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Technical and Vocational Education and Training (TVET) Journal

Accelerating Technical and Vocational Education and Training in Nepal

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It is an honour for us to publish the 15th issue of **Technical and Vocational Education and Training (TVET) Journal** focused on the four pillars of TVET: quality and relevance, permeability, education and employment linkage and TVET governance. Requests made towards publishing a new edition of the Journal were obvious for the reason that the last issue was published in 2014.

The research and Information Division got thoroughly involved in the publication of this journal. The editorial team put up its best effort to ensure the journal is inclusive and extensive by incorporating articles from the national and international arena, elaborating relevant policies considered as major drivers for promoting the TVET sector. It shall be our reward if readers find this copy a worthwhile publication. Thoughts and ideas captured in these articles are expected to guide the future course of TVET deliberations and pave way for the people engaged in the field of technical and vocational education and training. It is our fervent belief this journal will be a Accelerating Technical and Vocational Education and Training in Nepal. Intellectuals, researchers, students and other stakeholders who may need TVET information on current trends, best practices and reflections may obtain in plenty from this journal.

Here we present you a succinct summary of 15 scholastic articles to get their bird's eyeview.

Rajendra Bahadur Shrestha, he takes a critical look into challenges brought about by a disconnect between skills supply and employer demand and reviews the current practices of partnership in the TVET sector citing some examples from some South Asian countries. The article calls for an enhanced need of employer's participation in the design and development efforts of TVET program and notes that such appropriate and practical balance is more likely when the government, private and non-government sector come together for skills development and making the most of it.

Tanka Nath Sharma underscores that skills and competencies do not remain the same at all times. For TVET institutions to become reliable and resourceful, they need to review and redefine their quality assurance through the development and implementation of an integrated quality assurance system. The article attempts to provide cursory information about the basic accreditation process to be undertaken to measure such quality at a TVET institution.

In their paper, Ursula Renold, Katherine Caves and Thomas Bolli subscribe some incisive and categorical suggestions for the improvement of the TVET sector, analyzing from the prism of federal exercise in Nepal. They stress that early finalization of the legal framework is essential to facilitate the ground for seven provinces to build on the overarching objectives of the Federal Government. Study of the past is equally important to draw the course for the future, including the financial flow, to reconcile TVET funding sources and expenditure.

Ramhari Lamichhane argues that developing TVET Institutes centre of excellence can be more of a reality than rhetoric even for developing countries. Since such institutes bolster the confidence of graduates through marketable hands-on skills and are characterized by their quality management system, visioning the creation of such centre is the common goal, TVET institutions, trainees, guardians and the country as such should play a key role from their end for this realization.

Anil Muni Bajracharya & Prakash Kumar Paudel write in their paper that engagement of employers is of paramount importance in the TVET education system and missing this element will have a conspicuous impact on the skills market. We need to have serious deliberations why their engagement in the curriculum development process has been less enthusiastic. The summary of interviews with scores of employers suggest that 'the trust deficit' needs to be corrected before it is too late and enabling conditions are created for meaningful engagement of stakeholders in curriculum development and implementation processes.

Kushmakar Bhatta writes that skill profiles are changing for many occupations for many reasons. What is important at this stage is to make a critical assessment of the key drivers influencing the world of work and do what is required to ensure quality assurance is achieved in the TVET sector. A public-private partnership could be one of the several measures to achieve this goal at the federal, provincial and local level.

Durga Prasad Baral, in his paper, uses a prose and poetic expression to establish a case that informal skills learning need not be judged any 'inferior' when an overwhelming 80% of the people actually acquire their skills this way in Nepal. Efforts should now go into formalizing the informal sector and add value to the intervention. Sustenance may be one of the major challenges in the informal sector but this should not mean that the national TVET system overlooks the possibilities of its incorporation.

In his article, Diwat Kumar Shrestha calls for regular follow up on TVET graduates and getting to know whether TVET graduates are getting jobs or engaged in self-employment or not. An evidence-based tracer study or monitoring and evaluation is required to identify the effectiveness of the TVET education system. Such a study allows us to identify the strengths and gaps and take corrective measures for the future.

Ishwor Rimal writes in his paper that human resource development and job satisfaction within the organization is one of the yardsticks to measure success in the TVET sector. If instructors and staff are not happy or the motivation factor is missing, it will leave a domino effect on the entire teaching and learning process. Higher job satisfaction at an individual level will yield better results at an institutional level.

Hari Pradhan and Aashish Pradhan share a common view in their paper that it is high time structural reform was envisaged to allow students to make an early and informed decision whether to opt for a general education system or TVET education and understand the scope and limitations of each system. It will also help the country in preparing the technical workforce from as early as secondary education level and offer the graduates in accessing nationally and internationally recognized certificate and securing better employment opportunities.

In their article, Seshkanta Pangeni and Gehendra Karki focus the significance of exploiting information, communication and technology (ICT) integrated pedagogical practices in the TVET sector. Qualitative and quantitative data from 152 survey responses, focused group discussions and selective interviews that ICT focused education would be both innovative and promising for the TVET sector.

Binayak Krishna Thapa's paper offers a trans-disciplinary take on the very concept of skill and explores this conceptualization across multiple disciplines like economics, sociology and psychology. The possibility of understanding skill from trans-disciplinary perspective still exists even if we cannot ignore or erase the disciplinary segmentation.

Harish Singh Thapa's article underpins the responsibility of polytechnic institutions to produce skilled and competent workforce that is vibrant and breathes an entrepreneurial and innovative spirit amongst students. Operating a production unit is essential for every TVET polytechnic institution for better connectivity with the market demands and to help students develop critical thinking from an early stage.

Hari Prasad Lamsal's paper suggests adopting a two-pronged strategy to bring about reforms in Nepal's TVET: improve the existing programs and bring about structural changes in line with the changed pattern of governance.

Abdul Ghani Rajput, Muhammad Naeem Akhtar and Muhammad Nadeem Akram together take a look into the concept of green technology in Pakistan and present several examples to substantiate their point that the application of green technology is still a new concept that carries good promise for the future of TVET sector in Pakistan.

The editorial team is thankful to all the authors for their support through advice and articles and looks forward to such articles from researchers, intellectuals, and experts, covering several key sub-sectors of TVET for the next journal. For instance, the COVID-19 has become our new reality. The pandemic has not just to do with our health but employability and is changing nature of our work culture. This, as well, could be a potential issue to look into. We express our appreciation to the entire team of CTEVT and its management for continuous support and guidance during the course of the publication.

Your feedback is our strength. We look forward to receiving constructive feedback from the readers for further improvement. The ultimate responsibility of ideas and opinions expressed in these articles rests with the authors.

CONTENTS

Practical Partnership in the Nepali TVET System: Some Innovative Initiations

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Dakchyata: TVET Practical Partnership Programme

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Abstract

Technical Vocational Education and Training (TVET) systems all over the world have realized that there should be joint efforts between government and business and industry to provide and finance training programme. The key then is finding an appropriate and practical balance between government, private and non-government provision for training people in the field of skills development. Working together with the employers and training institutes is the major rising concern in many developing countries like Nepal. Engaging the employers and training providers in (TVET) provision is essential and, like many other South Asian countries, Nepal's TVET policy 2012 emphasizes the private sector's role and partnership in skills development. In practice however, joint efforts in the Nepali TVET system have been weak and not extended much beyond the private sector. Thus, adequate partnership among public TEVT training institutions and business/industries should be developed for economic development of the country.

Keywords: *Technical Vocational Education and Training, Employer Engagement, Public Private Partnership, Industry Institute Linkage, Apprenticeships, Workplace Based Training, Training Delivery Models,*

Introduction

Technical and Vocational Education and Training (TVET) is an important tool to improve the employability of individuals, increase productivity in business and industry and reduce poverty. In most of the developing countries, the TVET system is hampered by poorly coordinated, outdated curricula as well as traditional 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. Training is supply driven (what the training institutions can offer) because there is a lack of data on the demand for the workers and the skills needed (by employers and the job market). Most of the TVET graduates enter the workplace with only a vague understanding

and incompetent skills of the requirements of the job. The TVET providers are under pressure to raise the standards to respond to the demands of the workplace in a world of constant change (Blank, 2010). The Nepali TVET system is not exceptional regarding these challenges and problems. It faces the joint challenges of unemployment and skills shortages in key sectors, partly due to a disconnect between skills supply and employer demand.

This realization resulted in the designing of more relevant and innovative approaches and systems in TVET. In order to respond to the demands of the workplace, various methods, approaches and techniques have been used in the past and also at present. One of the more successful results of these efforts is the birthing of new training models and approaches by working together more directly in the training programmes.

The purpose of this paper is to examine the situation of the collaborative approaches and practices of employers and training institutes in TVET analysis, design, development, and implementation in Nepali TVET system. While doing so, I also explore the issues and challenges of such partnership and highlight some innovative initiations, taking the case of Dakchyata: TVET Practical Partnership Programme in partnership approaches in Nepali TVET system.

The article is basically based on the review of current practices and desk review of partnership practices of some South Asian countries practices on partnerships in the TVET sector. In addition, as a TVET practitioner, I have also reflected on my own practical experiences, challenges and lessons learnt throughout my professional career. More importantly, institutional experiences from my position as Deputy Team Leader and TVET Specialist of Dakchyata: TVET Practical Partnership Programme have been incorporated in writing this article.

Theoretical Perspectives of Partnership in TVET

From a traditional point of view, the TVET system is the supplier of skills into the labour market and employers act only as consumers. In this one-way model, the TVET system is responsible for the entire skills development process and firms simply take the skills available to them. With the mismatch between supply and demand of skilled workers, demand-driven training that are customized to respond directly to specific requirements of the job role for an employer or a group of employers is practiced. However, given alarming rates of skills mismatch and youth unemployment (Livingstone, 2009; Pusterla, 2016), many countries are struggling to find ways of meeting employers' skills demands (Symonds et al 2011). In this process, employers are asked to participate in the curriculum design phase as formal or informal advisors on curriculum content. The curriculum they help design is then applied, and the idea is that the resulting graduates should have skills that better

match the needs of the labour market. Then the process automatically asks employers to participate throughout the cycle in the design, application, and updating of the VET curriculum. In this model, employers not only help designing the curriculum, but also help to teach it and ensure that it remains up to date. The commitment for employers is much larger, and their role shifts from passive consumers of skills to both producers and consumers of skills (Cunningham & Villaseñor, 2016; Billett & Smith, 2003). These practices brought new initiatives in the skills development sector in the name of employers' engagement and social partnership in vocational education and training. For a deeper understanding of these processes and mechanism, I would refer to the following sources:

European Training Foundation (2013): Social partnership in vocational education and training is about employers, trade unions, public authorities, and training institutions cooperating to ensure that the training provided is adequate and relevant to labour market needs.

Jane Kettle (2018): Employer engagement is defined as a range of activities, initiatives and approaches which are best conceptualised as a continuum. 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 (HE).

Practices of Partnership in TVET in some South Asian Countries

Here I portray practices of partnership in some South Asian countries such as Bangladesh, India, Pakistan, and Sri Lanka. These fact findings were summarised by reviewing available reports of the respective countries. The rationale behind selecting some South Asian countries is simply because of similar context of Nepal, economically and socially.

Bangladesh: In recent years, the Government of Bangladesh has initiated several measures to introduce private sector engagement in skills development. Many different actors from across the spectrum of public and private sector financing and management have been delivering education and skill-based training in Bangladesh (Reaching Out-of-School Children Program, and the Post Literacy and Continuing Education for Human Development 2018). Underprivileged Children's Educational Programs have developed strong linkages with industry. The Chittagong Skills Development Centre (CSDC) is the first industry-led non-profit skills training centre to grow the skilled labour pool by providing high-quality, cost-effective, value-added skills training to its corporate members and other private companies. Another example of private sector facilitated TVET is on ready-made garments programs established by the Bangladesh Garment Manufactures and Exporters Associations (Department for International Development. 2013). Public-private partnerships under Industry Skill

Councils work through the management boards of all public training centres. In addition, private training providers that meet national quality standards established by the Bangladesh Technical Education Board receive domestic budgetary funds.

