Private sector's investment in TVET started especially after 1990. At present, the private sector shares a large part of TVET institutions compared to the government. Privately managed TVET institutions bear their cost themselves and they normally manage the cost from the tuition fee collected from the trainees and students. However, they provide scholarships to a certain number of students from underprivileged groups according to the existing law. These private institutions also receive funds and collaborate with government agencies as well as development partners in implementing TVET programmes.

Community Investment

TVET is also found to be managed by community institutions in Nepal. With aim of access of TVET to all, programmes are run in minimal cost as it uses the already existed infrastructure of community schools. This sort of TVET management in partnership model is recently started and expected

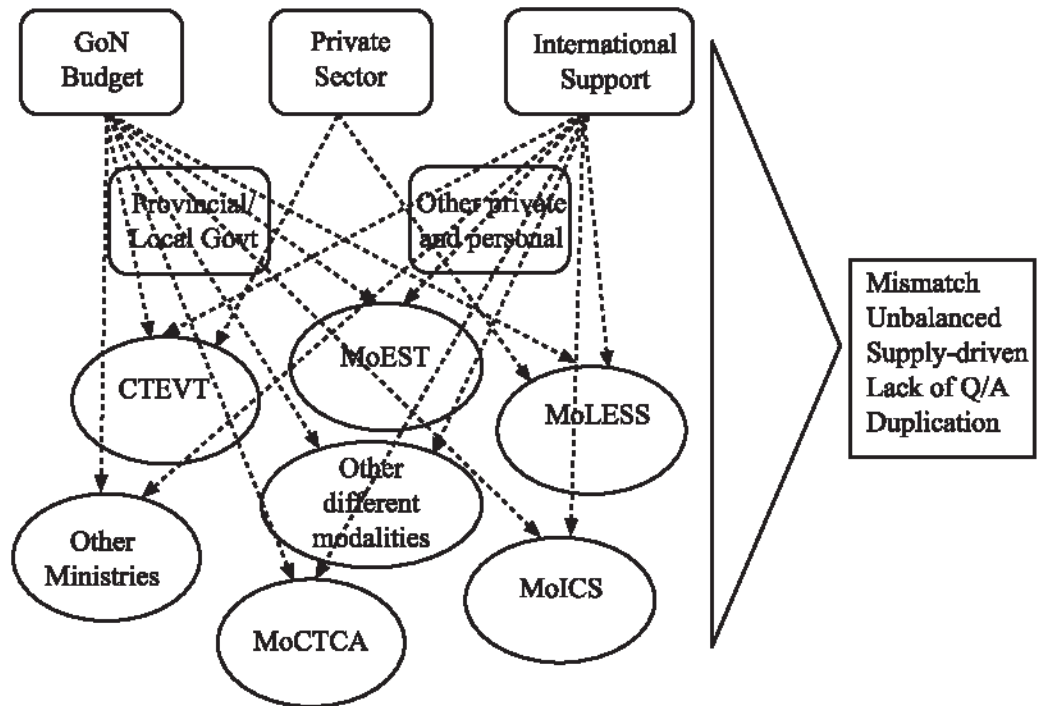
to be more sustainable with community engagement. Such institutions are managed mostly in a partnership model between the government and the community and both parties bear the cost as per the contract. According to CTEVT report (2020) 572 schools are running TVET programme in communities across the country. These receive regular budget from CTEVT however it does not cover all the expenses. In this sense, the respective schools manage the additional cost on their own.

International Aid

International developing partners have been supporting TVET in Nepal for a long time. These development partners and agencies have provided

financial as well as technical support in both short-term and long-term TVET programmes. EVENT, BNSURE, SKILLS, Dakhshyata, etc. are some examples of international developing partners that are implemented in Nepal. Although most of the programmes supported by development partners are run in a partnership model with both (non) government agencies. In some cases, they are also implemented directly. Hence, it is obvious that TVET is run in Nepal by different actors and there is no such integrated funding mechanism. This shows the importance of establishing TVET fund which will channel the programmes coordinating the scattered TVET actors across the country.

Figure 2:
Present TVET Financing Mechanism in Nepal¹



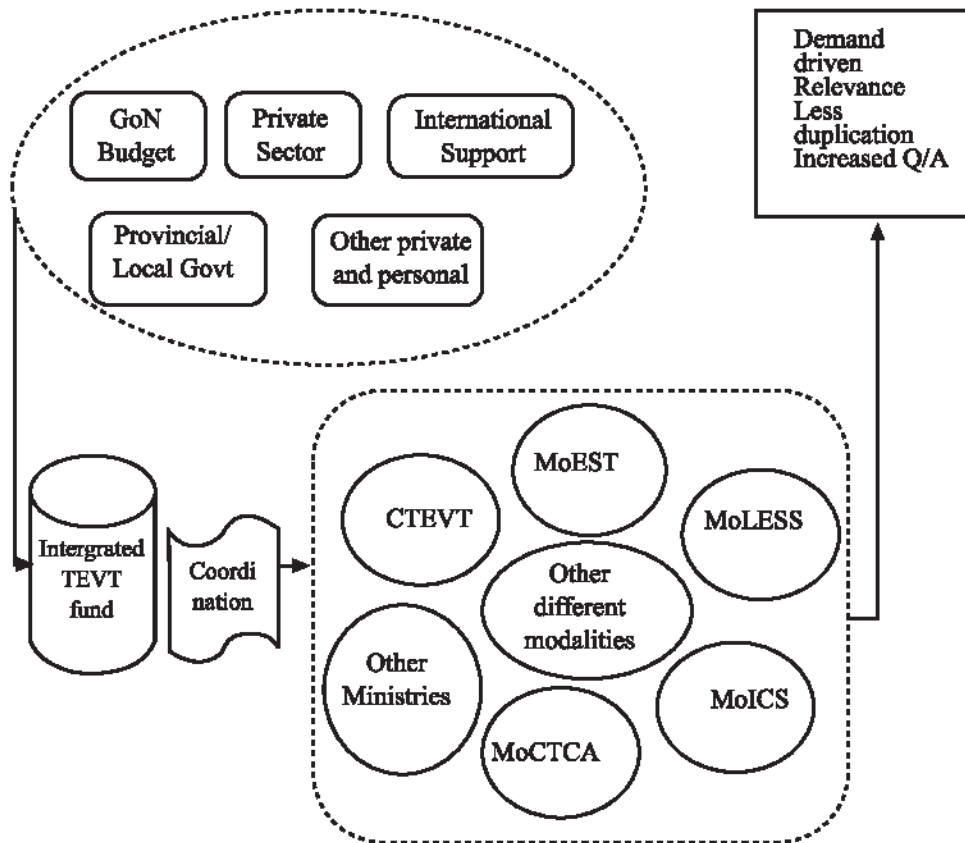
¹Other ministries= Remaining ministries other than MoEST, MoLESS, MoCTCA, And MoICS, under Government of Nepal.

CTEVT= Council for Technical Education and Vocational Training, GoN=Government of Nepal, Q/A= Quality Assurance, MoEST= Ministry of Education, Science and Technology, MoLESS=Ministry of Labour Employment and Social Security, Ministry of Industry, MoCTCA= Ministry of Culture Tourism and Civil Aviation, MoICS= Ministry of Industry Commerce and Supplies

Figure 2 shows the haphazard financing in TVET programmes run by multiple actors. In addition, these programmes are mostly supply-driven as these actors set a target of providing services without assessing the need of the market. Consequently, it has been an issue of a gap between the demand of the market and the supply of the programmes (Sharma, 2015). With this fragmented governance of the TVET programmes, there have also been

difficulties in monitoring and assessing them, which ultimately affects the quality of the provided programmes. In this sense, there is in need of an approach that will channelize the TVET providers and reduce the duplication of programmes. To overcome these challenges, the envisioned integrated approach for TVET coordination and management is presented in figure 3.

Figure 3:
Envisioned TVET Fund Mechanism



Study Method

The study followed both desk review and interaction with various stakeholders. We started with a desk-based review process and examined the TVET fund practices at the international level. Particularly, we reviewed TVET fund practice in Australia, Bangladesh, Sri Lanka, and India. The basis for including these countries was for collecting diverse practices from those countries which have established TVET fund mechanism. Based on the literature review, we prepared the possible models for Nepal. The researchers made several rounds of discussion with the TVET experts, government officials, practitioners and individuals who had at least five years of experience working in the TVET sector and knew about TVET fund. We selected them purposefully considering their experience and their interest for participation. We shared the proposed models with officials representing different ministries implementing TVET programmes in the office of the National Planning Commission. The interaction was made both in person discussion with groups of participants and virtual with individuals. This provided us an insight to contextualize the proposed models according to the binding legal provisions. We incorporated suggestions and comments received from the sharing programme and further arranged interaction with TVET experts in Nepal. The draft of the paper was also shared with participants whom we interacted with before, academicians, officials of development partners, and individuals with TVET background and requested them to provide their review feedback and comments. With pandemic situation of COVID-19, in many cases, we had to limit in the virtual interaction with the research participants. Finally, after receiving the comments and feedback from experts, we drafted the paper.

Proposed Models for Establishing TVET Fund in Nepal

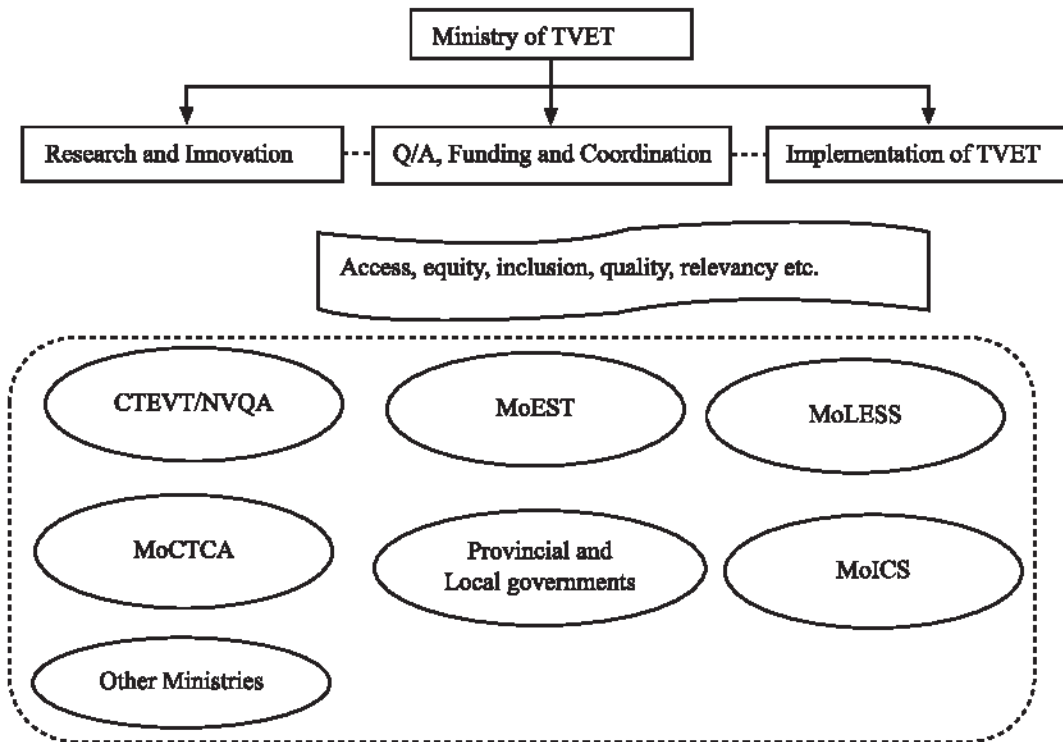
The international practices also show that a country

needs their own unique mechanism for TVET fund according to their national context. Nepal has its uniqueness and TVET system has been functional for a long time. In this sense, it would be rational to envision the reform of TVET within the structure rather than isolating the existing system. In this paper, we also envision TVET fund as a coordinating body in the context of federal structure. It is also important to note that the proposed fund structure should not syndicate the different actors implementing the programme on their own. Rather, it will facilitate and streamline the fragmented system within the existing system. Furthermore, this fund mechanism also needs to adopt in decentralize approach to cover the system functioning at the provincial as well as local level. This requires coordinated but decentralized fiscal management so that each actor can implement the programme according to their context, however, it will be recorded in the integrated system. Similarly, it is necessary to consider aspects such as social exclusion, access, and quality while making criteria for fiscal transfer. For this, a strong research system will support both for evaluating the quality and ensuring the quality and relevancy. This will also support in preparing a fiscal transfer criterion and enhance the system.