In Pakistan, the National Vocational and Technical Training Commission is managed by the private sector and works with Sector Skills Councils. The Skill Development Sector Plan 2018 addresses adequate supply of quality training opportunities that are aligned with labour demand; providing low cost access to these opportunities and maximizing the return to these openings through complementary interventions that improve access to jobs and markets. Technical and Vocational Training Authority (TEVTA) and Pakistan Vocational Training Council (PVTC) engage directly with industry for broad areas of training needs and work with industry on curriculum (NAVTTC 2015).

In India, Sector Skill Councils (SSCs), industry-led TVET institutions, and workplace-based training have been introduced. Till date, the National Skills Development Corporation (NSDC) has approved 38 Sector Skill Councils and Private Sector Support Units. SSCs consist of representation from industry, government and academia to ensure participation of all ecosystem stakeholders. NSDC provides governance, monitoring and performance improvement support. There are over 600 Corporate Representatives in the Governing Councils of these SSCs. NSDC works closely with the Ministry of Skill Development and Entrepreneurship and private sector. Private sector shareholders include 10 business chambers and industry associations with 51% private shareholding and 49% from public sector. It is envisioned to be private sector led, driven by market needs which support short term skilling by providing loans, equity, and grants. A legal provision has been made for Mediums of Industry Engagement. Industry can contribute through infrastructure and machinery, sponsoring and facilitating training, lending technical expertise, undertaking Recognition to Prior Learning (RPL) for employees etc. as part of corporate social responsibilities and industry partnerships (National Skill Development Corporation, India, 2018).

In Sri Lanka, there are joint ventures between the government and the private sector, including the Ceylon German Technical Training Institute, which focuses on technology related to the automobile industry and other technical trades and has strong links with industry (Skills Sector Development Programme – 2019). According to the Tertiary and Vocational Education Policy (2016), training needs analysis will be done based on labour market analysis through the establishment of a Labour Market Advisory and Coordinating Committee (LMACC) that includes ministries and national bodies, as well as the Employers Federation and Chambers of Commerce. TVET Policies for Employment and Entrepreneurship (2017) have formed private sector led Sector Skills Councils. Skills councils function as a

platform between the relevant industry and the training sector to ensure development of industry relevant skilled personnel in keeping with the labour market demand. In 2018, five councils were set up for construction, information and communication, tourism and hospitality, light engineering, and health care.

Partnership Practices in Nepali TVET System

At the crossroad of professional careers as a TVET practitioner, I found several practices of partnership specially employer engagement in Nepali TVET system. Some of them are briefly explained below:

1. Most of the donor funded private training providers conduct local level training needs assessment before implementing the technical training programmes in order to verify whether the planned technical training programmes have needs of the demand in the local job market. Some do this in the name of Rapid Market Appraisal (RMA), or some do in the name of Training Needs Assessment (TNA) and others do this in the name of Key Informant Panel Discussion (KIP) at the local level. The main sources of information of the survey are employers.

2. The development of curricula is a core element to increase the relevance of TVET. Given that the private sector is the main recipient of TVET graduates, their contribution in this process is fundamental (Euler, 2017, p. 25).

In Nepal, the practices of involving employers in the process of developing curricula started long ago. CTEVT Curriculum Division invites employers and expert workers from the related industries to seek their technical inputs while developing occupational profiles (OP) and the curricula. Similarly, National Skills Testing Board/CTEVT also engages trade related experts from the related industries to solicit their technical inputs in the developing process of occupational skill standards. In the same way, the NSTB has formed a Sector Skills Committee to validate and endorse occupational skill standards (OSS) and occupational profiles.

3. Public and Community Technical Schools/institutes are practicing joint management committees which consist of representatives from private and public sectors. In the same way, some privately owned technical schools are also 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 schools programmes to the local employers specially in the organization of On-the-Job Training (OJT) programme for the trainees of the schools.

4. Most of the CTEVT' technical education courses such as Pre-diploma (previously known as TSLC) and diploma (previously known as Technician Level) courses have On-the-Job Training provision in the factories, development organizations, and government offices. The provision has been made mandatory, which is clearly specified in the curriculum.

5. In 1995, Training Institute for Technical Instruction (TITI) developed the concept of Occupational Skills Upgrading (OSU) courses at industry workplace for the existing instructors of the Technical Schools under CTEVT in order to equip them with the actual industry' skills and knowledge. This practice has not been well continued at present.

6. Butwal Technical Institute (BTI) has been running the apprenticeship course in some of the industrial trades (Mechanical, Plumber and Electrician) since its establishment in 1962. In this training delivery approach, trainees are trained for more than 80% of the training period at the workplaces. The training delivery and assessment of the trainees are done jointly by training provider and the employers. This approach to training delivery has been replicated by some of the donor funded TVET implementers in the country.

7. 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.

8. Some big business/industry houses have their own training cell and train their workers on workplaces. They train newly recruited employees as well as provide further training for existing workers. They arrange skill test and certification of the trainees from National Skills Testing Board/CTEVT.

Issues and Challenges of Partnership in the Nepali TVET System

Despite the initiations and practices of partnership in the Nepali TVET system, there are several issues, problems and challenges that is facing the TVET system of the country. I have captured and elaborated some of them from my practical experiences as below:

1. During training need assessment to ascertain the actual need of the workers by the industries, the ambitious and

hypothetical figures are normally shared with the need assessors which are often somehow overblown and not in tune with reality regarding the real need of the skilled workers for the industries. This becomes the unrealistic data for the training providers and does not reflect the real time data which therefore cannot be used for training purposes.

2. There is a practice of engaging the representatives from employers and employer associations in the curriculum development process as subject matter experts. But when they come to provide inputs they often come as an individual and not as a real representative of the employers or employer associations. Thus, there is a lack of information sharing and institutional memory in their own organization. On the other hand, the inputs and voices of the engaged persons are only based on their personal and individual views and do not actually reflect the views of the corporate and industries as a whole. Serious problems are also observed by participants from the employees of the associations with pure administrative background not from the occupation related expertise. Therefore, there is a problem of ownership as well as actual institutional representation.

3. The employers also hesitate to provide On-the-Job Training, Apprenticeship Training and Traineeship for the trainees of the training institutes because of law and labour act provision. Big industries are reluctant to accept the trainees of the technical training institutes for on-the-job training because of lack of the adequate technical expertise of the trainees and fear of wear and tear of their tools and equipment. Similarly, small and cottage industries do not have adequate necessary resources such as space, tools and equipment to accommodate the on-the-job trainees. These industries lack craftpersons (supervisors) to provide appropriate training to the trainees. Thus, the partnership between training institutes and employers in the training delivery become weak.

4. The provision to provide wages and salary to the trainees is also another challenge regarding 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 saying 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.

5. When representatives of the employers or employer associations come to meetings, workshops and other interaction programme related to TVET development, they look for short term benefits rather than for sector related long-term benefits and contributions.

6. The provision of representation of the private sector in the public formal structures such as assembly, councils, and committees are only ceremonial and not mandatory, i.e. a legal requirement. Their number is very minimum, and the voices of the representatives would have no meaning in the decision-making process. Because of lack of legally mandatory provision in the representation in above structures, the employer associations sometimes send their employees who do not have any decision-making capacity and they are there merely for the sake of fulfilling the forum.

7. There are a number of national level business and industry associations in Nepal. Major national level associations have their own commodity associations within these structures. Besides these, there are also sector based associations such as Hotel Association of Nepal (HAN) and Federation of Contractors Association of Nepal (FCAN) etc. Despite their long existence in the country, limited contributions are seen in the real ground of working together in TVET development.

Some Innovative Initiations of Practical Partnership in Nepali TVET system, taking the case of Dakchyata: TVET Practical Partnership

Practical partnership in TVET being the missing link, has been one of the major cornerstones to address by the EU-funded TVET Practical Partnership Programme.

The overall objective of Dakchyata is to spearhead interventions in the TVET Sector of Nepal to find new and innovative ways to engage the private sector 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 system: analysis, design, development, implementation and evaluation phases.

Here, I have explained in brief some of the practices initiated by Dakchyata: TVET Practical Partnership programme in the areas of practical partnership in the TVET system of the country and sources of the information drawn on here are from the Dakchyata documentation system (www. dakchyata-Nepal.org).

Practical Partnership Between Private TEVT Providers and Employers in Training

Dakchyata has developed different models where more and more employer's engagement in training are sought through private TVET providers. In these models, employers are becoming increasingly involved in influencing and decision making in the design and development of the TVET programmes, while the training providers are giving space, for this shift to happen. These models have been developed and refined through extensive employer consultations and taking in the country context. At present,

ten private TVET providers have started to implement these models in construction, tourism, and agriculture sectors throughout the country utilizing practical partnership fund. Some of the models are explained briefly in the below where the role of employers increase in the various models.

In the developed model called the *Training Factory (TF),* both theoretical and practical training will be provided inside the training institute premises and trainees are given opportunities to work in the actual work setting in the business set-up operated by the institute itself. The trainees will earn while learning when they work in the business outlet. There is on-the-job training and the relation to market relevance is obvious, but the employer's side plays no direct role in this model.

Under the *Semi-Apprenticeship and Employment Model*, employers and training institutes work together in training people. The training institute provides its staff as roving instructors to train the trainees and existing workers for upgrading at the work site of industry. In this model, there is a limited role of the training institute itself and a major role would be played by the employers. Even so, both the employer and the training institute play key roles.

A leading role of the employer is even more outspoken in what is called *the Informal Apprenticeship and Employment Model.* Here 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 training institutes. This model clearly underlines an employer led training approach and trainees will get wages when they work and learn in the industry.

Field Based Agriculture and Forestry Training Model–Under this model, preferably agriculture training provider collaborates with farmers' association and cooperatives for delivering training. Training in the farm with enterprising skills including financial and market linkage are critical features of this model. Additional training on entrepreneurial skills including financial and market linkage are provided. For this model to be successful, trainers work with farmers in the farm environment with only very limited institute-based training.

Space Sharing Model - The main objective of this model is to make use of the unused or underused training space with the training provider. This model helps to avail trained workforce for business and industry by ensuring optimal utilization of preferentially the public training facilities and increase the enrolment capacity of training system. The employers could take benefit of unused or underused training facility/infrastructure and conduct training under their own management. This approach mutually benefits training providers and enterprises in need of trained workforce (Pradhan et al. 2018).

Practical Partnership between Public TEVT Providers and Employers in Training

Another approach developed by Dakchyata in order to engage employers in the training cycle is named as "Strengthening Employers Engagement in CTEVT Schools (SEECS)" (project document of Dakchyata's SEECS-2019). This model is intended for the public TVET providers. The model has been developed after the in-depth studies of the CTEVT schools such as self-assessment, field studies, consultation with key CTEVT personnel at central level (Dakchyata. 2019: A report on the in-depth studies of the 9 CTEVT schools). The above in-depth studies revealed that CTEVT schools lack the meaningful role and mechanisms for engagement of employers in the training design and development, training delivery, schools' management, and skills with the schools' leaderships.