Considering the existing functional TVET system, reviewing the international practices and based on the interaction with people working in TVET sector of Nepal, we propose five possible models for the establishment of TVET fund in the context of Nepal. Model 1: A Separate Ministry for TVET Weak coordination among the TVET stakeholders is considered one of the current constraints for the effective implementation of TVET in Nepal.

Figure 4:

TVET Fund under Ministry of TVET



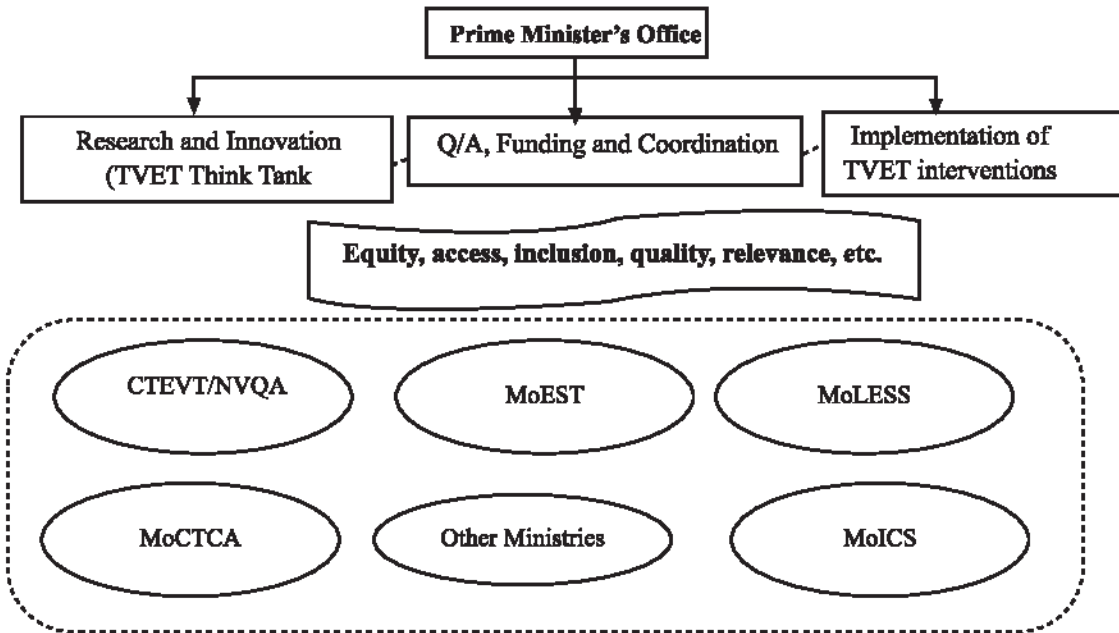
Considering the existing engagement of wider stakeholders in TVET, we propose the establishment of a separate ministry of TVET and TVET fund as one of the units. The three TVET units and departments such as research and innovation, quality assurance and coordination, and implementation can be the overall guiding structure under the ministry. A separate ministry for TVET is also a practice in India. Popular programmes such as Skill India were launched after the establishment of the ministry (Krishnan & Gelb, 2018).

There are both strengths and challenges in establishing a separate ministry in Nepal. While talking about strengths, the formation of TVET ministry will gain more attention so that focused development can be expected. This will also address the issue of coordination among various actors implementing TVET in a scattered way. This can also be a big step towards preparing human resources according to the demand of national need and channel

the expenditure made in this sector by different stakeholders. Nevertheless, constitutional provision may be the first obstacle since it limits the number of ministries to expand further. Second, establishing a separate mechanism can be time-consuming and costly which also can be a possible roadblock. Model 2: TVET Fund under Office of the Prime Minister

TVET fund under the office of the prime minister can also be an alternative. A secretarial office will facilitate fiscal transfer according to set criteria for its effective implementation. Such type of practice can be found in Bangladesh where the fiscal transfer in TVET is made in coordination with the Ministry of Finance under the prime minister’s chair. With the chair of the prime minister, the fund mechanism in Nepal can be strong enough to coordinate at the ministerial level and other implementing agencies. The proposed modality is shown in Figure 5.

Figure 5:
TVET Fund under Office of the Prime Minister



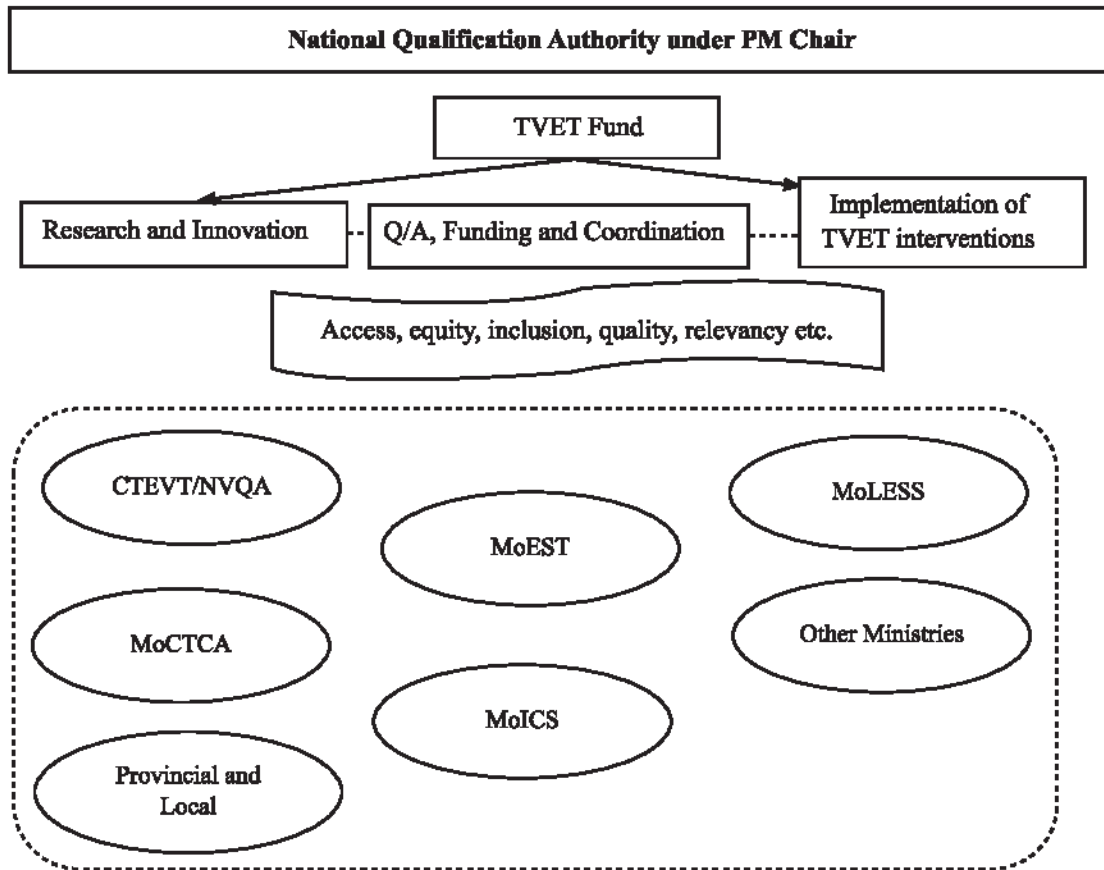
In this model, there is an equal chance of having political influence. The office of the prime minister already carries a lot of duties and responsibilities and the new set-up might be an extra task. As a result, it might get less attention.

Model 3: National Qualification Authority under Prime Minister Chair

National Qualification Authority under the chair of

the prime minister can also be an alternative model. Under this mechanism, TVET can be integrated into the existing system. In this sense, this model can be cost-effective. Both TVET fund and qualification system under one umbrella institution will help to coordinate and increase permeability. The proposed modality is shown in Figure 6.

Figure 6:
TVET Fund under National Qualification Authority

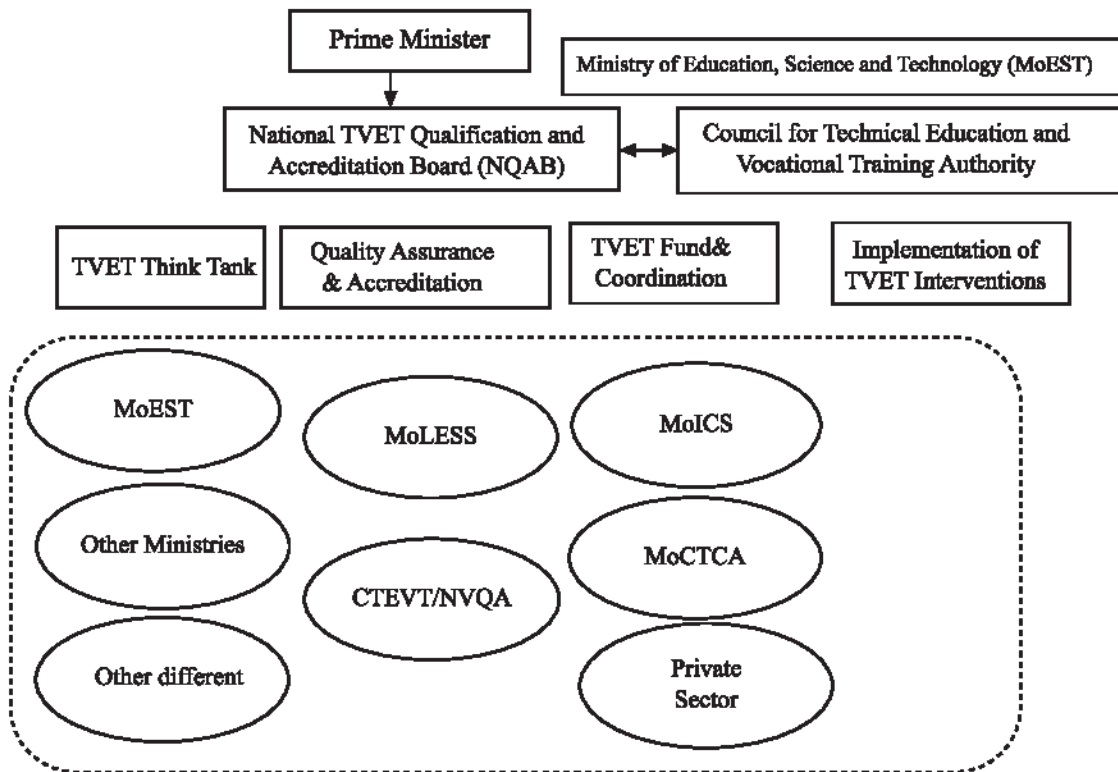


This approach is also not free from the possible influence of politics and reengineering the existing system would be another roadblock further ahead. Furthermore, there is also a risk of possible conflict with implementing bodies as National Qualification Authority concentrates vividly. This also can reduce attention in TVET as NQA will work both for general education and TVET.

Model 4: TVET Fund under National Vocational Qualification and Accreditation Board
 National Vocational Qualification and Accreditation

Board is long envisioned institution in Nepal. And TVET fund under this board can be an alternative for TVET fund establishment. However, this model also requires a chair under the prime minister to make it effective enough to coordinate with other ministries. The mechanism will reduce the conflict and uncoordinated situation among programme implementing bodies and monitoring bodies. The proposed modality is shown in Figure 7.

Figure 7:
TVET Fund under National Vocational Qualification and Accreditation Board



In this model as well, with the engagement of the prime minister office, there is always chances of political influence. But this will not add a burden of investment for restructuring the system.