The approach is being carried out through the 9 identified Dakchyata Support Schools (DSS) across the agriculture, construction, and tourism sectors to strengthen their employer engagement activities (British Council. 2018, Bi-annual report of Dakchyata: TVET Practical Partnership). It has four key areas to strengthen the employer engagement in the schools, mentioned in the below (www.dakchyata-Nepal.org):

Industry Partnership in pre training phase: CTEVT schools develop collaboration and partnership with employers to develop training programmes, learning materials, facilities, and assessment to enhance the quality and relevance of the programmes. Different approaches such as rapid training needs analysis, employer's consultation and local communities will be involved in this stage.

Instructors' up-to-date industry knowledge during training phase: The model intents to enhance the quality of programme by developing pre- and in-service training that provide instructors' up-to-date industry knowledge and by embedding industry experts' inputs into training programme delivery. Occupational skills upgrading training at industry workplace will be organised for embedding of industry expertise in the delivery of the training programmes. A school bus will be provided to each school to facilitate mobility of students between school and workplace and networking with industry/employers.

Promote employability of the trainees: Through this model, CTEVT's schools are promoting employability through equitable access, developing employment and self-employment skills, and providing careers advice and guidance.

Leadership's capacity for effective employer engagement: The model is also building school leadership's capacity for effective employer engagement through the embedding of employers into school governance structures and leadership development activities. The schools are engaging employers to obtain inputs for quality assurance and assessment, school

governance structures and development of leaderships skills in engaging the employers in the training programmes.

Employer Engagement in Labour Market Information System through National Level Employer Associations

A number of employer associations and Dakchyata have just agreed on the creation of a model for employer associations to conduct harmonised, longitudinal and holistic demand side of labour market information in the country (British Council, 2018). The model has been developed on the premise and belief that employers are better able to assess the need of skilled workers than anyone else. The philosophy of the model is to engage employers and employer associations in an area of forecasting labour market skills needs in the respective sectors.

For this reason, Dakchyata has started working together with five national level employer associations (EAs): Federation of Nepalese Chamber of Commerce and Industry (FNCCI), Confederation of Nepalese Industries (CNI), Federation of Nepalese Cottage and Small Industries (FNCSI), Federation of Contractors Association of Nepal (FCAN) and Hotel Association of Nepal (HAN) to assess the labour market information within three important economic sectors: Construction, Tourism and Agriculture sector through members and representatives of employer associations (British Council, 2020). The 5 EAs develop Occupational Classification of each identified occupation and collect,

update, maintain, and manage labour market information through their province and local level network organisations. These EAs also disseminate and link with the national level supply side management information system, thereby moving closer to establishing a national LMIS system that accommodate both demand-side and supply-side data.

At present, the implementing partners of Dakchyata 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 above grant streams would be fed back to the policy guiding documents of public private partnership approaches of TVET system. These learnings would also be shared with other TVET stakeholders to allow them to learn from these pilots as well as to explore possibilities of scaling up and replication in other industrial sectors of the country.

Partnership in Developing Tools, Materials and Guidelines through Public Private Partnership Working Group

One of the core public-private platforms developed through Dakchyata to bring together actors to work together for developing well-functioning, market relevant, high quality skill development programmes in the country, is the TVET Public Private Partnership Working Group (PPP WG), established in June 2018 and facilitated by Dakchyata, under the Chairmanship of Ministry of Education,

Science and Technology (MoEST). The group now has 15 full members: 50-50% parity between the public and private sector which includes representatives from four ministries involved in TVET, the National Planning Commission, and representatives from national level employer association including commodity associations from construction, tourism and agriculture. To date, a series of workshops, meetings and interactions have been conducted to develop the relevant "building blocks" of a Policy Guiding Document (PGD) of PPP approaches in TVET, which-once finalised -will be handed over to Government as the opinion of what the PPP Working Group members recommend, i.e. what public and private sector jointly agree on will bring the TVET sector of Nepal forward.

Conclusions

I conclude that meaningful practical partnership is essential for all TVET programmes to be successful. TVET contributes to economic growth and increases employability to the trainees and improve productivity of the businesses and industries. This is possible when TVET program are designed and implemented through engaging the employers and as per the requirement of the employers. TVET programmes as suppliers and the employers as customers are so interrelated that the development of both must go forward hand-in-hand having practical partnership. During the initial period of the implementation of the grant streams, Dakchyata learned that the

relevancy of the training and employability of the graduates have been increased by working together with employers and training providers in meaningful partnership in the training programmes. Creating and functioning different forum and committees with representation from private sector and training institutes brought mutual understanding and sharing their real time needs for skilled workers. Similarly, working together between public and private sector in creating working group gave equal voices in the formulation of the policy level guidelines. Many more will be shared once all these grant streams reach in full implementation stages.

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An Integrated Quality Assurance System in Technical, Vocational Education and Training in Nepal

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Abstract

A quality assurance system in TVET provides the framework and processes for the consistent delivery of graduates with valid skills and competencies needed in the labor market. It also includes constant review and improvement cycles so the institutions become more efficient and effective in meeting the changing demand of the labour market. Setting and monitoring improvement targets within the system, and then evaluating the quality benefits of those improvements, are key elements of the overall management of the TVET system and as such need to include a variety of relevant measures that are polled consistently according to defined schedules. In this way, quality assuarance system in TVET ensures the effectiveness of system inputs (policy, management systems and processes, infrastructure, human resources, financial resources) to produce the desired outcomes that can be monitored and evaluated to examine if TVET institutions under evaluation responds to labor market, societal and individual needs; leads to nationally, or even internationally, recognized qualifications or credentials; provides access to decent jobs and sustainable employment; is attractive, inclusive and accessible, i.e. all citizens have access to TVET; and fosters capabilities that enable progression to further learning. In this paper, an integrated system of quality assurance is proposed to streamline Nepal's TVET and assure the quality of all institutions delivering TVET in Nepal.

1. Introduction

Education and training are an essential means for economic and social transformation. These can provide people with useful knowledge and skills and prepare them to earn and overcome poverty. These enhance consciousness among the people and make them able to fight against ignorance and oppression, to maintain social harmony and peace, to reinstate human rights, to live dignified life and ultimately contribute to nation building (Ministry of Education [MOE], 2012). There is no doubt that investing in human capital will generate returns (on investment) in several socio-economic respects: higher overall economic growth, increased productivity at the workplace, and expanded economic opportunities for the disadvantaged people.

Human capital development connected with national development strategies has proven to be effective in responding to poor economic growth and high unemployment and under-employment (Keating et al., 2012). Therefore, technical and vocational education and training (TEVT), and skills development currently are gaining ground in many developed and developing countries essentially in response to critically high levels of youth unemployment (Pavlova, 2014).

After implementation of new constitution, Technical and Vocational education and skills development was considered as a means of developing skilled productive workforce contributing to national prosperity. The current unemployment rate is 11.4 (MoF, 2019). Realizing the importance of TVET for employment, economic productivity, poverty reduction and social development, the government of Nepal is committed to expand TVET provisions in every Municipality (including rural municipalities). Expansion of provision alone cannot bring changes unless the national body responsible for TVET ensures quality of TVET institutions and programs produce expected results. Quality institutions and programs place priority on strengthening management capability, increasing the opportunities for staff training and standardized curriculum and resources, and providing these resources in a cost-effective way. Training, supervision, and resources need, flexibility in content, methods and delivery are important aspects effective TVET institutions and programs.

This flexibility allows for adaptation to a growing and possibly unstable labor market (ESCAP, 2013).

The purpose of this article is to guide TVET institutions and authority responsible for quality assurance of growing institutions to engage them in the process of quality improvement and assurance process through the development and implementation of an integrated quality assurance system in Nepal. For this purpose, the interconnected nature of quality management, quality improvement and quality assurance is examined and an integrated system of quality assurance of TVET is suggested.

2. Context and Need

Poverty, unemployment, low levels of education and skills of the workforce are main development challenges of Nepal. In response to the development challenges Nepal has given more emphasis in the expansion of TVET provisions (MOEST, 2017; MOEST, 2019). The annual report of the Council for Technical Education and Vocational Training (CTEVT), the responsible body for the development of TVET in Nepal, revealed that there were 569 formal TVET institutions in 2017 where as the number has reached to 1042 in 2020. With the increasing realization that technical education and vocational training programs are of paramount importance in the social, educational, and economic scene, more and more emphasis is being placed in quality control. In addition, investment from government or from people in TEVT

is significantly higher. Utility and return of the investment would be higher if TEVT institution prepares students of superior quality capable enough to compete for the job in the labor market.

Expansion of TVET institutions alone is not solution to Nepal's development problem, but it will be instrumental if (a) all programs of study in each of the TVET institutions are soundly conducted as per curricular requirement; (b) the sum of money entrusted to TVET institutions being effectively and sensibly utilized; spent; (c) education and training being offered by TVET institutions satisfy the needs and requirements individual and society, (d) students receiving education and training as demanded by curricula and TVET institutions are delivering quality education, training and services to students; and (e) there is a system of ensuring the public that they are protected from unethical training practices. Only those TVET institutions can produce intended that meet the above quality criteria (Watters, 2015). .

In an age of accountability, the quality of program offerings must be of paramount interest to all technical and vocational educators. In the present context of economic liberalization and open market system, importance of quality assurance of education and training is even greater. Only the graduates of those institutions that maintain the quality (with evidence quality offerings) and standard of training will have better chance of getting high wage employment. How best to address the question of quality and help institutions to improve through

a systematic process of evaluation is the major concern of TVET. It is evident that accreditation is a process that plays an important role in maintaining educational quality. Involvement of administration, staff, and students in identifying institutional strengths and weaknesses is a cornerstone of a sound accreditation system. An effective assurance system enhances shared responsibility, authority and accountability among the TVET institutions for improving the quality, relevancy and efficiency of programs being conducted by those institutions. In this article, an attempt has been made to provide general information about accreditation and to trace the steps of the basic accrediting process.

The image of TVET is the sum of collective attitudes, associations and feelings which influence decisions concerning the investment in TVET. The image of TVET emerges out of a complex mixture of market value und attractiveness of vocational education and training (Clement, 2014). A positive image of TVET can only evolve if it ties in with · a good quality of TVET, functioning labor markets and appropriate rates of return on a rational level, and · positive projections into the future with respect to identity, images in our minds and cultural perception as well as behavioral patterns on an emotional level (Keating et al., 2012).

The time has come when national responsible body authorized for quality assurance takes a public stand for integrity of action. Such national organization must be able to ensure TVET quality requirements of all institutions

under it. In order to make TVET meaningful and useful to individual and society, a dynamic integrated TVET quality assurance system should be in place. Through such system, TVET institutions should be made responsible to offer quality education and training services to prepare competent and high performing workforce (MOEST, 2019). Only quality institutions and programs can prepare competent and competitive TVET graduates who can make country prosperous and improve their own living standards.

3. Concept of Quality and Quality Assurance

Quality is a simple concept to incorporate into the technical and vocational education industry. Quality education refers to a system or product that has passed a certain set of criteria or principles. The standard approach in setting the criteria or principles for quality implies that quality can always be further improved. Quality thus implies the maintenance and improvement of standards with the assumption that 'standards' are objective and quality is a continuous change. Quality in education across the education system consists of the application of the principles of: Effective, Empowering, Equity, Sustainable, Appropriate, and Wellbeing & Safety (EEESAW) (Goel, & Hamman-Dina, 2017).

Quality assurance is a component of quality management and is "focused on providing confidence that quality requirements will be fulfilled" (AS/NZS, 2006, p. 9). In relation to training and educational services, 'quality

assurance refers to planned and systematic processes that provide confidence in educational services provided by training providers under the remit of relevant authorities or bodies. It is a set of activities established by these relevant authorities or bodies to ensure that educational services satisfy customer requirements in a systematic, reliable fashion. However, quality assurance does not guarantee the quality of educational services it can only make them more likely (Bateman et al., 2009, as cited in Keating et al., 2012). An essential element of a quality assured TVET system is ensuring that the provision meets the skill and education needs of industry and individuals in changing national and globalized economies. To achieve quality of TVET outcomes there should be: a means by which the quality of providers of TVET and of the qualifications issued are assured.