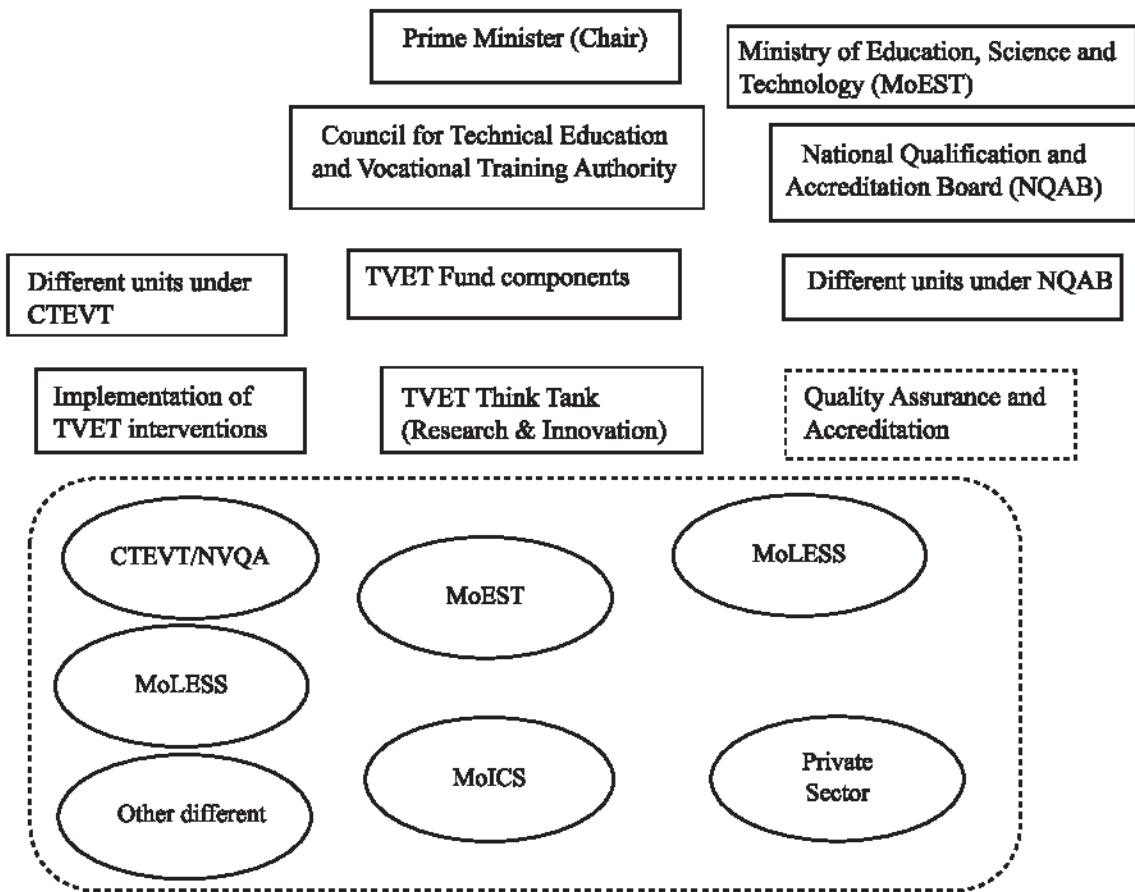
Model 5: TVET Fund under CTEVT

Integrating the fund within the existing TVET system of CTEVT can also be one of the possible alternatives.

Under the chair of the prime minister, a vice-chair can be nominated to manage the day to day activities and it needs a secretariat level officer to coordinate and build a good relationship with other ministries. This mechanism is possible within the existing system. In this case, this will not increase the financial burden as well.

Figure 8:

TVET Fund under National Vocational Qualification and Accreditation Board



A current issue, a single institution being both an implementer and an evaluator may continue if this model is adopted. But the issue of coordination among the implementing actors can be more effective with the chair of the prime minister. The proposed modality is shown in Figure 8.

Among all presented models, this model seems more feasible in the present context as this needs minimal restructuring while becoming a more powerful body. Along with this, years of institutional experience of CTEVT is a valuable asset and it can be a basis for moving forward. In this sense, strengthening the apex body of TVET seems more convincing to integrate the funding mechanisms in TVET.

Conclusion

In the federal context, it has become important to reform the TVET governance and implement it accordingly. The establishment of TVET fund can be one of the tools to coordinate and facilitate among different TVET actors. For this, reforming TVET structure within the existing TVET system seems more plausible. Experience of other countries in managing TVET fund can also be a lesson for the need to establish a fund mechanism and make it more sustainable. The proposed models are based on international practices and views of the TVET practitioners. Establishing a separate ministry is an ambitious project, however, it has the potential to enhance the TVET sector with focused development strategies. The fifth model would be appropriate if we go for minor changes in the existing structure.

It is also important to consider an aspect of social value towards TVET. In this sense, we have proposed such a mechanism under the prime minister. Further, TVET fund with a strong research mechanism accompanied by TVET think tank, a separate TVET implementing body, and an independent quality assurance and accreditation mechanism will be a strong basis for establishing the envisioned fund mechanism in Nepal.

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Teaching Profession in Technical Education in Community Schools

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Abstract

Technical Education in Community School (TECS) is considered pertinent for the socio-economic transformation, particularly in a developing country like Nepal. Instructors of these schools are the key persons who transform curriculum into practice, however, their profession in their perspectives was hardly studied. With this consideration, this study was carried out to understand the experience of TECS instructors on their teaching profession. To attain this research objective, four instructors from the Diploma in Civil Engineering program of two TECSs were purposively selected, and a narrative inquiry approach was utilized to study the cases in-depth. The result showed that the instructors were interested in teaching in TECS; however, they were not ready to go to TECSs of remote villages. For them, the village settings lacked source for extra earning opportunities and career growth prospects. They were motivated to teach in Diploma in Civil Engineering as they could apply their prior knowledge and skills. At the same time, theoretical knowledge gained from their teaching in TECSs had been helpful for their engineering profession as well.

Keywords: Instructors' Perception, Teaching Profession, Technical and Vocational Education and Training (TVET), Technical Education in Community School (TECS), Diploma in Civil Engineering

Introduction

Technical and Vocational Education and Training (TVET) provides an opportunity for skills-based learning that aims for improving youth employment. Council for Technical Education and Vocational Training (CTEVT) runs its constitutional schools and also collaborates with affiliated public and private institutes. The TECSs are community-based general schools that also run Pre-diploma and Diploma level programs of the technical stream. TECS, previously

known as annex division, was conceptualized to provide technical education and vocational training to the youth in the premises of general secondary schools through maximum utilization of physical facilities, human resources, and administrative structure of the general secondary schools (CTEVT, 2020). Sharma (2012) stated that it is a collaborative program of the Department of Education (DoE), now known as Center for Education and Human Resource Development (CEHRD), and CTEVT on

the cost-sharing mechanism of the government and the local community.

TECS is a worthwhile program in the context of Nepal as it provides youth opportunities to enhance professional skills regardless of socio-economic and geographical phenomena (Shrestha, 2013). To implement the program successfully, instructors are supposed to be equipped with an academic degree, practical experience, and pedagogical competency. However, instructors are often engaged in classroom instruction without having work experience and instructional competencies (Bhattarai, 2021).

A study related to perception of instructors on effective teaching-learning at vocational education in eight vocational schools in Turkey by Sarikaya and Yildirim (2019) revealed that teaching and learning at vocational schools are affected by instructors' prior learning, practical experience, teaching skills, personal traits, and their professional development. Whereas, the study conducted by Koirala and Dhungana (2015) in Nepal found that salary and benefits were key factors in motivating technical instructors. The study also stated that the part-time technical instructors were demotivated basically with a feeling of professional insecurity, consequently, such schools had high turnover of the instructors. Many instructors did not prefer to instruct in technical school in the rural areas as compared to the schools in the urban area because there were fewer extra opportunities and access for further study. It denotes instructors are satisfied with their jobs in terms of their profession, but they have to be motivated through financial security and professional support as well. Emphasizing the teaching profession of technical instructors of Nepal, Kafle (2007) indicated the lack of availability and retention of well-qualified and trained instructors, relevant curriculum, and instructional materials had been the most striking problems for technical and vocational schools. It can be perceived that in developing countries like Nepal, financial facilities are the prime motivating factors for the technical instructors following their career prospects and pedagogical

assistance.

The instructors feel insecure in terms of their permanency of the job; hence, their retention has been also a major challenge. The outdated curriculum and lack of instructional materials in technical and vocational schools are additional challenges for the instructors. In similar context, Tshabalala and Ncube (2014) stated that the secondary level technical instructors in the rural area of Zimbabwe felt difficulty to apply technical and vocational education and training policy in schools although they had a positive attitude toward the TVET program. Nevertheless, the students and the parents had a negative attitude toward it, hence, many students were enrolled in the academic stream over the technical stream. These findings illustrated the necessity of technically experienced instructors in TVET institutions, and the motivated instructors are to be retained. An instructor in a TVET institution is the key person in teaching-learning. He or she is an active entity who is supposed to be technically and pedagogically competent enough to articulate curriculum in practice, motivate students, and keep a good rapport with the administration as well. However, the area of technical instructors' profession has been neglected, hence such research is needed. This study on instructors' perception of their teaching profession would be beneficial to the TVET policymakers in policy formulation regarding instructors' facilities, criteria on affiliation, curriculum development, and the overall teaching-learning environment. Likewise, this study also contributes as a good source of knowledge for the researchers and TVET institutions.

Literature Review

TECS program has wide outreach to spread technical and vocational education in all parts of Nepal that is a skill development scheme integrated into the general high schools. Shrestha (2013) added that TECS is a viable scheme in Nepal to address poor, deprived, and geographically underprivileged areas because the community schools are in every local government. TECS schools play a vital role in accessible technical and vocational education in

every corner of the country.

Instructors are the key actors of the teaching-learning process, so, their pedagogical skills are to be enhanced. In this context, Kopsen (2014) argued that instructors are to be equipped with their own work experience and competence. It is also perceived that vocational instructors are supposed to portray practical skills; however, the multidimensional aspects of teaching-learning —interpersonal conditions and the challenges of nurturing youngsters with different social practices is important. Students' lack of attention and poor engagement in teaching-learning are the major challenging aspects in technical and vocational teaching. So, the instructors tend to agree more with constructivist beliefs than with direct transmission of belief. The vocational instructors' competency in practical skills and their vocational experience as mentors support teenagers with different personality traits.

Talking about different aspects of instructors' motivation, Chauhan (2017) argued that most of the technical instructors had a lack of decision-making and leadership opportunities. If the instructors are dissatisfied with their job and career, they are likely to quit their job, or become overstressed. Ultimately, it leads to poor institutional results. From the above discussion, it can be asserted that technical and vocational instructors perceive the importance of their professional development to enhance their teaching profession. The challenges result in skill mismatch, instructors' turnover and their dissatisfaction, and poor performance. Consequently, these challenges ultimately lead to poor academic and organizational results. That's why, professional development such as leadership opportunity and participatory approach are other motivational ways for the instructors' retention, empowerment, and effective performance.

In the context of Nepal, the National Education Policy (2019) addressed the requirement of a teaching license system for TVET instructors. It is a notable policy in the TVET system because teaching license

for TVET instructors adds value to their teaching profession that will ultimately foster their profession as well as helps to establish a harmonious teaching-learning environment. The teaching license system pays justice to the teaching profession of TVET instructors as it exemplifies TVET instruction as a distinct occupation from general teaching.

Theoretical Referent

The study on the TECS instructors' perception of their teaching profession is concerned with structural and constructive knowledge, skills, and attitude; hence Lev Vygotsky's social constructivism theory was adopted to explain how a human construct their own perception, knowledge, and skills in social setting. TVET instructors can construct in a dual setting of theory and practice, pedagogical approach, and instructional skills through social interaction in the course of teaching-learning at TVET institutions and workshops. In the premises of the teaching profession, Vygotsky (1978) articulated through the theoretical lens that instructors can construct knowledge, skills, and attitude through social interaction within schools, project works, and professional developmental activities. Likewise, faculty visiting, supporting graduates, and collaborative teaching construct knowledge and instructional skill from their newly constructed beliefs about teaching and learning. Social constructivism theory explicates construction of the instructors' perception of their teaching profession.

Instructors also construct their own perception and develop their capacity with an assistance of a senior instructors. Regarding mentorship and rapport with seniors, Vygotsky's model of learning Zone of Proximal Development (ZPD) was also adopted in this study. ZPD refers to a certain developmental zone that can be achieved only with the considerable assistance of experienced persons. Learners have a certain ability to learn or perform at the beginning, and they cannot reach beyond ZPD in a period (Wass & Golding, 2014). Similarly, instructors also achieve the zone through professional development activities and the assistance of experienced senior staffs. The

teaching profession of TECS can be made effective through participatory interaction among the instructors, mentoring mechanisms as addressed in ZPD, and professional development strategies. TVET instructors can also construct new knowledge and experience in the course of teaching, work-based learning and interaction with the students and society. In this way, with the assistance of seniors and colleagues, TECS instructors also develop their profession.

Methods

Narrative inquiry is not only the chronological sequence of unfolded events by the storyteller but also a non-chronological dimension (Jovchelovitch & Bauer, 2000). Since the purpose of the study is to explore the instructors' experience in their teaching profession, narrative inquiry best fits as a method in this study. Narrative inquiry is a method that starts with the experiences expressed by the individuals. It is a process of reporting personal experiences chronologically ordering the meaning of experiences (Creswell, 2007). A narrative inquiry was adopted as it best served the purpose of our study which is to reflect the stories of our participants through a semi-structured interview. Their personal stories were transcribed and meaning were drawn in form of a story. Among the four selected participants, Participant A and Participant B both were civil engineers and male instructors from the same school. Whereas Participant C was a male instructor and Participant D was a female instructor from another school.

A narrative analysis consists of collecting personal experiences using interviews or through conversations; reciting their experiences based on narrative elements; and rewriting their experiences in a chronological sequence and integrating the participants' settings (Creswell, 2007). To meet the purpose of our study, interview and field notes were adopted as information generating techniques. The instructors' interview was taken in their settings and their personal sharing was transcribed into a meaningful story.

In this study, a semi-structured interview technique was applied as the information and knowledge-generating technique. To frame the instructors' perception of their teaching profession into a meaningful story, the semi-structured interview technique was relevant. "One of the most common ways of generating qualitative data is an interview" (Dwyer & Emerald, 2017, p. 12). Interview guidelines were prepared especially focusing on the research question. The interviews took place at participants' comfortable and convenient times. Mobile phones were used to record the conversation during the interview with their consent. Field note was also used while generating information. It was helpful to note down some of the information from the conversation during the interview.

The audio recordings of the participants were transcribed. Similarly, the themes were generated to illuminate their meaning based on the research question and literature review. The narration was interpreted in non-chronological aspects of the events to portray coherence and meaning to the narrative. Since the subject matter of the purpose did not demand chronological events of the instructors, nor information was of a particular event, hence, their stories had been narrated in a non-chronological way.

"A narrative researcher is in a dual role—an intimate relationship with the participant and a professionally responsible role in the scholarly community" (Josselson, 2007, p. 538). At first, consent from the TECS and the instructors were sought. Secondly, enough information regarding our study purpose had been provided in advance so that they could decide whether to participate or not in the research. Since the narrative inquiry is concerned with human emotions, we were concerned and emotionally responsible to espouse the principle of no harm and no risk. Pseudo names were used to consider the sensitivity of disclosing personal, sensitive, and implicit information affecting the personal identity, schools' prestige, and instructors' professional career.

Interpretation

Talking about the teaching profession in TECS, Participant A enjoyed teaching. He had been a student of Diploma in Civil Engineering under CTEVT in 2000. The teaching profession is an avenue of knowledge for him because teaching provides a theoretical base to his practical works in the engineering field. According to Participant A, engineers focus on practical works, they lack theoretical knowledge. Being an instructor for civil engineering, he was able to update the content as he had to be prepared before going to the class. So, Participant A added that teaching profession benefitted him academically and technically.

Teaching made Participant A laborious and updated. Since the school was near his home, he could utilize his morning time there. It means he was happy because he could earn extra in the morning by teaching part time in some other organization. Technical education stream in his school was in a separate building apart from the general stream. So, the participant felt that the teaching job in the school was secure and interesting. Because of a separate building for a technical stream, there is no issue related to differences between general subject instructors and technical instructors. The school is perceived as a technical school; so, being a technical instructor, the participant expressed his happiness and excitement. As Participant A expressed, if a school has a separate infrastructure for technical stream, the instructor feels comfortable. He argued that people compare the teachers from general and technical streams if both of them are run together in a premises. In the course of teaching technical subjects like Diploma in Civil Engineering, he got a theoretical base for his engineering career. He also provided examples from his practical works during the classroom and workshop instruction. Since he could update his knowledge and achieve a high level of satisfaction, he took the teaching profession as a prominent profession.

The other instructor, Participant B was also very happy with his teaching profession. He was also a

student of Diploma in Civil Engineering. He was a part-time instructor. Regarding the benefits from teaching engineering courses, as a civil engineering practitioner, he stated that he was only doing a part-time job. He recalled lots of content as teaching for civil engineering course made it easy to apply theoretical knowledge in the profession and vice versa. He preferred teaching as a good source of knowledge and experience. He shared that he was also offered a job to teach engineering course in another technical school. So, he seemed very happy with the teaching profession at TECS. However, he did not take the teaching profession as a secured job. Given the scenario of remote villages, he said that experienced engineers would not go there because there would not be other opportunities except teaching. He was happy with his teaching profession at the TECS in the contemporary condition. For him, teaching in the TECS was interesting because his school had a separate infrastructure for the technical education stream, From Participant B's point of view, the teaching profession in TECS was good in city areas, however, he did not perceive it as a secured job in the context of rural area. He perceived it was not good in remote areas due to lack of other financial and academic opportunities.

Nevertheless, the third instructor Participant C did not perceive the teaching profession as a good profession. Since the technical education classes also ran in the same general school building, he expressed inconvenience because the school administration had paid very little attention to the technical program and the technical instructors. He showed dissatisfaction with the behavior and response of the school management. He uttered aggressively that they were not getting the same salary, grades, and facilities as the general stream teachers. Moreover, most of the demands of the technical education stream were also overlooked by the school management. He argued that the school management, the parents, and even the students were treating instructors teaching in technical education stream as low-graded. Participant C also expressed that they felt inferior due to this. He complained that a large

number of local people do not know about the technical education. He argued that the school did not have any strategy to motivate the technical instructors neither did they receive equal salary and grades as general subject teachers nor professional development programs. Overall, he was not satisfied with his teaching profession

The last instructor Participant D had quite a different perception of her teaching than that of Participant C. Without any plan she entered the teaching profession. According to her, the teaching profession is better than other professions. She explained the reason that she could apply her prior learning in teaching. Similarly, she also learned teaching techniques as per the different traits of the students; and she got some opportunities to participate in trainings and seminars for her professional development. She also perceived the teaching profession as a milestone of knowledge creation as other participants expressed. As per her statement, a technical instructor needs to have both academic qualifications and work experience. However, she also complained about the different behaviour from the school management between general subject teachers and technical instructors. She expressed her dissatisfaction that she was not getting equal salary as the general stream teachers, nor was there any grading scheme for the technical instructors. Taking reference from the other instructors' statements, she also uttered that the school management regarded the technical part of the school inferior than the academic one. She also was reluctant to teach in villages because there were neither good instructors nor sufficient tools and equipment in technical schools. Nevertheless, she praised the support from the coordinator and colleagues.

Mentoring plays a vital role in professional development and career growth. She started teaching collaboratively with an experienced instructor where she was supported and mentored well. She said she was able to become a good instructor with the support of the coordinator, senior instructors, and colleagues. A collaborative effort can help solve the problems

and keep people retained in the profession.

In a nutshell, teaching profession in TECS provides theoretical knowledge for Participant A's engineering profession. He uses his morning time for teaching as the school is near, and he has built a good relationship. From the perception of participant B, the teaching profession is an emerging profession that keeps them updated. However, he does not take the teaching profession as a secured job. Participant C's school is also near his home. Though teaching is his primary profession, he expresses his dissatisfaction and uttered that he neither gets the government salary scale nor grades. He also doesn't feel respected in the job. On a different note, Participant D finds the teaching profession better than other jobs since she can use her prior knowledge and she is learning teaching techniques in different phenomena. Being a mother, local resident, and having good rapport among TECS staff, she is happy in the school.

Unlike general school, TECS needs to look like technical schools as expressed by the participants. When technical program is in the same premises of the general school, instructors feel inferior to the general stream teachers. Participant instructors took teaching as an exploration of their prior learning; however, they were happy to teach near their homes as they could make the teaching profession as a secondary profession. They were happy to teach in urban areas as they were doing extra earning works and getting instructional facilities which were difficult to attain in remote villages. Likewise, professional development, good rapport and acknowledgement also help create positive perception of the teaching profession. On one hand, the participant instructors were found to be satisfied in teaching in TECS as they had been teaching for a long time; on the other hand, they were reluctant to perceive teaching profession as a primary profession due to lack of financial security and social perception towards TVET education and TECS instructors.

Discussion

As highlighted by the participants, TECS instructors perceived their teaching profession in different aspects. Instructors' perceived teaching profession as an avenue of knowledge, however, they were reluctant to teach in remote villages. On the same note, Koirala and Dhungana (2015) portrayed that most of the trained instructors do not want to teach in rural schools due to remoteness and lack of opportunities. They are not provided necessary teaching materials as well. The instructors in this study were also found earning extra income as they are inside the Kathmandu valley and the TECSs are nearby their homes.

Regarding facilities and grievance handling, Participant A and Participant B seemed motivated as they uttered that the school fulfilled whatever they had demanded. They also revealed that other technical instructors were also happy with the cooperative and supportive behaviour of their colleagues. There was a separate building for the TECS program in the first school. That was another reason for Participant A and Participant B to be happy and there was no issue related to general education teachers and technical instructors. On the other hand, the technical education is conducted inside the same general school in the second school. Participant C and Participant D were not paid equal salary and facilities as compared to the general subject teachers. Koirala and Dhungana (2015) also stated that the instructors felt their salary and benefits were not adequate to support their families. Likewise, Gameda and Tynjala (2015) also revealed their participant instructors' perception that they were discriminated against remuneration. The instructors were not only receiving less salary than the general subject instructors but also less in comparison to other professions.

In the context of Participant D, being a mother and having her job near her home, she perceived the teaching profession in the TECS better than other jobs. Though she was not happy with the school management, she was satisfied in the school because

there was a harmonious relationship among TECS instructors and staff. She was not only applying her prior knowledge in her teaching but also constructed a skill for teaching effectively despite the different levels of students. It was possible due to collaborative effort. With reference to Vygotsky's social constructivism theory, learning is enhanced through social interaction. According to Vygotsky (1978), the practical intelligence of humans and animals is different in such an aspect that humans are capable of reconstructing their perception. Humans can master their attention through an indicative function of words and are able of creating new structural centers in the perceived situation. In Vygotsky's opinion, social interaction through participation in collaborative activities provides learners with the intellectual development of the attitude and the world, when they get a more skilled person (Bozkurt, 2017 as cited in Rogoff, 1999). In a similar way, Participant D constructed teaching skills and knowledge with the assistance of the senior instructor and the coordinator. Similarly, Participant D's experience can be exemplified through Vygotsky's Zone of Proximal Development (ZPD) concept that is a certain developmental zone that can be achieved with the considerable assistance of the experienced person. Persons have a certain capacity of learning at the beginning, and they cannot reach beyond ZPD in a period (Wass & Golding, 2014). Mentoring is necessary for professional growth and for good rapport as Participant D expressed. As pointed out the challenges by Kafle (2007) there is a lack of retention of well-qualified and trained instructors in TVET institutions. Senior instructors have to train or mentor junior instructors to reach the zone of proximal development. Likewise, as the instructors narrated, well-qualified instructors are to be retained through justifiable salary and benefits as well as good rapport.

On the same note, though Participant C was also in the same TECS, he was found unsatisfied. His voice was not heard. Technical instructors were treated inferior than the general school teachers in terms of salary and benefits. Participant C also had a complaint

that the school management did not respond to their demands. As he informed, they had not managed an in-charge and office helper for the TECS. Likewise, he did not get any chance for professional development or refreshment activities which are a major component to reinforce the staff towards teaching and learning. Shah et al. (2012) also concluded the similar result that instructors' participation in the decision-making process and performance recognition can make them more reinforced and enthusiastic towards working in the institution. Instructors can participate in the decision-making process and their performance is to be recognized to motivate them toward teaching-learning. And they will take the teaching profession as a prime job and feel proud of being a technical instructor in the TECS.

Instructors' perception is affected by the infrastructure and behavior of school management. The technical instructors were happier when a separate infrastructure was there for TECS apart from the general school. They perceived positively among all the staff and the school management and did not feel discriminated. On the other hand, technical instructors of those TBCSs were not satisfied where the TECS program was in the same building as the general school. TECS instructors were found to be happy when they could apply their prior knowledge in teaching.

Conclusion

Diploma in Civil Engineering aims to prepare middle-level workforce in the engineering field. Competent instructors implement knowledge and skill actively. Their positive perception of the teaching profession motivates students and maintains a healthy teaching-learning environment. Teaching in TECS is avenue of knowledge production and dissemination. Instructors can implement their prior knowledge and skill; gain theoretical foundations for their profession and learn to deal with different levels of students and colleagues. Instructors' retention produces positive outcomes regarding students' result and their motivation.

TECS can have a separate infrastructure apart from the general school to have a technical school influence. Technical instructors of TBCS are motivated when they are paid equal remunerations and get recognition like general school teachers; when there is a technical teaching-learning environment; good rapport among management and colleagues; extra income opportunities; and ample opportunities for professional development.