The common areas of concern in relation to quality assurance of TVET qualifications were identified as: fragmentation of governance, the capacity to be able to shift to the learning outcomes approach, the low value placed on TVET and weak data systems (for data collection and for informing decisions for improvement of the TVET system).

Quality is perceived differently by different people. ISO 8402:1986 defined quality as all characteristics of an entity that bear on its ability to satisfy stated and implied needs. Similarly ISO 2000 viewed quality as the degree to which a set of inherent characteristics fulfils requirements. The

ultimate test in this evaluation process lies with the consumer. The customer's needs must be translated into measurable characteristics in a product or service (Jarvis, 2014). Once the specifications are developed, ways to measure and monitor the characteristics need to be found. This provides the basis for continuous improvement in the product or service. Some argue that the ultimate aim is to ensure that the customer will be satisfied to pay for the product or service. This should result in a reasonable profit for the producer or the service provider. The relationship with a customer is a lasting one. The reliability of a product plays an important role in developing this relationship. The services needed to satisfy customer's needs or achieve fitness for use.

Galvão (2014) described the perceptional differences in interpretation quality. Exceptional views perceive quality as something special. Others see quality as perfection in which outcomes are flawless. Similarly quality as fitness of purpose sees quality in terms of fulfilling a customer's requirements, needs or desires. Also some view quality as value of money is measured in terms of returns of investment where as other see it as transformation that occurs change from one state to another.

Another perspective on the concept is offered by Cheng (2001), who states that the worldwide education reforms have experienced three waves since the 1970s. Based on these three waves he proceeds to identify three paradigm shifts in quality improvement in education: (1) internal quality assurance, which 'makes an effort to improve internal school performance, particularly the methods and processes of teaching and learning'; (2) interface quality assurance, which emphasizes 'organizational effectiveness, stakeholders' satisfaction and market competitiveness and makes an effort to ensure satisfaction and accountability to the internal and external stakeholder, and (3) future quality assurance, which is defined 'in terms of relevance to the new school functions in the new century as well as relevance to the new paradigm of education concerning contextualized multiple intelligences, globalization, localization and individualization'.

Galvão (2014) also proposed alignment theory which refer to interconnections of the organizational elements and its partner in order to make TVET more relevant and useful to the stakeholders (or costumers). Education and training sector has consistently borrowed concepts and methodologies from the quality movement of business sector and alignment theory is also borrowed concept TVET quality management from the business world. VET, QA and QI policy alignment may include dimensions such as (a) alignment of stakeholders' views on quality, (b) alignment of policies and procedures,(c) alignment of sector policies, (d) alignment of TVET around evidence-based decision making, and (e) Alignment with international QA and QI approaches. Such alignment offers wider recognition of the TVET quality, recognization of the qualifications and credentials offered by the

national TVET authority and strengthens the positive image of TVET institutions and programs.

The main function of the quality assurance in TVET through accreditation systems is to assure that minimum standards in delivery of TVET are respected. They rarely push forward dynamics towards continuous improvement of training quality in TVET provider organizations. It is difficult to combine these two functions: respect of minimum standards and continuous improvement of training quality. However, TVET quality assurance may be understood as the measures established to verify that processes and procedures are in place, which, when effective, ensure the quality and quality improvement of VET. Therefore, TVET quality assurance system should have interconnected TVET quality improvement and quality assurance components (Cedefop, 2011).

Evolving links between the VET sector and the employment system could help to put more emphasis on output and outcome criteria. Involvement of stakeholders is a key issue in efforts to orient the accreditation process and applied criteria more strongly towards the outcomes of training. A more systematic measurement of results and impacts of training is another approach to improve quality of TVET and employability of VET students. Within the education system the meaning of TVET quality can be quite different from that within the employment system. VET might be of the highest quality at a certain moment in time but a sudden change in labor market needs can render its outputs, at least temporarily, worthless as regards employability. The aim of quality assurance in VET is to support processes and procedures that ensure five key features of good TVET. According to Watters (2015), 'Good TVET' (1) responds to changing labor market, societal and individual needs; (2) leads to nationally, or even internationally, recognized qualifications or credentials; (3) provides access to decent jobs and sustainable employment; (4) is attractive, inclusive and accessible, i.e. all citizens have access to TVET; and (5) fosters capabilities that enable progression to further learning.

Quality is conformance to requirements (Philip Crosby), quality is fitness for use (Juran, 1954), and good quality means a predictable degree of uniformity and dependability with a quality standard suited to the customer (Deming). Quality is the degree to which performance meets expectations. According to the American Society for Quality (ASQ), quality denotes an excellence in goods and services, especially to the degree they conform to requirements and satisfy customers (as cited in Chandrupatla, 2009). Chandrupatla further assets that "reliability is the probability that a system or component can perform its intended function for a specified interval under stated conditions. Quality and reliability go hand in hand. The customer expects a product of good quality that performs reliably" (p. 2). Chandrupatla (2009) summarizes that "the underlying philosophy of all definitions is

the same – consistency of conformance and performance, and keeping the customer in mind" (p. 2).

Emergence of Total Quality Management (TQM) movement concept of quality as discussed above were surfaced and started to provide clearer picture of quality. Customer's satisfaction, maintenance of cost and promoting efficiency, concern for continuous quality improvement for everything the organization does, measurement of performance or results and empowerment of employees were the main themes received focus in relation to quality management. Juran and Crosby supported Deming's definition of quality as the means of meeting or exceeding customer's expectations (Rijal, 2004). From their work and work of other proppants of quality movement, the concept of quality can be summarized as follows:

- Quality is conformance to requirements,
- Quality is fitness for use
- Good quality means a predictable degree of uniformity and dependability with a quality standard suited to the customer. (Demings)
- Quality is the degree to which performance meets expectations
- Quality denotes an excellence in goods and services, especially to the degree they conform to requirements and satisfy customers. (ASQ)
- Reliability is the probability that a system or component can perform its intended function for a specified interval under stated conditions.

Quality Assurance Programs and Activities of CTEVT

Practice of TVET Quality assurance is not new in Nepal. Quality assurance programs were further strengthened after formation of CTEVT. After reviewing Policies, Act, regulation on CTEVT and several publications of CTEVT such as CTEVT, profile, annual progress reports (eg CTEVT, 2017; CTEVT, 2020) and other related documents the following quality improvement and quality assurance activities of CTEVT were identified.

Assessment of Needs and skills demands of the labor market: One of the important activity CTEVT carry out in a regular basis is assessing training needs and skills demands of the labor market prior to introducing new program or revising curriculum such studies are carried out. Information generated from the needs assessment and skills demands address the training needs of the employers and individuals. Programs developed on the basis of such information ensures usefulness and relevance of the newly introduced programs.

Contextualized competency based curricula: CTEVT had the practice of developing contextualized competency based curricula involving occupational experts and relevant employers' representatives. Every TVET providers of formal TVET are required to use the same curricula. This requirement ensure the uniform training delivery and training outcome standards. Also learners are assessed within the same competency standards specified by the curricula.

Attempts are made to bring all non-formal vocational skills development program under the National Vocational Qualification system to offer equivalent qualification by assessing knowledge and skills learned through informal or non-formal means. Attempts are also being made to standardize the short-term vocational training curricula.

Ensuring effective delivery of TVET programs: Periodic Monitoring and supervision of TVET institutions/programs not only contributes toward quality improvement but also in quality assurance. The team of experts deployed to monitor the TVET institutions check the quality input and quality process which ensure that teaching learning and assessment is happening as stated in the curricula.

Inputs and infrastructure inspection prior to approval of TVET institution: Approval of new TVET institutions is awarded after careful inspection of input quality including infrastructure of proposed TVET institutions. Such inspection ensure potential quality delivery of programs. Infrastructure inspection is considered as part of the quality assurance of TVET.

Centralized end of the program examination: All students of formal TVET programs such as Technician Diploma and Junior Technician level course should undergo end of the program examination to earn respective technical qualifications. The purpose of the end of the program examination is to ensure the quality of these programs and certify successful candidates and award nationally recognized qualifications. Certified

candidates are expected to demonstrate desirable competencies expected by the respective curriculum. National examination at the program exit level is the powerful means of quality assurance in TVET.

Skills Testing and Certification: CTEVT also organizes skills testing service for those who learned skills from non-formal (training) and informal (experience) to examine the level of work proficiency. Successful candidates are awarded with recognized qualification only valid for work. Individuals having skills testing certificate are eligible to apply for jobs in public or private sector or receive training to advance their skills. NVQ system which is being developed is expected to award recognized qualification to promote transferability, permeability and mobility.

Accreditation of TVET Institutions/Programs: CTEVT has Accreditation Division having main responsibility of quality assurance. This division is occupied with giving approval to open new TVET institutions/programs in the name of affiliation. But accreditation of TVET institutions and programs in real sense is not performed. This may be because of capacity gap or over occupied with substantial growing demands on the approval of new TVET institutions.

Before approval of new TVET institution or program CTEVT rigorously examine the potential quality of program offering of the institutions applied for approval. Inputs and infrastructure inspection against approved standards is carried out prior to approval of TVET institutions or programs. The

quality improvement and quality assurance practices of CTEVT can be summarized in the following table.

Observed Gaps

Although there has been sufficient efforts of quality improvement and quality assurance in CTEVT, these programs are not carried out in an integrated and systematic manner. Fairness of the assessment is another area which has been questioned by the general public. To avoid such questions and improve the image of CTEVT strong, fair and integrated quality assurance system is needed.

Integration or interlink among the activities of quality improvement and quality assurance is missing. Quality improvement is strategic, planned scheme for quality improvement and parodic monitoring and review of the progress in quality improvement is needed. Existing monitoring has become more judgmental rather than as a tool for facilitation and support for quality improvement. In other words, monitoring is not being able to provide technical/professional support to technical training providers (TTPs), instructors or to the administrators.

Table 1: Quality improvement and Quality assurance practices in CTEVT

Quality Improvement	Quality Assurance
Training of curriculum development	Needs assessment and curriculum development as per need
Resourcing TVET Institutions:	Ensuring effective delivery of TVET programs as per curriculum through inspection or supervision
Provision for Quality Improvement Unit	Registering new institutions. Inputs and infrastructure inspection prior to approval of new TVET institution
Trainers' Training and professional support	Central end of the program examination, certification
Monitoring the performance of each Training providers with feedback for improvement	Skill Testing and certification, currently being upgraded into Vocational Qualification System
Leadership and Management conferences for quality improvement	Accreditation of TEVT institutions and programs
Structure and organization for quality improvement (TITI, Technical division, Polytechnic division, Training division	Controller of Examination, Skill Testing Authority
Annual Principal's conference for quality improvement	Entrance examination and student selection

Performance of learners in the learning process is the heart of TVET quality which require engagement in the continuous improvement. Leaders, managers and instructional staff should be inspired, motivated and committed in continuous assessment and improvement which is an weak area of CTEVT.

Under federal structure, how and which level QA in TVET need to be addressed is unclear. There is no guiding document to help training/education providers to improve quality or periodic review/assessment of the status of overall quality of TVET institution is not available. Nor there is a regular monitoring of the TVET institutions. Capacity development of the personnel at central, provincial level and at the institutional level is ignored.

Reform in examination system shifting focus from content assessment to competency assessment system should be in place to assess the leaners' proficiency level which need to be improved in the current practices of examination. Similarly, regular interaction with industries/employers is needed and employers' engagement in curriculum design process, instructional process and testing and examination is a weak area which require improvement. Reform in industry/employers' involvement in the process of TVET development.