Instructors' positive view toward their teaching profession contributes to the classrooms and in the workshops. As the instructors are key stakeholders of education system, they are to be motivated as expressed by the participant instructors. This study contributes knowledge to the TECS to maintain equality in salaries and facilities to both technical and general subject teachers and keep a good rapport. It also provides insights into promoting the program and creating a technical impact of the school in the community.

This study could be beneficial to the future researchers to explore different aspects of TECS instructors. This study only attempted to narrate the participant instructors' perception on their teaching profession in Diploma in Civil Engineering program in TECS using the semi-structured interview. Their experience in curriculum, pedagogy, teaching-learning environment, and work-based learning are the new areas of the study for the future researchers.

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Use of Mobile Application for Communication, Interaction and Learning: Lessons from an Action Research

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Abstract

Integration of mobile technologies into training and instruction for learning facilitation is important these days. It is because the users of the mobile devices are increasing as enablers of the learning opportunity anywhere all the times. In addition, learners like to get information, learning resources and activities on their palms via mobile devices. In this context, this paper reports lessons from action research about the use of customized android mobile application at a teacher education institution in Nepal. The research started with the purpose of promoting the use of Mobile App for e-learning that contributes to improving access to e-learning resources and instant communication for course activities. Online survey, informal interaction and interview were used to collect data. Activity theory has been influential to analyse the use of Mobile App for the learning facilitation. The research shows that the course facilitators rarely used Mobile App, instead they liked using web browsers in their large computer screen. However, students used the Mobile App and they wanted the updated version with user-friendly interface. Main lesson from the research is that the roles of institution and facilitators are important to create and provide mobile friendly options of learning facilitation where students themselves can explore in the internet, learn, and use available applications and tools required for their learning. Training institutions can introduce mobile application to bring about a change in the ways of training methods and pedagogical practices with technological interventions. Trainers can consider mobile apps for techno-friendly instructional experiences. Also, learners can access mobile apps for training resources and other learning to enhance their knowledge and skill.

Keywords: Mobile App, Activity Theory, E-learning Platform, Action Research, Communication, and Interaction, Connectivism

Introduction

“Mobile devices have become ubiquitous, and both smartphones and tablets offer so many new possibilities for learning” (Aberdour, 2013, p. 1). In

the context of technological evolution, it is important for a teacher to be involved in various research-based practices considering Information and Communication Technology (ICT) as catalyst for

educational innovation. Especially in mobile learning, it brings opportunities like, 'anywhere, anytime' learning, reaches underserved learners, improves the twenty-first century social interaction, fits with learning environments, and enables a personalized learning experience (Shuler, 2009 as cited in Pachler et al., 2010). Reflecting on this fact, I wanted to involve myself in a research to explore the use of mobile application for e-learning at a teacher education institution where teachers have been using web-based platform to deliver their courses since long and teachers are familiar with the use of different web tools for teaching and learning through learning management system (LMS) namely Modular Object-Oriented Dynamic Learning Environment (Moodle). In the institution, use of online resources and activities for teaching and learning has also been increased. However, use of the mobile application was not the formal concern. Therefore, I as a teacher interested in using ICT in education, personally worked to customize the Moodle Mobile App for android devices and placed it in Google play store so that other teachers and students of the institution could download and use.

The mobile application I customized was freely available to download from the Google Play store. However, after a month, I noticed that only thirteen people downloaded the App and was active in four devices. This situation warned me to question on usability of the App. Therefore, I thought to conduct an action research to find out the existing problems and take necessary formative actions. I personally assumed that one of the main reasons for the small number of users might be due to lack of information among the users (students and teachers) about the availability of the apps at the Google play store. I also assumed another reason might be due to the lack of orientation or training to use the App. Hence, I decided to conduct an action research with the purpose of promoting the use of the mobile apps for e-learning at the institution. Promotion of the app was considered as it would contribute to improving access to online learning platform and increase course communication between course facilitators and the

students enrolled in the course. To meet the purpose, the study tried to answer the following questions: 1) Why do students and teachers use e-learning Mobile App very less? 2) How can we promote the use of Mobile App for improved access to online courses and course communications?

E-Learning mobile application was available to promote engaged learning, improved access, and effective communication. Therefore, the research was an action towards maintaining improved access to online courses through mobile pedagogy. As all students and teachers of the institution own a smart hand-held mobile device, both the students and teachers would be benefited directly using the apps in different ways such as course access, synchronous or asynchronous communication, downloading/uploading teaching and learning resources or activities from anywhere anytime. In addition, this action research had been meaningful to find the existing problem and take formative action to introduce mobile learning pedagogy contributing to greater access to e-learning platform and improved communication. Most importantly, students in online or distance learning mode have better option to access online courses (Pangeni, 2016) using the Mobile App.

Method of the Study

Study was conducted in a leading teacher education institution in Nepal. The institution was purposively selected for the study where teachers had been using web-based platform to deliver their courses since long and teachers were familiar with the use of different web tools for teaching and learning through Moodle based LMS. However, mobile app was not formalized as stated in the previous section. Therefore, I customized an app based on the LMS of the institution, placed the app on public repository of Google Paly Store and conducted this study. This study was completed following four steps of actions in a single cycle (plan, act, observe and reflect). Purposively selected teachers and students (who were active in the e-learning system) were involved in the major events of the research such

as survey, interview, training/orientation, research related communication and testing the updated Mobile App. Google survey was distributed to a total of 125 respondents: 24 teachers and 101 students. However, only 10 female and 38 male, total 48 (11 teachers and 37 students) responded to the survey. Then, the focus of the study was placed on those respondents who replied to the survey. In addition to the Google survey, I conducted group discussions with 10 students and personally interviewed 5 teachers. The students and teachers were purposively selected to ensure that they were actively using the LMS. To orient teachers about the App download, install/setup and use, an email with written note was distributed via messaging function embedded into the existing e-learning system. Maintaining the research ethics of confidentiality, name of the institution, teachers and students are not mentioned in this paper. Teachers are represented as T1, T2, T3, etc. and students are represented as S1, S2, S3, etc. The language used for data collection (survey, group discussion and interview) was English as it was the means of communication in the selected institution. Therefore, language used in quotation marks are as it was collected.

Data Presentation, Analysis and Findings

Findings from the initial inquiry (before action intervention) are presented here in different themes and sub themes as emerged from the data obtained through personal interaction and interview with selected research participants. In addition, text and other information received from the survey are also included.

The App was Less Used by Teachers

T1 lately knew about the e-learning App, he has downloaded but has not gone through the App. Instead, he said, *"I am using e-learning by web"* (T1, Interview). Likewise, T2, T3 and T4 all stated that they know there is a mobile App for e-learning, but they are not using the App. However, all of them agreed that many of their students use the App. On the other hand, T5 said, *"I know, there is a mobile application for e-learning and I am using the App*

for quick access" (T5, interview). In addition, one of the students participating in survey said, *"I feel more comfortable working in the computer, typing the assignments and all. The App could come in handy to stay in schedule with due dates and presentation schedules"* (S1, Survey).

Interview data presented above demonstrates that all the teacher participants of this study are aware about the existence of the Mobile App for e-learning. However, only one teacher has been using the App. Survey data including both students and teachers shows that 33.33% of the respondents do not use the App. They have given the following reasons for not using the App (n=16): does not have android phone (4), no one asked them to use the App (9), missed orientation session (6), unable to install the App (2), and unknown about the App location (8). After the survey, for those who answered that they are not using the App, App download URL link was provided and they were requested to download, install, use, and write comments if any along with a brief note, *"If you have an android device (phone or tablet), please go to the following link, download the App, install and use. Also provide your initial comments"* (Note, Survey). In doing so, the concerns presented above would be solved except for the concerns presented in first and forth point.

A teacher highlighted the need for promoting mobile use, *"yes, we must promote Mobile App for e-learning for two reasons a) Timely response on the students' submission, and b) Timely communication/feedback to the students"* (T2, Interview). T2 also stated that he does not know whether students keep the Mobile App in their mobile or not because he has never asked and checked. T1 has been using e-learning via web browsers from a computer but not from a mobile device. But he knows that his students had downloaded the App, participated in communication, and submitted assignment. T4 also prefers using e-learning from his computer not from the mobile devices, *"I don't use the App because I don't need it. I am using e-learning in my computer. I do not have passion to see the small screen of mobile phone.*

I am comfortable with my 18-inch computer screen” (T4, Interview). Here, the small screen of mobile phones has been raised as the problem. So, T4 suggested developing a desktop App similar to the mobile App so that it can be viewed in the big screen. However, the problem related to the size of the screen might be a personal preference. Also, it is notable that laptops and desktops are not useful ‘on go’ for instant messaging, calendar view, and notifications.

T5 who mostly use the App said, *“I downloaded the App and currently using it to keep track of my student’s assignments, view information, notices, and courses; note what has been done by student* (Interview). T5 also prefers uploading resources and downloading assignments on his laptop or desktop. He uses the Mobile App for instant messaging and to give notification about student’s submission and due dates of assignments.

From the above data presentation and interpretation, Mobile App is mostly used for instant messaging and notification instead of handling heavy works such as downloading and uploading resources and activities. Also, the screen size matters to view things comfortably.

Difficulties of Using the App

Difficulties/Challenges of using the App have been expressed in unusual ways by the teachers. A professor compared his own limitation and the limitation of mobile device and concluded, *“I rejected in initial time to apply Moodle. That time, I thought it is my weakness but now I understand such psychology that it is not my weakness it is the generation’s weakness”* (T1, Interview). He was indicating to the new generation that are friendly with the internet technology. Likewise, T2 does not use the App because he possesses classical version of the mobile device that does not support the App. However, sometimes, he uses an i-pad which does not support android application.

T3 also does not use the App because of the limited functionalities in his device. He owns two devices;

one is small with limited functionality and the other is a tablet which is rather big and difficult to carry. He also said, *“those who have small mobile phone feels uncomfortable to read the text, so videos and audios are suitable for all”* (T3, Interview). However, most of the course resources currently provided via e-learning platform are text based. The major problem indicated here is the small screen of the mobile handsets.

Opportunities of the App Use

Despite few challenges/problems as presented in the previous section, teachers agreed that the e-learning App is especially useful to them. Justifying the usefulness of the App, T1 said, *“we have got a chance to be in touch with the course from anywhere. It helps us to be updated with the modern technology related to our profession”* (Interview). He further added that mobile technology is really an innovation for allowing greater intensity of interaction with the content and the students. Likewise, one of the students responding to the survey said, *“App is especially useful to make us alert with notifications about course activities, deadlines, submission, messaging and feedback from teachers. It also helps us to get in touch of learning technologies”* (Survey response). Although T3 does not use the App, he encourages his students to use it. He highlighted the benefit of the mobiles stating that students can use earphone and listen to the uploaded audio and video-based learning materials even while travelling by bus. In addition, it is also possible to change the text into speech and listen, *“In my view if we upload audio and video of classroom teaching activities it will be helpful for those students who cannot attend their classes”* (T3, Interview). At this point, it is important to note that audio/video materials would be better than text for the use of mobile Apps.

Research interaction with T4 has provided an unique insights that there are different people with different interest, and students from remote places have problems to use computer and laptop, so they feel text are easy for their mobile that are connected to the Internet with GSM data. However, T4 said, *“for*

a person like me who uses 24/7 high bandwidth Internet via cable or Wi-Fi, desktop or laptop is comfortable. In this case Mobile App may not be necessary" (Interview). From the statements of T4, connectivity concern and comfort of device use is noticed. In the remote places, mobile is preferred for GSM data use and in the urban cities, high speed wired or Wi-Fi Internet is available so desktop or laptop computers are preferable.

Arguments of T5 demonstrate more benefits of the App uses. He pointed out three major benefits: 1) mobile is preferred as its use is ubiquitous; 2) Mobile App is good for instant notification on assignment submission and messages from students; and 3) official notices or course communication becomes quicker from Mobile App use. All three points are useful however, T5 has not been using the App for uploading resources, grading, and making interactive learning activities. I personally noticed that the Mobile App does not provide robust tools for teachers as compared to the use of LMS site in desktop or laptop computers.