Apart from the above gaps TVET has experienced fall in quality on account of poor funding from government and other stakeholders in Nepal. Quality of TVET is also affected by its inability to stimulate employability contrary of graduates to the widely held notion that specialized education empowers the citizens to be creative, innovative and productive thereby improving their employability.

Proposed an Integrated TVET Quality Assurance Model for Nepal

A quality assurance system provides the framework and the processes for the consistent delivery of graduates with valid skills and competencies needed in the labor market. It is the assuarance that right people with the right skills at the right time is arranged all the time. A quality assurance system also includes constant review and improvement cycles so the institutions become more efficient and effective in meeting the changing demand of the labour market. Setting and monitoring improvement targets within the system, and then evaluating the quality benefits of those improvements, are key elements of the overall management of the TVET system and as such need to include a variety of relevant measures that are polled consistently according to defined schedules. In this way, the effectiveness of system inputs (policy, management systems and processes, infrastructure, human resources, financial resources) to produce the desired outcomes that can be monitored and evaluated.

Quality Assurance is continuous, systematic and cyclical. As the cycle goes on, the provision of TVET institutions improves in quality. For the purpose of enriching quality

assurance system in CTEVT is to take a lead to implement the system nationwide, designing and implementing integrated system of quality assurance.

Stages in an Integrated Quality Assurance System

The proposed integrated system of quality assurance consist of three inter-connected stages of quality management, quality improvement and quality assurance. Each of these stages will be discussed in the following section.

a) Quality Management Stages

Quality management can be defined as the organization of inputs and processes that make the quality assurance activities possible as part of managing of the TVET institution or center. On the level of the institute this implies that for QM team will be inspired to self-assess the quality against the national endorsed quality standards in a regular basis and engage in continuous improvement of TVET quality. The set of management activities and procedures that together determine the quality policy of a TVET provider or sector and its implementation. The main instruments of a quality management system are quality planning, implementation of the quality review and quality improvement. Each TVET institution will apply the following procedures to promote quality management of TVET institution.

The quality management team of each TVET institution make sure that minimum standards of inputs specified by CTEVT is met. Arrangement of quality instructors, facilities conducive to learning and instruction, workshop and lab facilities with needed equipment and materials, learning materials for students, instructional guides for teachers etc. are available. Quality management ensures that programs are being offered ensuring input qualities, process quality and output quality. Principle of Total Quality Management (TQM) claims that if the institution arranges quality inputs and ensure the quality process the output certainly would be of quality. Periodic review of performance, regular quality check and engaging everybody concerned in continuous improvement are some of the responsibilities of quality management team. Self-assessment of quality assurance stage can be connected with quality management process.

b) Quality Improvement Stage

Quality improvement stage is the continuation of quality management stage. Lapses observed in quality dimensions of TVET institution identified by quality management team will be the areas for improvement in quality improvement stage. Quality management team will also serve as quality improvement team. Continuous improvement of quality is the part of the quality assurance system. Quality improvement is a continuous process in which institutions regularly carryout self-

monitoring or self-assessment of quality using nationally endorsed quality standard. Weaknesses and defects are identified through periodic self-assessment and necessary correction or improvement is made.

Quality improvement in TVET is an on-going process. Central level authority responsible for TVET quality, provincial and local government are expected to collaborate and work together to support TVET institutions in engaging them in continuous improvement of their quality of education and training. In addition, organizational leaders are expected to inspire entire members of the organization and stakeholders focusing into quality improvement initiative. Quality improvement is connected with the internal assessment of quality assurance procedure.

c) Quality Assurance Stage

Quality assurance has become an increasingly important aspect of TVET planning and practice over the last two to three decades. The demand for TVET, coupled with the expansion and diversification of training systems, has dramatically increased the need to develop and implement more formal notions of quality assurance, along with associated procedures for quality assessment, monitoring, and improvement.

Quality assurance in TVET includes several activities, starting from the self-assessment of the institution and finishing with the use of the outputs of the assessment. First, input in the quality assurance process deals with planning QA, arranging necessary instrument

of audit, trained HR to carry out review of TVET institution and programs, qualified and competent quality assessors, necessary resources, assessment guidelines or manual. Then the assessors collect evidences required to support each assessment criteria.

Proposed Integrated Model of Quality Assurance of TVET in Nepal

As discussed above, quality management, quality improvement and quality assurance processes are interconnected. Nepal will follow and integrated model of quality improvement and assurance and accreditation as shown in figure 4 which will include quality management, quality improvement and quality assurance as sub-system of quality assurance system.

Newly approved TVET institution and institutions which are in operation will be inspired to be committed to quality management. TVET institutions under quality management will focus on arranging quality inputs to deliver quality process and check if desired outputs are produced. In the quality management process each institution will assess if quality standards and criteria are met and find out deficiency or lapses in the institutional quality. The observed shortcomings or deficiencies during self-evaluation of quality management of TVET will be the source of information for quality improvement stage.

At the quality improvement stage, observed shortcomings or deficiencies of TVET quality will be translated into quality

improvement objectives and corresponding improvement activities with resources. These activities are documented in yearly plan of action specifying improvement activities in each dimension of quality, quantity or quality of reform activity, target achievement, person responsible for each of the activity. These reform activities should be implemented and monitored progress in a quarterly basis. Any obstacles encountered during implementation of reform activities are reported to the leader and concerned manager for immediate corrective action.

The final stage of integrated quality assurance model is to check whether the TVET provider has achieved required quality standards by carrying out self-assessment of level of quality. The quality assurance team of the institution of the concerned TVET institution will conduct self-assessment using standard tools. The tool for self-assessment will be the same or similar to tools to be used in internal assessment and external verification. The purpose of the self- assessment is to examine if the TVET institution satisfy the minimum quality requirements given by the national authority responsible for TVET quality assurance. If the institution satisfies the minimum standard of TVET quality, they request the provincial level to carry out the internal quality assurance of the institution. Successful institutions in internal quality assurance request the central authority through provincial council to constitute an independent committee of experts for external verification of the internal assessment.

Fig. 1: Quality Assurance System
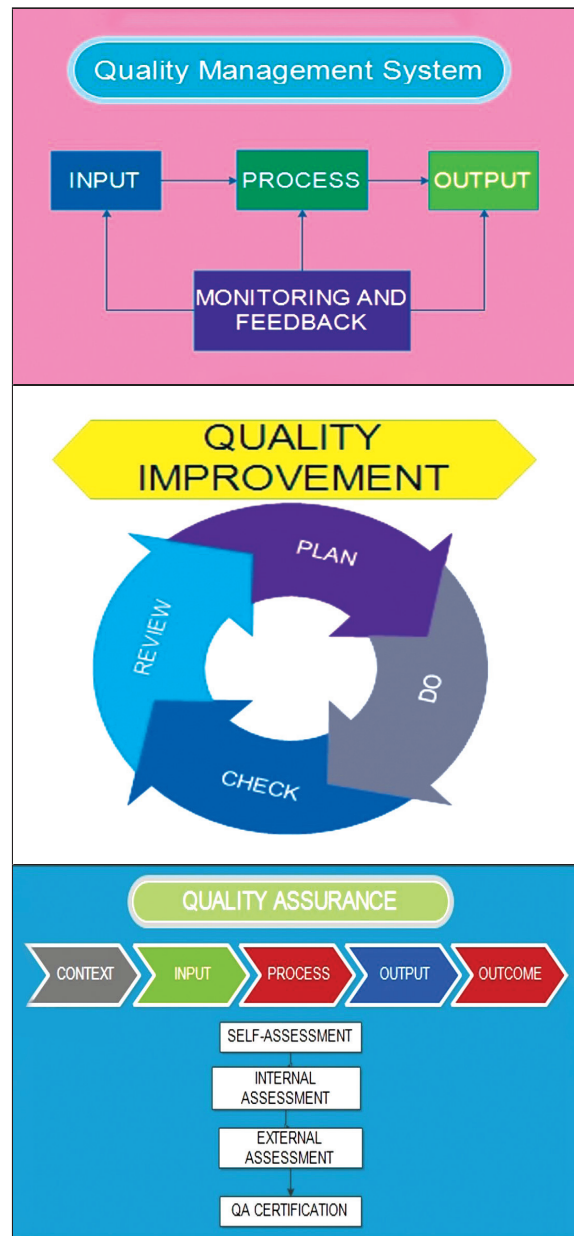
Common Principles of Quality Assurance

- Quality assurance should be an integral part of the internal management of education and training institutions.

- Quality assurance should include regular evaluation of institutions, their programs

or their quality assurance systems by external monitoring bodies or agencies.

- External quality assessment and review bodies or agencies carrying out quality assurance and should be subject to periodic review.

- Quality assurance should include context, input, process and output dimensions, while giving emphasis to outputs and program outcomes.

Conclusions

TVET quality is an utmost important factor in developing human resources in order to contribute to social and economic development. Human resources development demands monitoring and evaluating TVET provision regularly, with focus on implementing the legal framework, policies, guidelines and QA procedures in order to implement the TVET strategic plan and deliver quality services. High quality of education and training provision is a mandatory precondition for its attractiveness. TVET quality increases transparency, mutual trust, the mobility of workers, trainees and graduates, and lifelong learning provisions.

Quality is not ultimately assured by occasional external comparative reviews of institutions no matter how helpful these may be. Assurance of quality can be assisted by a mixture of both external and internal reviews that are focussed on the continuous achievement of the quality goals. But the consistent assurance of quality also results

through a culture of quality within the institution where the staffs and students are motivated to not only review the performance of the system but are also motivated to find ways of improving performance. Institutions where functional quality management system is ongoing and instructors, students, administration collectively engage in quality improvement qualty assurance is sustained for ever.

Commitment to quality of all the members of TVET system is an essential prerequisite of QA process. Such commitments should come from leaders and managers of TVET institution, QA authority at the central level is expected to raise awareness of TVET quality and inspire all TVET institutions to have strong commitment to quality improvement and quality assurance. After raising awareness of quality TVET management and inspiring all concerned to quality improvement and assurance, capacity development of each institution and personnels engaged in quality improvement and QA is needed. It is the responsibility of concerned authority of QA to develop gidelines and manuals to support TVET institutions to engage in quality improvement and participate accreditation of their institutions.All TVET institutions successfully completing the process of accreditation and accredited by Quality Assurance Board of CTEVT will receive accreditation certificate. Quality Assurance Certification contributes to reliability and

trustworthiness of the TVET institution with social image that the institution offers TVET programs and services of superior quality. The accreditation certificate should be renewed by carrying out Quality assessment or accreditation in every 5 years to ensure that TVET institutions are maintaining minimum requirements of quality.

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Constitutional Reform and its Impact on TVET Governance in Nepal

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Abstract

This paper analyses the challenges of the constitutional reform in Nepal and its impact on the governance of technical and vocational education and training (TVET). Thereby, the paper suggests five crucial recommendations. First, establish an Inter-Governmental TVET Council/Coordination committee, a high-level body with representatives of all three government levels. Second, describe the key TVET processes in a Master Plan that allocates tasks and processes to the appropriate level and supports a consistent federalisation process. Third, the high-level committee must address the remaining unclear normative issues in a TVET Policy for 2030 with goals and a vision for the sector. This should include allocating responsibilities to formal and non-formal education, defining what Nepal means by "good governance", defining the TVET programme approach, allocating detailed tasks to all three government levels and defining specific objectives for the TVET sector. Fourth, develop a TVET Act as quickly as possible. This is particularly important because the seven provinces depend on a national TVET legal framework to develop their own laws. Fifth, conduct a comprehensive TVET financial flows analysis to reconcile TVET funding sources and expenditures.