Suggested Ways Forward

As experienced by T1, the generation who think of mobile only as a toy are now in college and school level. They are not in post graduate level. It means we still do not have technology savvy students in our Master's degree programs. Therefore, T1, recommended conducting mobile orientation, entertaining activities to use Mobile App with technical support. He, further stated, *"people reject using Moodle if the use is not entertaining and user-friendly"* (T1, Interview). This statement points out to the need of user-friendly design of the application and its usability to motivating through entertainment. E-learning also has been considered as an additional work load for faculties. In this regard, T2 said, *"in online, face-to-face and many other programmes we are busy. So, workload division is important"* (Interview). Showing his own desktop computer, T2 further said that he was responding to more than thirty emails a day. It was an indication of his busy schedule and time management to be considered as

an important aspect. Taking work with e-learning as an added workload, he further stressed on the need of prioritization, *"we must think which work is of priority, how much time should be given to which work and why should we give priority. In this case our online learning/e-learning is not given priority"* (T2, Interview). T2 further argued about the need of mobile application to be customized for desktop to maintain uniformity in usages with different devices.

Talking about the use of mobile application, T3 pointed to the need of App friendly resources and activities. After making the App friendly materials, students need to be encouraged to download and use the App. In relation to the promotion of the mobile application, T5 suggested to make a compulsory reflection/discussion hour within every class and request students to write reflection of the day about the use of mobile devices for learning. For example, if class ends by 7:30PM then, the teachers should conclude the class by 7:10PM and allow 20 minutes for students to write the reflection of the class via their mobile phone. However, high speed internet is required in each class for such activities. According to T5, the activity has two sided benefits: first, students learn to summarize their understanding through daily reflection, and second, they use mobile application. Teachers can also instantly check submission, write comments, and provide feedback.

Analysis of Survey Responses

The responses from the participants who are using the App had been the important concern. Those who are not using Mobile App among 48 respondents are also valued and their concerns are analysed. One of the essential information about the App use has been the respondents' ownership of mobile devices by its type (Smart/General). In this regard, survey with n=48 shows, 93.8% are using smart mobile devices and 6.2% are using general mobile devices. Likewise, another concern of the survey was on the responses from the respondents who used and who did not use the mobile application. In response to this concern, 66.7% respondents reported that they are using the App and 33.3% responded that they are not using

the App.

The survey had a multiple response set of questions on the purpose of the App use (n=32). The primary purpose of the App use was to view course (94%), view notifications (84%), and submit assignment (72%). The purpose of the App use for communication was very low (9%). Likewise, contact list management and communication (13%). Other purposes of the App use were to: view site news (63%), download course for offline use (50%), view the assignment due date (66%), mark the calendar event (66%), view grades (66%), and upload the private files (41%).

In an open question, *"Please write down the comments about the use of the App (pros and cons)"*, survey respondents replied as follows: 1) **Advantages:** Best to find all aspects in a single App, friendly to use, makes whole course downloadable, easy for offline use, useful and applicable for anytime/anywhere users, easy to learn about course and other information, professional and keeping users in touch about course and notification, saves time, fruitful to use course material without searching in vast Google, informative and detail provider, promotes ICT skills, an innovation for allowing greater intensity of interaction with the content and the students, quickly accessible, handy use in mobile, better opportunities to be intact with course and assignment deadlines. 2) **Disadvantages:** Time taking to first load, some functions do not work offline, hard for novice user, difficult to be familiar with the study materials in the App, course view is mess and inconvenient, sometimes App does not respond, servers are frequently down causing problems, better only for reading not for submission and other activities.

There are more advantages than the disadvantages. Main recommendation is about the mobile App update with new features. It means when more new features are added with App updates, most of the disadvantages would automatically be addressed. Likewise, upgrade of Moodle system would also help to maintain stable service of e-learning.

Interventions

After analysing the survey and interview data obtained from initial inquiry, the following actions were carried out:

LMS Upgrade

Students and teachers pointed out the need to update the LMS system. Therefore, as part of the intervention, outdated version of the LMS 2.9 was replaced by the latest version 3.5 and made necessary update of the Mobile App options into the web App of the LMS. The outdated version 2.9 had limited features and was not compatible to the mobile application. Latest version was available with new features related to the mobile application. Using the new features such as mobile settings, mobile authentication, mobile appearance and mobile features, admin can customize the official Moodle Mobile App too.

Features in the latest version of LMS for mobile settings are useful to provide customized tools directly from the web to add user-friendliness. Changes made in LMS do not require local update of the App. For example, if custom menu items are added from the LMS website, these added menu items are seen by the Mobile App users without having to update the Mobile App.

Mobile App Update

Some students and teachers requested to update the Mobile App to make it more user-friendly. The demand of the users was to make the iconic things more visible and directly accessible. Therefore, an attempt was made to update the Mobile App that was initially customized. The App has been updated and made available to download directly from the LMS site. There is a link to download the updated version of mobile application file.

Home Screen: In the previous version, course search, course categories, site news and collapse menu icon were hidden. In the latest version, there are many icons on the home screen of the App. Collapse menu has been removed. Icons for home, calendar,

messaging, notification, and many more menu options are labelled at the bottom of the App home windows. Such an appearance makes it easier to access the features in the application. Users need not search for menu items from the collapsed form. They can directly click the icon and use the essential features. Updated App users can now easily find the difference between the old and new App. However, users of the new App need to click the vertical three dots for more menu listing. In new App, home screen has a scrolling option to view the site home, courses, and timeline – displays after pressing arrow (→) sign. In site home there are three main options to search courses, course categories and site news.

Calendar: Users can find a calendar icon on the taskbar at the bottom of the App window. This icon was hidden on the menu drawer in the previous version. It must be easy for students now in the latest version as it appears when the users start and load the App home. In the calendar, students can view assignment deadlines, course events and school's activities if that are set by admin. Teachers are also able to view the course calendar and system calendar for activities they have set for students and themselves.

Notification: Users can find notification as a bell icon indicating the number of new notifications highlighted. This icon is placed on the taskbar at the bottom of the App's home window. This icon was hidden on the menu drawer in the previous version. Now, it must be easy for students in the latest version as it appears when users start and load the App home. In the notification, students get notification of new assignments, deadlines of assignments and all other course activities, grade, and feedback. Teachers get information about student's submission of activities. Students are also notified about all course updates via notification. Site news, forum update or post, message from teachers or admin etc.

Messaging: This is an option for the App users to interact with each other in online or offline setting. Such interaction may also take place as real-time chatting. It can also be used as private communication

tool between users. Using the messaging tool, App users can create list of contact and initiate communication. One to one and one to many communications between users are allowed by the system. App users can be searched for communication if they are registered in the same course. To start messaging, its icon placed on taskbar at the bottom of the App window can be pressed. This icon was hidden in the drawable menu in the previous version of the App. As it is brought in the front, it must be easy for users to use the tool in the latest version directly from the App home. In the messaging, students, teachers, or admin can send offline messages to each other. If they find someone online, they may hold real time chat. However, such chat would be text based. Messaging tool is linked to notification for new message alert via the notification area. Users can see notification on their mobile screen and press view to read the message. Notification setting must be localized before using the tool in customized form – type of alerts (ring, vibration, silent), types of message (course update, assignments, calendar activities, or message).

Courses: In this menu, users can find the list of enrolled courses. If they want to view other courses, they must go to the course categories or search courses with short name or any word that matches to the title of the course. However, users can not view the course if they are not enrolled in. Courses can be downloaded for offline use. The downloaded courses will consume storage of the mobile device. In this option, students can view section wise course contents, course summary, and download sections or whole course. Icons and appearances are arranged to make user friendly navigation. Users of the App can find courses by scrolling the tab where the home icon on taskbar at the bottom of the App window. Navigation to enrolled courses was hidden on drawable menu in the previous version of the App. Now, after the update, it must be easy for users as it appears at the front of the App home. Navigating to the courses, users can find, contents, participants, and grades, competencies, and notes. These items are arranged on the header scrolling menu signed

with arrow. After selecting a course, users can go into the course section to view content where all reading resources and learning activities can be viewed, downloaded, and uploaded.

More Menu: In addition to the directly accessible menu items, there are more menu items under the vertical three dots. Users can find more menu icon on taskbar at the bottom of the App window. There was no such menu icon in the previous version. This has made it easier for the users to access additional menu items and options while using the App. Underlying menu items within the more menu are user picture and name which can be clicked to access user's profile in detail. Likewise, grades, my files, and other menus customized via web App are available here. Log out option is also placed here. Users can change their profile picture here. Course wise gradebook access would be displayed if the menu "Grades" is selected. In this display, e learning admins may add as many menu items as they like from the Moodle server admin.

Finally, the mobile App user manual was also developed to guide users to follow the process of using various functionality with illustrative examples presented with screenshots.

Testing App Functionalities

After updating the App, two students and a teacher (users of the old App) were requested to test the functionalities of the new App. The request was sent by messages via e-learning site and personal email. Summary of the data received from the App testers is presented here: easy to browse course content even if there is no internet connection; easy to get quick message and instant notifications for deadlines and calendar events; good to find friends quickly and contact them for communication in course related matters; useful to upload different kinds of files from mobile device; supportive to track progress in enrolled courses, mark completed activities and search for learning plans; quiz attempts, wiki editing, and forum post are easy; good for students to view their grades and stay update; offline learning experience is

enhanced; navigation and user interface is friendly to explore things in small mobile devices too; performance is improved; and the best thing in new App is group messaging and messaging control.

Discussions and reflection

It is true that the "use of ICT in education has brought new possibilities for learning online" (Pangeni 2020, p.26). The online learning platforms are responsive to the mobile devices for ease of access and use. Mobile learning provides opportunity to connect learners through "engaged, collaborative, distributive, integrated, and evaluative models, all of which combine to produce a profoundly connected learning experience" (Rankin, 2009 as cited in Hamm, Drysdale, & Moore, 2014, p. 6-7). Discussion here is based on literature and theory on mobile use for learning. In addition, personal reflections are also included.

Use of Mobile for Learning

These days, all learners coming to higher education and training possess mobile phone and they can use the device to collect photographs, video, and audio where appropriate for field visit and other use in study (Borchert & Slator, 2014). Likewise, Students and other people want to perform work, study, and play all times and everywhere. Such reality has been transforming the ways of education resulting in the 21st century pedagogy for mobile based learning (Hamm et al., 2014). These authors also suggest that higher education institutions require to follow a definition of mobile learning that enhances institutional strategies to integrate mobile learning technology in practice. Thus, using the Internet connected desktops computers at learning centres and personal mobile devices such as tablet, laptop, and smart phones, students and teachers get plenty of teaching and learning resources through online platform. Physically, such facilitation is hard because of limitation of physical libraries. Especially, mobile learning is an opportunity that allows accessing multiple e-contents format such as audio, picture, text, video, etc.) any time, any place (Bejjar & Boujelbene, 2014). Yet, in the context of my current

study, it is necessary to develop appropriate guidelines or orientation for both the teachers and students about the use of mobile phone for learning and teaching.

Therefore, it is essential to know how teachers or institutions can assure the use of mobile apps for various academic uses. For example, mobile use for access to other learners, systems, and devices can help recognize and evaluate information and process the information to achieve their learning goals. Most importantly, use of the mobile application allows ease of access to e-learning an alternative method to pursue education and continue learning even in the unusual times like COVID-19 pandemic (Pangei & Karki, 2021).

Mobile Apps for Course Communications

Along with the development in ICT, mobile devices including Tablet PC and smart mobile phone sets have been handy tools for instant communication. Improvements in telecommunications networks, the decreasing cost of access and the ubiquity of mobile phones as potential tools for mobile learning represent areas for further development in online, blended, and mobile learning as tools of teacher education (Mâta, 2014). On the other hand, "mobile learning is one reflection of the ways in which emerging technologies have become an ambient expression of technology in the ethos of our lives" (Hamm et al., 2014, p. 15). Therefore, these days all web platforms are responsive to mobile devices. There is an official mobile application available for Moodle users too. Student with any kinds of smart phone can download and install those apps from concerned application store. After installation of the software, teachers and students can access their courses using their login credentials and universal resource locator (URL) of their institutional learning platform based on Moodle.

Theoretical Bases for Learning with Mobile App

Learning context with Mobile App is technologically mediated. To analyse learning situation in the context of technology, connectivism has been proposed by

Siemens (2004) and Downes (2005). The theory describes how learning takes place in digital age and guides the process of material development for instruction in networked world based on the contribution of modern technologies. Information in the networked world through the Internet is complex and the growth of web technologies is exponential. Therefore, connectivism is proposed theory as "a learning theory for digital age" (Siemens, 2005). Essence of the theory of connectivism lies on need of instructional design that focuses on creating interaction in between human and machine. The theory has a principle that desires nurturing and maintaining connections for facilitating continuous learning. In this study, the theory was applied to see whether mobile app helps teachers and students in maintaining the connection for continuous learning. As the app used in the study provides tools for human-machine interaction leading to meaningful learning, the essence of connectivism is well reflected through app-based design of learning facilitation. When peers of learners are connected and share opinions, they learn through collaborative process (Siemens, 2004). This is possible in the context of mobile app use as it has discussion forum and chat like tools to bring learners together.

Likewise, activity theory is also preferred as an appropriate theory to evaluate, analyse, and explain technology mediated learning. "Activity theory can be applied to settings involving the use of technology in higher education" (Scanlon & Issroff, 2005, p. 433). According to the theory, in this study, subject (student) in pursuit of achieving object (task for learning), manipulated tools (mobile App) following the rules (proper actions) set for the community (among students and teachers) with appropriate division of labour (instruction for learning) (Blunden, 2012). Thus, the result of activity has been the outcomes (engaged learning) or satisfaction of the subject (student). When we view the context of Mobile App use for learning from the perspectives of the activity theory, we see students as subject who manipulate the options in the Mobile App as tools for defined task of learning following the guidelines

set for students where teachers define tasks as instruction. As presented in the analysis of survey above, the feedback/comments received from students on advantages and disadvantages of the App use can be considered as the result of the whole process. This is how proposition of the activity theory is aligned to this study.

Personal Reflection

Mobile learning is emerging as an alternative to traditional classroom-based education. Internet based mobile learning is one of the new educational dimensions where “the Internet offers resources for learning anytime/anywhere, which allows extensive flexibility in learning processes” (Goktas & Demirel, 2012, p.908). Thus, the use of Mobile application in education provides flexibility in learning. Being a teacher in online era of education, I have learnt to customize the open-source App to address local needs of users. It is important because global user interface does not include user facilities for local use. This research has been important to know about the interest of students and teachers in using technological tools and software interface for greater learning outcome and higher motivation. For example, students wanted frequent updates of course platform and they also wanted the navigation panel on the home page of the App interface. Students are happy to use Mobile App for instant communication and course view. For students, App provides time saving option to access the course readings, activities, and calendar events. Notification alarm on mobile allows students to be alert all the time. However, most of the teachers' choices are old-fashioned as they prefer big screen on their desktop.

In this study, when I see communication, interaction and learning from the perspectives of connectivism, Mobile App enables networked learning and learning through human-machine interaction (Siemens, 2005). Likewise, from the perspective of activity theory, students as subject manipulate mobile App – the tool, to accomplish learning tasks – the object. In this process, authentic instructions are followed as rule of actions dividing roles among the members

of the community. This is all about relationship between subject, activity, and object (Blunden, 2012). The result is interactive and engaged learning that satisfies the subject/student.

Conclusion

Mobile phone has been the dominant means for internet access for learning among the students involved in education and training. In this context, customized Mobile App facilitates learners and facilitators in accessing e-learning, using learning resources and taking part in various course-based activities. Mobile Apps are useful for prompt communication and support. However, success of App use depends on facilitators' active roles in technological facilitation for learning. If teachers are not active in updating their online course portals, students would be frustrated. Customization is useful for contextual use of open-source software tools from the perspectives of user interface, navigation menus and language.

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Life Experiences of Construction Sector Workers in the COVID Context in Lalitpur, Nepal

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Abstract

The COVID-pandemic has hit hard on Nepali's economy and the lives of construction- sector workers. The purpose of this research is to explore the life experiences of construction - sector workers during and post COVID-pandemic. This research adopts a qualitative approach under the socio-constructionism paradigm. Data gathered from in-depth interviews with three participants in the sectors of masonry, house-painting, and plumbing have been used for making out the meaning of the research. The findings of this research reveal that the COVID-pandemic has brought new resilient strategies in the lives of the construction workers such as keeping high concern on personal safety and family's well-being, exploring employment opportunities through informal networks. Living with the COVID has become possible due to the resiliency and social capital of the workers. This research is helpful to TVET practitioners and academicians to understand the survival strategies of the construction sector workers and plan TVET programs accordingly.

Keywords: Construction Workers, COVID Pandemic, Resilience, Social Capital

COVID-pandemic and Nepali Workers

Nepalese people have been hit hard by the COVID pandemic. The imposing of lockdown in several countries, banning of international flights, and social distancing among individuals have directly affected Nepal's remittance sector, tourism sector, and other production industries. In the meantime, the informal sector workers such as the workers from the construction sector also suffered due to the pandemic. Cities administration in Nepal even issued directives that the development projects should keep the workers residentially and adopt necessary health protocols to continue the work (Lalitpur District Administration

Office, 2021). This chaotic situation in Nepal's economy is largely affecting the livelihood of the Nepali youths working in the construction sector in Lalitpur, Nepal.

In Nepal, youths enter the construction sector work, basically in two ways. First, government and other agencies provide skill training to the youths to make them employable in the job market. 21,000 youths received short term skill training and 14,500 had their skill tested in the last fiscal year 2077/78¹ (Nepal Ministry of Finance, 2021). Council for Technical Education and Vocational Training

¹2020-2021

(CTEVT) has endorsed curricula for such training which have to be compulsorily applied in the field. Learners must participate in the training programs for the said period. Based on the learnings from the curricula and other market-oriented skills from competent trainers, these skilled graduates can appear in the skill-testing examination conducted by National Skill Testing Board. Skill-testing is believed to be a gateway to explore more employment opportunities (Pandit & Pasa, 2020). The skill-trained youths are also considered as the capable human capital in societies (Pasa, 2017). Second, is the informal way, where thousands of youths learn the skill through their masters at the real workplace. Mostly seen in the construction sector, a helper is transformed into a skilled worker after learning skills from seniors for several years which is common skill developments of Nepalese youths, which is also termed as an informal apprenticeship (Alla-Mensah & McGrath, 2021). Overall, because most construction workers are in the informal sector, their livelihoods are likely to be miserable due to the COVID pandemic. COVID pandemic has brought several social, economic, health-related, and other dimensional changes in the lives of the construction sector workers. The voices of construction sector workers are missing in the academic discourse. Thus, the purpose of my research is to explore the experiences of construction sector workers during and post-COVID contexts. Their life experiences would have meaningful implications to reshape the TVET programs accordingly.

Theoretical Insights

Resilience: Living with the COVID

The Himalayan nation, Nepal, is one of the least developed countries in the world (Nepal National Planning Commission, 2020; United Nations, 2021). It has a high multidimensional poverty index [17.4% as of 2019] (Nepal National Planning Commission, 2021) and middle human development status [rank 142 out of 189 countries] (United Nation Development Programme, 2020). Thereby, being resilient to take up the COVID pandemic situation easily, is the compulsion of most of the Nepalese

because their dominant priorities are the basic human necessities such as wellbeing, employment, and food. Resilience explains how people cope up with their different adversities and how they resume their normal lives (Ungar, 2018). Amid the labeling of poor, and highly prone to COVID pandemic, Nepali people still live a happy life in the COVID situation as Nepal attains the highest position amongst seven south Asian countries (excluding Bhutan) in the World Happiness Report 2021 (Helliwell et al., 2021). Thereby, the collective resilience of communities in Nepal during the unprecedented times (Sousa et al., 2013) helped to normalize the pandemic situation quickly. The people's hardships due to the social, economic, and geographic vulnerabilities have made people live resiliently in Nepal (Posch et al., 2019). Thereby, living with the COVID has become a part of life for people working in the construction sectors in Nepal.

Social Capital

Social capital is an asset earned by an individual in society due to their role, status, and interactions with others (Bhandari & Yasunobu, 2009; Claridge, 2018). Social capital underneath three components, "social network, social trusts, and social resources" (Rostila, 2011, p. 14). One can convert the social capital developed through human connections into resources that would benefit all (Bourdieu, 1998, as cited in Pasa, 2018). In line with the above definitions, the development of relationships amongst the construction sector workers is likely to help them in exploring jobs in the markets.

Methodology

I have applied a social constructionism worldview in my research. Social constructionism is a theory that asserts that human learnings are linked to interactions with other members of the community, and the reality to understand the world is co-created or socially created (Galbin, 2014). I have opted qualitative approach by interpreting the interview data of my participants. In this study, I have interacted with three construction sector workers in Lalitpur Metropolitan City, Nepal, to learn about their personal

and work experiences in the COVID context. The interviews were done in July and August 2021, when Nepal was reeling under the second wave² of the COVID. Initially, I developed some interview guidelines themes to gather the information which I developed further as I started interacting and probing the life stories of the participants (Dixit & Banerjee, 2021). The selection of the participants was judgmental and based upon their work experiences in masonry, painting, and plumbing sectors. Namely, they are Mr. Dakarmi (in the Masonry sector), Mr. Painter (Building painting sector), and Mr. Plumber (Plumbing sector). All three participants are male, as it is uncommon to find skilled female construction workers in Nepali society. I have taken verbal consent with the participants for the interview and kept their names anonymous in this article.

Findings

I have thematized the field information in two different themes; *COVID experiences, and Working opportunities and challenges*. These themes reveal the construction workers' living experiences during the COVID period, which add to the research's meaning-making.

COVID Experiences of Workers

During the COVID lockdown in Nepal, construction workers, who are largely from the informal sector, undoubtedly suffered serious difficulties. I witnessed them facing difficulties in finding works, getting timely payment, keeping health safety measures, and looking after the wellbeing of the family. The first wave (March to July 2020, with some localized lockdowns until September), and the second wave (April to August 2021) are the two COVID periods in Nepal. A participant shared his COVID experiences as:

During the first wave, only those people who knew me previously offered work. Unknown people did not make any contact. There was no public transportation service so I couldn't travel far to work. The scenario was quite normal during the second wave period. Public vehicles,

motorbikes, and private vehicles operated normally, banks and cooperatives were not closed, and the construction activities also operated smoothly.

(Mr. Dakarmi, Masonry sector)

After the first wave of COVID, its health-related panics remained strong until September 2020. During this period, Mr. Dakarmi's work was fully abrupted for 3 months, April to June. After June, although the lockdown was not lifted, life gradually started becoming normal. In the second wave period, the lockdown was declared in April 2021, but people seemed less afraid. Everyone appeared to be working normally. Mr. Dakarmi keeps on listening to COVID-related news regarding the lockdowns, keeping safety measures, vaccines, and others to be updated. While traveling from one place to another, he puts on a face mask. After returning home from work, he washes his hands and feet with soap and water. He described:

During the first wave, everyone was very frightened. A large number of people also died during that time. But now, people seemed to be less fearful. The government has asked us not to go outside the house. But it is not possible for us as we have to feed our family.

(Mr. Dakarmi, Masonry sector)

Another participant, Mr. Painter told me that during the first wave there were fewer job opportunities. Because the constructions of houses had stopped. He got some work through his contacts, but he remained jobless for nearly eight months out of the total sixteen months of COVID period from March 2020 to July 2021. Due to the unavailability of public transportation services, he could not travel far to work. So, he bought a bicycle. The situation was different in this second wave. He shared, "The lockdown in the second wave seems less strict. There was also news about getting the vaccine and being safe. I am also waiting for it."

The third participant, Mr. Plumber's work has not

²The first wave COVID period was from March to September 2020, and the second wave was from April to August 2021.

been abruptly due to the COVID. He revealed that:

During the first lockdown, my work hardly stopped for a week. The second lockdown didn't hamper my work even for a single day. Whenever we hear about the lockdown, we would ask the dealers to bring the necessary plumbing-related materials earlier. Sometimes, during the lockdown phase the dealers would also deliver the materials at night. After all the materials were ready, we would go to the site and continue our work. (Mr. Plumber, Plumbing sector)

The views of participants suggest that people do acknowledge the COVID-related prohibitions; however, poverty pushes them to continue their works. They apply some measures at the workplace and are hopeful to get COVID protection vaccines. At the same time, the essence of the word 'contact', in finding jobs has become quite important in Nepali's construction sector. The support or network among the workers and their relationship with each other has helped them to find jobs even during the pandemic, which is quite praiseworthy.

Changes Occurred in Workplaces after COVID

As construction workers, my research participants have experienced some changes at their workplaces and in their working approaches after the COVID outbreak. Mr. Dakarmi told me:

At workplaces also, we have to put on our face mask. We regularly wash our hands and legs, which has become common now. Besides, we have the same team of workers for a long time. If any new people come to join us or talk to us, we maintain our distance. (Mr. Dakarmi, Masonry sector)

For safety measures, his team cooks food at the working sites. He said, "We buy ration (food) and cook ourselves in rotation. Due to this, we can start work from early morning until late evening. This makes us safe and efficient." He further elaborated that during the first wave period, it was hard to get money in time, but the situation is far better during the second wave period.