Keywords: *TVET, Governance, Federalisation, Constitution*

1. Introduction

Nepal promulgated a new constitution in September 2015 that makes the country a federalised democracy. The governance structure extends the existing centralized model to one with federal, state, and local governments; each with dedicated roles, rules, processes, and institutions. While the constitution of Nepal outlines the federalisation of many sectors and makes a clear commitment to education in

general, TVET is not specifically clarified. The government of Nepal is working with provincial and local authorities to implement the new constitution, but many questions remain open and some normative decisions are necessary before implementation can begin.

The present paper maps out the key elements of TVET federalisation. The paper is part of a larger body of work including studies that examine the various aspects of TVET systems (Baral et al., 2019), the financial flows related to TVET in Nepal (Parajuli et al., 2020), and specific TVET programmes (Bolli et al., 2020a, Bolli et al., 2020b).

The paper is structured as follows. Section 2 presents the methodology of the analysis. Section 3 discusses the existing literature. Section 4 presents the results and section 5 concludes.

2. Methodology

This paper builds on four data sources. The first data source consists of a literature review of relevant scholarship to TVET in Nepal. Renold and Caves (2017) present a detailed discussion of this literature review. The second data source comprises an extensive document analysis of Nepal's legal framework related to TVET.

The third and fourth data sources consist of two field trips to Nepal, during which we met with TVET stakeholders, visited TVET-related government actors at all levels, and discussed ideas and potential recommendations with TVET insiders.

This includes individual interactions and consultative workshops with the major stakeholders, including follow-up communication via email. The field trips further entail a visit to one province and selected Palikas (metropolitan cities) to understand their federalisation views and activities. Finally, the field trips also contain a symposium presentation of initial reflections and potential recommendations to stakeholders, organized by Kathmandu University.

3. Review of Literature

There is a great deal of literature on the relationship between decentralization and education (see, e.g. Faguet, 2013; Rodden, 2006; Rodden et al., 2003). The literature suggests that TVET decentralization is linked to positive outcomes, but only when it is done well. Without careful attention to fiscal incentives, decentralising TVET funding in Nepal might create problems in various government levels' behaviour. Those problems can include local overspending (Faguet, 2013), macroeconomic instability (de Mello & Barenstein, 2001; Montero & Samuels, 2004; Wildasin, 1998). These problems can be solved or reduced through transparency and outcome-oriented funding, which pays per capita rather than for specific inputs.

An academic-sector example of successful fiscal decentralization is Sweden in the 1980s and 1990s. In that reform, outcome-oriented funding moved down to the local level. Though some feared increased inequality,

that outcome did not materialize. Ahlin and Moerk (2008) also find that funding in the system remained stable.

For a TVET-specific example, we can learn from the decisive years between 1998 and 2007 in Switzerland. Renold and Barmettler (2007) describe the process of changing the Swiss VPET (Vocational and Professional Education and Training, the term used in Switzerland) system, including implementation of the 2004 VPET Umbrella Act. They describe how the system's funding changed from opaque and input-oriented to a transparent output-oriented model. This coordinated the costs of TVET with available public funding, increased autonomy and self-governance at the lower levels of the system, and incentivised local actors to perform efficiently rather than to extract personal benefits.

Renold and Barmettler (2007) point out that successful transitions like that of the Swiss system have certain prerequisites. The reform worked because its framers knew the system's costs and could set financial priorities based on different stakeholders' needs. Together, these create conditions that favour rational use of funds. According to this analysis, autonomy and transparency are the basis of successful TVET and quality assurance. As stated by the authors, "Education can only be achieved if the participants want to and do engage in the knowledge of things."[1] (p.

115, own translation). Decentralization can have positive effects for fiscal management and sustainability of TVET systems, but the effects depend on good governance and outcome-oriented incentives.

The final piece of evidence is the special considerations for developing countries in financing decentralised TVET. Unlike their developed counterparts, developing countries are not usually moving from semi-independent local governments to a unified system, but from centralised government to a decentralised model that creates a new need for local knowledge and skills related to governing TVET (Bardhan, 2002). The government of Nepal cannot abandon its most poor, remote, and otherwise underprivileged citizens. TVET is one way Nepali people can access economic prosperity, so its objectives should be tied to improving individuals' economic participation and prosperity. Outcome-oriented funding can incentivise specific objectives, so it is even more important in this context.

4. Challenges of the Federalisation Process

Although many federalisation processes are already underway in Nepal, it is not completely clear yet how the federalisation process in Nepal's TVET sector will be organised. This is particularly important because the federalisation process requires coordination among the federal, state, and local levels. It is therefore very important that the government of Nepal makes decisions quickly and coordinates with the

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1   German: «Bildung kann nur gelingen, wenn die Beteiligten in Kenntnis der Dinge sich engagieren und engagieren wollen.»

province and local levels. The following subsections describe four very urgent tasks that the government of Nepal and MoEST should accomplish in the coming months. These will be critical for the TVET sector's success.

4.1. Establish an Inter-Governmental TVET Council/Coordination Committee

Federalisation requires a high degree of coordination among government levels. Coordination is also required, as stipulated by Art. 232 of the Constitution. One possible measure to facilitate this coordination is creating an Inter-Governmental TVET Council/Coordination Committee (or High-Level Steering Committee), which should be led either by the Prime Minister or the Minister of Education. This body would fit well with the Inter-Governmental Fiscal Bill (see Part 9, Art. 33), which places similar importance on coordination among government levels.

We show one possible model for the composition of this council in figure 1. As a political body, its primary task is to make the necessary decisions so that working groups can carry out the work it commissions.

In addition to the Federal Government, which should be represented in particular by the MoEST, the Ministry of Finance

Figure 1: Composition of the Inter-Governmental TVET Council/Coordination committee or similar institution

(Source: authors' own depiction; Renold et al., 2018, p. 35)

and/or other ministries, a representative number of political decision-makers from the province and local levels must be involved.

The secretariat of this Council can be run by an administrative unit of the MoEST. The Council determines its organization (e.g. the number of meetings per year) and sets up working groups, which form the basis for decisions in each meeting. The working groups may also include experts from the TVET sector or external technical advisors.

The same high-level committee should approve a new TVET Policy 2030 and must address the remaining unclear normative issues. These include allocating responsibilities formal and non-formal education, defining what Nepal means by "good governance" and the TVET programme approach, allocating detailed tasks to all three government levels—unless they are already clearly defined in the unbundling report—and defining specific objectives and regulations for the TVET sector. This body, according to Art. 232 of the Constitution, should also coordinate the vertical political authorities and ensure that there is an overall coherent legal framework.

4.2. Identify and describe key TVET processes in a Master Plan

Federalising education includes concurrent powers shared among government levels. Therefore, all three levels must work together (Constitution Art. 232). In addition, joint planning is essential for an orderly transition from the old to the new regime. This requires all three levels to transparently decide upon and schedule transition tasks.

A Master Plan is a useful strategy for managing complex change processes. The Master Plan should summarize the transition's organizational structure and all necessary projects it entails, making the activities within the transition process transparent. This increases trust, confidence and efficiency. Figures 2, 3 and 4 exemplify possible outlines for Master Plans at the federal, province and local levels respectively. These visualize the concept rather than suggesting an actual Master Plan. Each row represents a project or sub-project, and the columns display the timing between 2021 and 2025. Blue triangles indicate completion or deliverables. Vertical arrows are examples interrelations among projects and sub-projects.

The project plan outlines for the three political levels shown below were first published by Renold et al. (2018). They are renewed in the following because – despite enormous efforts for a rapid reform – not all processes have yet been initiated. The Education Policy 2019 was adopted and contains some normative statements on vocational education. In addition, various bills were drafted over

several months. At present, a first TVET Act is available, but it has not yet been passed by parliament.

Figure 2 shows examples of urgent projects and sub-projects on the federal level.

- Creating an *Inter-Governmental TVET Council/Coordination Committee* is the cornerstone of coordination among the federal, province, and local levels. The Council should be responsible for developing a *Master Plan* that defines subprojects, priorities, and the critical path.

- Defining the *TVET Policy* is closely related to developing the TVET Act. The Policy clarifies a series of normative questions, creating a foundation for developing the TVET Act. This project is currently underway and may affect both national and provincial TVET laws.

- The cornerstone of the plan is enacting a *TVET Act* as soon as possible—indicated by the blue triangle at the end of 2021. The first version of the TVET Act should be followed by its implementation and continuous evaluation of that implementation. This will probably lead
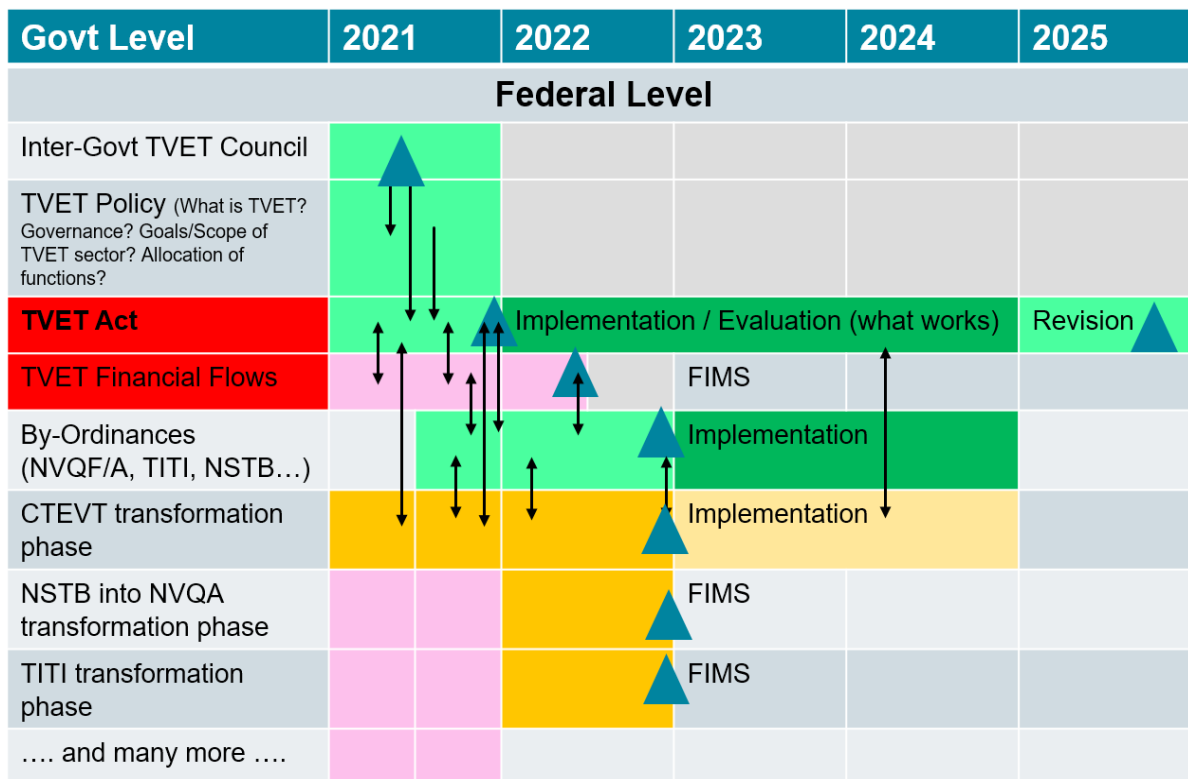
Figure 2: Examples of urgent projects on the federal level

(Source: Renold et al., 2018, p. 37. Own adapted depiction by the authors. Triangles represent decisions. Arrows shows connections among projects.)

to a revision of the TVET Act in 2025 based on the results and TVET leaders learning from experience. Furthermore, coordination with Social Development Ministers should ensure a coherent legal framework for the whole TVET system.

- A *TVET Financial Flows Study* is another key project that will help guide federalisation. The study, discussed in detail below, will ideally be formalised into a financial management system for TVET.

- Figure 2 shows *subprojects as ordinances or bylaws of the TVET Act*. They include

CTEVT federalisation, transforming the NSTB into the NVQA, and federalising TITI.

- Since this is a non-exhaustive list of necessary subprojects, the last row refers collectively to the many more important subprojects.

Figure 3 displays examples of urgent projects and subprojects on the province level.

- Participation of provinces in the *Inter-Governmental TVET Council/Coordination Committee* supports coordination among government levels.

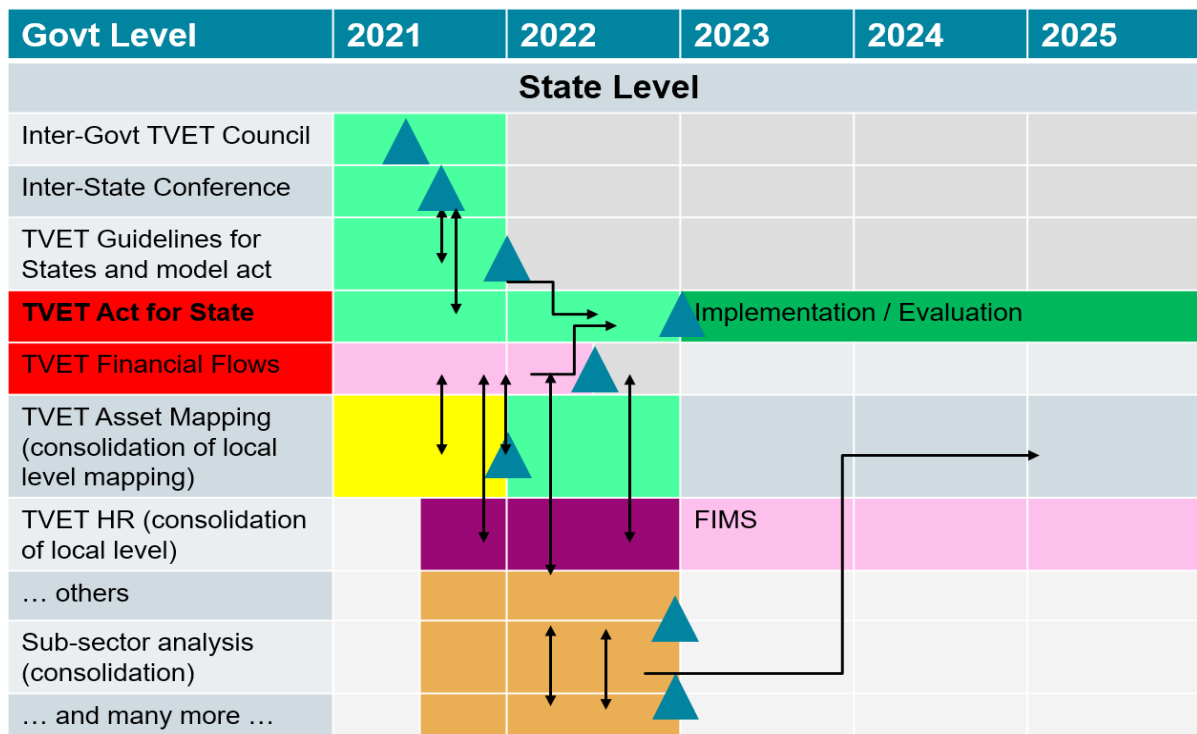| Govt Level	2021	2022	2023	2024	2025
State Level					
Inter-Govt TVET Council					
Inter-State Conference					
TVET Guidelines for States and model act					
TVET Act for State			Implementation / Evaluation		
TVET Financial Flows					
TVET Asset Mapping (consolidation of local level mapping)					
TVET HR (consolidation of local level)			FIMS		
… others					
Sub-sector analysis (consolidation)					
… and many more …					

Figure 3: Examples of urgent projects on the province level

(Source: Renold et al., 2018, p. 38. Own adapted depiction by the authors. Triangles represent decisions. Arrows shows connections among projects.)

- Provinces (states) may also organise an *Inter-Province Conference* that coordinates province federalisation work.

- The cornerstone of federalising TVET at the province level is *developing Province TVET Acts* based on the federal TVET Act. These clarify the interconnections among projects and subprojects on the federal and province levels, and on the province and local levels. The province TVET act is related to developing province TVET guidelines and designing a corresponding Model Act to help provinces create their own TVET Acts. Currently, some Province TVET Acts have already been drafted. Although this is understandable due to the delay at the national level, the interest of all stakeholders must be to coordinate the legislative processes at all three political levels so that an efficient, coherent and effective TVET system can emerge.

- The Province TVET Acts also build on the *Financial Flows Study*, which highlights how closely related the Master Plan need to be to the different government levels. Initial empirical studies of financial flows at the federal level have been prepared (Parajuli et al., 2020). These studies show above all how important it is not only to distinguish between formal and non-formal programs in legislation, but also to differentiate government spending accordingly.

- Other examples of urgent subprojects on the province level include consolidating local subprojects like local level asset mapping, sub-sector analysis, and HR development. As a result, the Master Plans for the province and local levels are closely interlinked.

Figure 4 shows examples of urgent projects and sub-projects on the local level.

- Local governments coordinate with the federal and province levels through representatives in the *Inter-Governmental TVET Council/Coordination Committee*.

- An *Inter-Local Conference* among local levels within provinces can help coordinate local actors.

- Further full cost analysis studies on province and local levels depends on *TVET Asset Mapping*. The latter project will gather information on existing institutions, schools and industry organizations already involved in TVET at the local level.

- A *full cost analysis* is a key ingredient for setting local-level annual TVET budgets.

- Furthermore, local actors need support in *developing the human resources* necessary to steer and implement TVET. This human resource development refers to both administrative and school staff.

  A working group on Master Plan Management, based in the Inter-Governmental TVET Council/Coordination Committee, should initiate and plan the timing of the various subprojects together with provinces and local governments.

Govt Level	2021	2022	2023	2024	2025
Local Level					
Inter-Govt TVET Council					
Inter-Local Conference					
TVET Guidelines for States and model act					
TVET Act for State			Implementation / Evaluation		
TVET Financial Flows					
TVET Asset Mapping (existing institutions/schools and industry organization)					
Annual TVET Budget			FIMS		
TVET HR development (admin & school staff)			FIMS		
… and many more …					
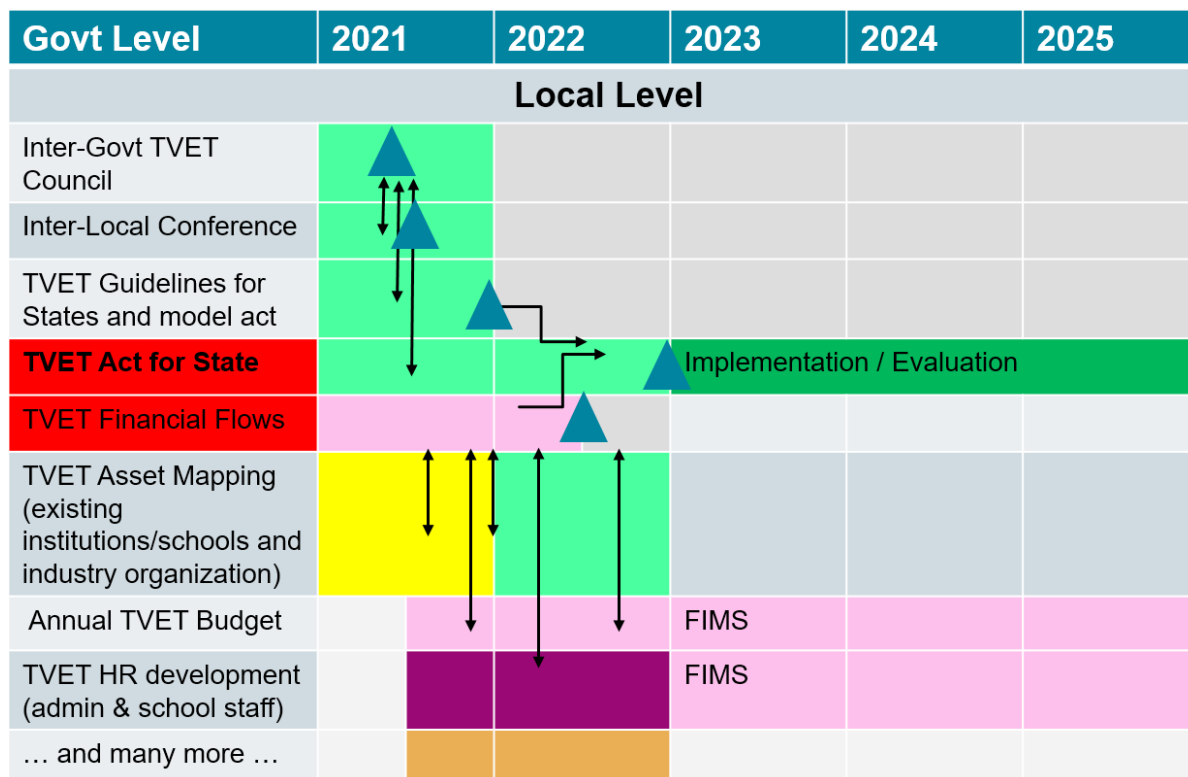
Figure 4: Examples of urgent projects on the local level

(Source: Renold et al., 2018, p. 39. Own adapted depiction by the authors. Triangles represent decisions. Arrows shows connections among projects.)

Specifically, this working group should:

- List all projects and subprojects necessary for federalising the TVET sector at each government level in the next five years.

- Define the critical path at each level and coordinate it with all governmental levels. What needs to be done first?

- Define necessary working groups on each level and allocate projects among them.

- Check the vertical coherence or multi-

level governance of project work, For example, how are projects on each level interlinked? What is the critical path for the whole TVET federalisation process? What can be done in a simultaneous engineering mode?

4.3. Writing a TVET Policy for 2030

At the beginning of 2020, an Education Policy was adopted that also affects the TVET sector. It states that numerous projects such as "skill mapping, quality standards up to diploma level, collaboration with the province sector

in the field of legal regulation, research and monitoring, [and] capacity building programs" will be the subject of the TVET policy in Nepal. Although this is an important step for the coordination of overall education policy in Nepal, it will need to be made more concrete in the context of a longer-term TVET Strategy that strengthens and coherently develops the sector. It will be particularly important, for example, to specify the roles and responsibilities of employers and private-sector businesses in the TVET sector.

An important task of the Inter-Governmental TVET Council/Coordination Committee is to clarify a series of normative questions within the framework of policy guidelines (i.e. a TVET Policy 2030). For example, what type of governance should be chosen for the TVET system, how are the TVET functions allocated among government levels respecting the unbundling report and other regulations, and what will be the role of industry in the future? The role of the business sector in the design and implementation of TVET programs is underdeveloped in Nepal. However, cooperation between the actors of the education and employment system is constitutive in TVET, which is why this aspect should be given special importance in the TVET policy. These questions and others determine Nepal's ideal TVET for the long term. They concern the sovereignty of Nepal and

should be answered jointly by TVET leaders at all levels.

Because of their distinct and important roles in skills development and individuals' educational careers, *formal*, *non-formal* and *informal* forms of education should be individually addressed in both the TVET Policy and the TVET Act. As described by Lamsal (2012) and Parajuli et al. (2020), formal, non-formal, and informal education should be treated differently in terms of funding mechanisms.