Mr. Painter also had similar experiences. He explained, "In painting occupation, washing hands regularly is common. However, after COVID, we have started to use sanitizer and face masks. As we have a close team to work with, we do not interact with strangers." Nowadays, he has also stopped going out to hotels/restaurants to have lunch, instead, he takes food from home to the work sites. Mr. Plumber has a different experience of changes in his professional work due to COVID. He pointed out:

Due to COVID, the price of plumbing items has increased by 20-25%. Even the market expenses have largely increased. But the amount paid to the plumbers have not increased so far and further shared that, there is high profit in selling plumbing-related materials. I along with other 6-7 plumbers have planned to open such a shop. But due to COVID, we have postponed this plan. (Mr. Plumber, Plumbing sector)

These discussions with participants reveal that personal safety, as well as professional security, has become a top priority for workers.

Personal Awareness and Safety

Keeping oneself aware and updated with the prevailing scenario is very important in today's COVID context. Mr. Dakarmi regularly listens to the news and gets updated with the COVID situations such as when will the lockdown start, when will it be lifted, what activities are prohibited, what is the news of vaccination, and others. He shared that, "I listen to the news as if I have information, I can travel to different places, meet friends, go for work, and keep my family informed. In villages, many people have got the vaccine. However, here [in the city], our turn has not come." He is aware of the lockdown schedules, an increase in virus infection rates, and vaccination services. He's also concerned that people are no longer using hand sanitizer, which was something that was done purposefully a year ago. He further elaborated, "We do not use hand sanitizer at workplaces now. However, I take

precautionary measures before entering the house from work. Nothing is more important than family. If anyone in the family gets infected, it will be very difficult for us.” Mr. Dakarmi is worried about his family and he regularly advise them in wear facemasks and use sanitizer when travelling to stores or other public locations.

In Mr. Painter’s case, due to less work availability and delay in receiving payment from employers, he has difficulty managing food for the family and paying room rent. He also keeps himself informed by listening to the news to discover when the lockdown will begin and when they will finish. However he is still satisfied in several ways, such as not becoming infected by COVID and taking good care of his family’s well-being. He expressed, “Thank god! my children and wife did not have to go through any psychological trauma as we were all together in our rented room in Kathmandu during the pandemic. If I were abroad, both me and family would have faced this psychological problem.” At the same time, he sadly shared that “I have not observed any (good) changes. Work opportunities have largely reduced and my earning is very little now.”

Mr. Plumber seemed to be less worried about his earning in the plumbing sector. He shared:

Many of my friends have become jobless due to the COVID. Even managing food has been tough for them. They had to borrow money from others. Some of them even moved back to their villages, leaving everything behind as they could not afford the room rents. I am also worried about my children’s future. They have not gone to school for a long time. They take online classes from home, but it is not effective. They just engage themselves in playing mobile games. Besides this, I am satisfied with my work as I continuously got jobs even during the COVID period.
(Mr. Plumber, Plumbing sector)

These participants narratives show that, in addition to maintaining personal and family safety and well-

being, meeting basic requirements is a top priority in the workers’ life.

Coping up with COVID

Participants have shared mixed views regarding how they dealt with the COVID pandemic. Mr. Dakarmi shared his experiences of being infected with COVID. He revealed:

When I went to the hospital for my mother’s treatment, I was also tested for COVID. The result was positive. I was surprised since I had no symptoms. I had heard from the news that a COVID patient will show sign of fever, cold, sore throat, and tiredness, but I was fit and fine. Afterward, I returned to my working site and continued to work. However, I did not share this information with my friends. If I had told them, they would have been frightened. I did not come in physical contact with my family for a long time.

(Mr. Dakarmi, Masonry sector)

Borrowing his words, now a days many people do not take the pandemic seriously. “Radio continues saying the COVID news, infection rates, and deaths, but I cannot leave my work. Now corona has become a normal thing for us” he shared. His views were signaling his responsibility to look after his family’s needs in Kathmandu.

Opposingly, a kind of pessimism has been developed in the life of Mr. Painter. He does not see a good future in Nepal. He revealed that “I have decided to go to Saudi-Arab and work there. The condition here is much pitiful. With these low earning, fewer work opportunities, and (political) condition of Nepal, our life is going to be miserable for sure.” His views indicate that COVID and other social-political situations are pushing him to choose foreign employment. This could also be due to high competition in his work area as there are unchecked flow of workers (from every sector) in the plumbing sector as told by him.

Thereby, these viewpoints of the participants show

that the construction sector workers are struggling hard to cope with COVID. Some of the workers are managing well but some of them are facing their toughest times.

Exploring Work Opportunities and Professional Security

Effective communication skills have a significant role in finding jobs in the market. Besides this, several helpful factors are also present depending upon the context, profession, and an individual's professionalism. Regarding this, Mr. Dakarmi shared

Last year, when I was working at a site in Thamel, many people came to inspect the work. They were employers, contractors, engineers, and representatives from the construction companies. They saw my work performance, dedication, and sincerity. They even took my phone number and nowadays, they call me when there is work available. At the moment, I am able to take building contracts and mobilize my own human resources. There is plenty of work in this field, but you'll need your network.

(Mr. Dakarmi, Masonry sector)

Besides this, Mr. Dakarmi is also concerned about the availability of work in the market. He believes that "If I become jobless, I should not sit quietly at home. No one will come to give me work". Thus, external factors such as good skill demonstration and networking and internal factors such as integrity and proactiveness are important for a worker to sustain themselves during such unprecedented times such as the COVID pandemic.

For Mr. Painter, people also call him for work through contacts. While coloring one house, other people observe his work and call him if they like it. Sometimes, he gets offered by companies as well. He expressed that "The work of a painter comes only after the masons, electricians, plumbers, carpenters have finished their works. I have a personally known some of these people. These people recommend my name to house owners." He further elaborated:

If there was no lockdown, I would get abundant opportunities to work in this sector, but we need contact and links for that. Instead, if we do well at one site, other people will also notice it and contact us for work.

(Mr. Painter, Painting sector)

Mr. Painter also has a team of painters. In the team, a leader deals with an employer and passes the message to the colleagues. The group has kept some helpers to do the physical works like carry color containers, fix bamboo ladders, and clean the workplace. This group is beneficial when looking for work in the market. Mr. Painter revealed that if they directly get the work from the employer, the entire group would make good money. Otherwise, they need to pay commission to the person who informs them about the work availability. According to Mr. Plumber, he also believes that his relationship with the employers and workers has helped him get work offers. He explained, "I am working in the plumbing sector and based in this same area for over 17 years. I have built a good network contacts. Now all the work I get is through these contacts." This made me curious to know why employers seek Mr. Plumber for plumbing work in his region. He told me:

I work sincerely. My work should satisfy the employer. I have never abandoned my work in the middle. Before taking charge of any work, I clarify my limitation to the employers. So far, there hasn't been a single complaint regarding my work. So, I believe that the worker should be professional and ethical to gain opportunities and trust.

(Mr. Plumber, Plumbing sector)

Thus, these experiences of the participants indicate the importance of skills such as communication, presentation, team management, and leadership in getting more jobs in the market. Furthermore, sincerity, ethics, and professionalism are key mantras for expanding the social network and obtaining more work opportunities in construction works.

Professional Safety and Security

In the case of Mr. Dakarmi, he is not affiliated with any Labor's unions. If there are any work-related issues such as not getting payment from employers, he takes help from a local labor's office, which is non-governmental and affiliated with a political party. He has to apply to the office, and after it helps him in getting his money back, it charges 30% of the total money that he received from the employer.

Mr. Painter is also not affiliated with any party-based unions. Rather, he mentioned that the painting companies such as Asian Paints, Berger Paints, and others have unions of painters. He belongs to the Berger group. He expressed, "If I buy color from Berger, or I recommend others to buy Berger color, the company gives me some points which are recorded as our provident fund. Suppose if we get any workplace accident, we get paid by the company." Until now he has not been in any serious accidents, but he is prone to accidents. He revealed, "For a house up to 2-3 story, we use bamboos to climb and color. If we need to go higher than that, we use a rope to climb. There are safety belts also, but we do not care much about it". He shared an incident:

While painting a house, one of my friends was accidentally hit by bamboo which was thrown from the roof. The friend's hand was fractured, and he could not work for a long time. Although the treatment expenses were borne by his contractor and the house owner jointly, due to his inability to work, he could not earn money for a long time.

(Mr. Painter, Painting sector)

Showing a bandaged left hand, Mr. Plumber further shared, "My right hand was cut by a machine while at work. I have yet to purchase insurance." When I inquired about the Contribution Based Social Security Fund, a program of the Nepal Government, he was unaware of its benefits and procedures. He revealed that he was engaged in some political party-based labor unions in the past, but now he has quit all those. He believed that these unions help workers to get their money back from the employers who

intentionally did not make the payment. Nowadays he does not face such problems as he gets direct work from employers. He is more interested in the offers of plumbing companies to get coupon vouchers by marketing their products and increasing sales. He described:

Nowadays, if we purchase goods from a particular company or recommend others to buy the product of that company, the company provides us with coupons. We can use that coupon to claim our commission. Through that money, I buy the necessary tools and equipment.
(Mr. Painter, Painting sector)

Mr. Painter also gets an annual Dashain festival allowance, t-shirts, and bags from a plumbing wholesale shop, where he recommends his customers to go. He revealed that the wholesale shop gives an annual party during Dashain festivals to the plumbers who are in contact with the shop.

Discussions

COVID is bringing hardship to the lives of the construction workers. However, these workers resiliently handled the COVID pandemic. They have initiated many changes in the workplaces such as adopting social distancing, wearing a face mask, using hand sanitizers, avoiding public transportation and outside meals, and so on. Some of them even revealed that they were planning to change their working modalities, for instance, opening a sanitary ware to get more profit. These workers are highly concerned about their family's and colleagues' health and wellbeing. They are updated with the COVID-related news such as lockdowns, vaccinations, and the number of people who have died and the number of those who have recovered. They acknowledge the government's restriction to travel and work; however, it is hard for them to abide by such rules because they are the breadwinners in their families. However, due to the hardships faced, there is a possible risk that some of these workers might give up their professions and opt for foreign works. This resilient living of these workers, induced by the COVID-pandemic, has injected new living strategies

into their livelihood survival. The collective resilience (Sousa et al., 2013) of these informal construction sector workers and the resilience due to hardship and poverty (Posch et al., 2019), have helped these workers to normalize their living amid the pandemic's panic.

The struggling construction workers are somehow getting relief through using their personal contacts to get jobs and their professional security has been maintained through informal structures and organization. This informal mechanism of job search helps them to explore job opportunities themselves. 'Contact' or 'networking' is guided by our social value system of helping each other at times of need, which is also termed as a social capital (Bhandari & Yasunobu, 2009). The social networking of these workers has developed trust amongst themselves, which has helped to explore different work opportunities (Rostila, 2011). These workers have successfully capitalized on the relations developed through their contacts, due to which many of them are able to easily find job even during the pandemic period. However, in some cases, this sort of informal job search mechanism is counterproductive, as the workers have to give a large amount of commissions to brokers in the name of job search. Similarly, the workers are not associated with any professional trade unions, which could help them raise their voices and help them selflessly at the time of need. There is a new trend of uniting workers by companies such as painting based, plumbing based, and others which are welcoming but might need to be under surveillance by the Government for workers' welfare. The formal government organizations should take up the responsibility of professional safety and security of these workers. The Contribution Based Social Security Fund, formed by Nepal Government (Nepal Law Commission, 2017), has not addressed the issues of constructions sector workers yet (Mandal, 2021, June 26), which is utmost needed in the COVID context.

Conclusion

In summary, the lives of construction sector workers

have developed resiliency in the COVID pandemic. These workers have learned new strategies of living such as keeping high concern on personal safety, family's well-being, and exploring employment opportunities through informal networks. Many of their lives came back to normal easily due to the collective resilience in Nepali societies. The collective resilience was germinated due to human poverty that exists in our societies. Besides, a value system of helping each other, which we can term as contact or network or social capital, has eased the livings of these workers. However, there must be a government mechanisms to legitimately guarantee the professional safety and security of these workers. Thereby, although the pandemic hit hard in the lives of the construction sector workers in Nepal, living with the COVID has become possible due to the resiliency and social capital of these workers.

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