Good governance for TVET is a normative issue, but Renold and Caves (2017) find that Nepal's TVET leaders prefer an output-oriented and coordinated governance model. The previous model (before changing the constitution) was fragmented and input-oriented, so that goal required significant change in both the type and mode of governance. Governance type is its degree of coordination or fragmentation. Coordinated governance means that all actors act in concert within a clear and unified legal framework. Governance mode is about how funding is allocated, whether it is input- or output-oriented. Output-oriented funding is usually allocated on a per capita basis according to student numbers modified by levels of need.

Nepal's approach to its TVET programmes is another normative issue,

but again we already have a general vision for where leaders and stakeholders want the sector to be. As presented by the MoEST during our mission for this report, the general strategy of the TVET sector is "to develop a market-sensitive, occupation-driven, inclusive TVET system to serve all local levels and every segment of society" (Khanal, 2018). In addition, point 8 of the Education Road Map calls for strengthening the link between education and business sector. Therefore, the approach to TVET programmes in Nepal will be one of strong education-employment linkage based on occupation-driven programmes.

Allocating TVET-sector functions to all three levels of government is a difficult issue. Renold and Caves (2017) fully describe the allocation of functions to government levels, but the approach follows two essential principles. First is subsidiarity, and second is that structures follow functions. Subsidiarity dictates that each level of governance should only perform those functions that cannot be performed by a lower level. The principle that structures follow functions is easily maintained by following a simple process for function allocation: list every key task in a given sector, then allocate them according to subsidiarity rather than according to the existing institutions. The developments of new laws clearly show that this allocation has already been made in broad terms.

The Unbundling Report (Federalism Implementation and Administration Restructuring Coordination Committee, 2017) determines most functions' allocation, and is also a good list of the tasks that will be carried out by the national MoEST and other authorities.

This TVET policy should also set the scope and targets for the TVET sector for the next 15 years so that all three government levels can align their activities and budgets accordingly. Prime Minister Oli has already mentioned such a goal by announcing that students in all local units should have access to a TVET school. Identifying key issues and setting quantitative, time-limited goals will help with budget calculations and forecasting. They also improve dialogue with donor partners by setting clear priorities and identifying areas of need.

4.4. Legislate a TVET Act

A TVET Act has been drafted and is in preparation for the approval process. This is a very urgent matter because provinces are already beginning to develop their own legal framework. Article 232 of the Constitution reinforces that it is very important to initiate this work quickly. The situation is also urgent because many managers of institutions and ongoing projects are uncertain about what measures they must take to federalise their work.

The work on the TVET Policy should

be accelerated so that, if necessary, the existing draft of the TVET Law could still be adapted. This would improve the coherence of the TVET sector. This is known as simultaneous engineering. The normative decisions underlying the framework of the TVET Policy will influence the character and terms of the law.

To ensure that the federalisation process can offer all TVET actors security, confidence and opportunities as quickly as possible, legal regulations should be formulated as open to development. This means that the wording of the articles allows a certain flexibility for implementation. All three government levels need to gain experience in their roles, and may find certain tasks are better allocated to different bodies.

We also recommend including a chapter with transitional provisions. These encourage actors on all levels to examine what works and what needs to be improved as part of implementation. It is very challenging to formulate a first TVET law without having experience in the interaction between the three political levels. Therefore, it is recommended to integrate a time horizon of 4-5 years in the transitional provisions. This allows to review the functioning and to make adjustments in agreement with all three political levels.

4.5. Conduct a Financial Flow Study

A fifth central project concerns financial flows, including both allocation and spending. Its implementation has started and should be in parallel to the projects mentioned above.

Why is this project so important? In order for the TVET sector to be successful and meet its goals as formulated in the TVET policy, all stakeholders on all levels must be clear on current and future financial flows. However, there is limited literature related to financing the TVET sector in Nepal. The Asian Development Bank (ADB, 2015) has a relevant report that looks into the CTEVT budget and expenditures from 2006-2009.

Lamsal (2011) examines international TVET financing methods based on data up to 2010/11. In particular, he emphasizes the importance of diverse funding sources, which should be better explored in Nepal. Funding that comes from private-sector sources allows for greater connection between industry and TVET. Lamsal (2012) calls for a distinction between modes of TVET delivery, especially formal and non-formal education. Despite both program types potentially being referred to as TVET, their governance and financing guidelines will be greatly different.

Gautam (2010), highlights additional difficulties related to allocating donor partner funds in a study on auditing in Per Capita Funding (PCF). That study meets

the challenge of auditing of per capita funding and shows the current financial flows chart for donor partners. The chart is a mix of a "pool funding modality as guided by the joint financing agreement" and parallel funding applied separately by some donor partners. Although the study is focused on the compulsory school sector, things are similar in the TVET sector.

Parajuli (2013) undertakes a more thorough analysis by examining the financing of the entire TVET sector in Nepal until 2011/12. That scientific article is based on a study commissioned by the SDC entitled Resource needs Assessment for TVET Sub-Sector in Nepal, Dec. 2012 (Parajuli & Shakya, 2012). Most of the data is based on the Red Book, which also provides information about donor funding in government programmes. However, Parajuli (2013) emphasizes that this donor money only covers part of the funding because some of it goes directly to NGOs and their programmes. It is therefore difficult to aggregate this important financial information. This finding suggests that TVET in Nepal is funded in an opaque and apparently input-oriented manner.

In addition, despite increasing investment in TVET, Nepal has not successfully increased efficiency or output. Parajuli argues that the "inefficiency of the TVET system is amply illustrated by the fact that the system has seriously been

suffering from the lack of information, particularly, the financial information that is so essential for planning and decision making purposes. A situation of not having any financial or other projections is a situation of planning hazard where there is a very high chance that the implemented programmes fail to achieve the intended objectives" (p. 8). Increased information-sharing and transparency may be key for improving the effectiveness of TVET funding in Nepal.

These existing studies on financing the TVET sector in Nepal show that a more in-depth analysis will be required to strengthen the TVET sector as a whole. Therefore, in our report we recommended to carry out a comprehensive TVET financial flows analysis in three steps (Renold et al., 2018).

Step 1: Update and extend the data published in Tables 1 and 2 in Parajuli and Shakya (2012), if possible until 2018. Record data from the local units and any local donor partner support to improve the transparency of existing TVET funding.

Step 2: Calculate annual TVET revenues and spending to make it transparent. Include the development of both revenue and spending over time. This helps create a robust calculation scheme parallel to the development and implementation of legislation, which can also

be transitioned into a financial management system (FIMS).

Step 3: Carry out a full cost survey to generate a complete picture of financing conditions at the local and province levels. As part of a pilot study in one state, include a representative number of vocational schools, other educational institutions, and education administration. The pilot study should improve knowledge of cost types and factors, contributing to the FIMS.

The first step has already been carried out (Parajuli et al., 2020) and clearly shows the challenges. On one hand, it points out the difficulty of decoding the financial flows between formal and non-formal education. On the other hand, it is clear that Nepal lacks the financial resources to meet the government's ambitious goals – for example ensuring that 70% of young people have access to TVET. Without additional financial resources, which can be generated in the future on the provincial and local level, and without the involvement of the business sector, it will hardly be possible to strengthen the TVET sector in Nepal.

5 Conclusions

Nepal is already on track for a substantial improvement in the TVET sector and its governance. The process will take time.

Today's leaders can improve the future of the country by continuing to embrace change, take on challenging projects, and clarify difficult issues. A stronger TVET sector gives Nepal a better chance at developing economically, gives young people more access to opportunity, and creates a stronger skills base for continued economic development.

This paper puts forth five recommendations that are crucial for the continued development and federalisation of Nepal's TVET sector:

1. Establish an Inter-Governmental TVET Council/Coordination Committee

    A high-level body with representatives from all three government levels must be set up urgently to ensure that all TVET federalization activities are coordinated among the federal, province and local levels. This task can be led by TVET division in the MoEST.

2. Identify and describe key TVET processes in a Master Plan

    To honour the principle that structures follow functions and ensure that organizational structures are not designed before structures become clear, identify and describe in detail the key processes of the TVET sector. Every task and process can be allocated to the appropriate level, which helps support a consistent federalisation process.

3. Create a TVET Policy 2030

    The same high-level committee must

address the remaining unclear normative issues. These include allocating responsibilities formal and non-formal education, defining what Nepal means by "good governance" and the TVET programme approach, allocating detailed tasks to all three government levels – unless they are already clearly defined in the unbundling report – and defining specific objectives for the TVET sector.

4. Legislate a TVET Act

Based on the TVET Policy 2030, the current draft of the TVET Act should be approved as quickly as possible. This is the most important element of the critical path to federalising TVET because the seven provinces depend on a national TVET legal framework to develop their own province laws.

5. Complete the TVET financial flows analysis

TVET funding sources and expenditures must be reconciled. This can only be done if one knows which government level carries out which tasks, and knows TVET development goals including how many people will be trained every year. We recommend carrying out further financial flow analysis to generate evidence that help strengthen the TVET sector.

Nepal has many good prerequisites for achieving these issues. However, it is very important that the high pace of reforms is maintained and that coordination among all actors can be intensified.

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How Can We Make TVET Institute Center of Excellence?

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Abstract

A country needs to ensure proper human resource management for its socio-economic development, where the role of TVET is significant. Enhancing quality of TVET should therefore be one of the priorities. In line with other education programs, TVET programs need a paradigm shift to make our youth fit for global market with adequate competencies for global competitiveness. The institute with quality managed center of excellence only can offer competencies for the global competitiveness. Center of excellence (CoE) institute is known as having quality management system (QMS) in place, accredited by national and international body, high ratings perception of stakeholders and reputed image in the society. There are ample of practices by many countries on CoE. The criteria varies from one another; however, the major thrust areas are the same or similar. Institute, industries, students, parents and country can get direct benefits from the establishment of CoEs in the TVET system. There should be policy intervention, implementation system and commitment from leadership to establish a well functioned CoE.

Introduction

Human resource development is the key element for a country's development. There are different ways to develop human resources. Most common ways are literacy programs, school education, university education, technical and vocational education, recognition of prior learning, training and work experience. People enrich their Knowledge, Skills and Attitude (KSA) from these ways of learning. All types of learnings are important. However, the Technical and Vocational Education and Training (TVET) is highly relevant to impart competencies for youth. TVET programs are well recognized by national system and society in the developed economy. But, it is struggling in the underdeveloped economy in both national system and social status.

TVET is the key element of socio-economic development. TVET enhances the competencies of the graduates for both wage and self-employment. They can establish enterprises and create jobs in the society. It integrates three cognitive, psychomotor

and affective domains of the learning as knowledge, skills and attitude to equip the competencies of the graduates. It enhances the confidence level of graduates through adequate hands-on skills during the learning period. While basic skills development and workforce preparation for the country are important in the South Asian region, a paradigm shift must take place recognizing that in order to be truly globally competitive, we must be globally competent.

Making youths globally competent helps them understand socio-economic issues thoroughly and take proper initiative from their sides, which not only boosts national economic activities but also creates atmosphere to share international best practices and skills. In this regard, it is wise to mull how and where TVET has contribution.

In line with other education programs, TVET programs need a paradigm shift to make our youth fit for global market with adequate competency. For that we have to ensure quality TVET programs. Quality TVET programs however do not happen as miracles without appropriate efforts and investment. One of the basic steps for that is institute should have adequate facilities, human and other resources, committed management and linkages with industries. In the perception of the stakeholders, that institute should be considered as center of excellence. Therefore, it is important that the TVET institutions are innovative and proactive in developing their courses and workforce through a well-established Quality Management System (QMS). In turn, this system is recognized by accrediting bodies or third-party evaluators by branding them as "center of excellence", as an example. Considering the importance of center of excellence to ensure quality management system, this paper highlights the definition of center of excellence, status of TVET institutions in Nepal, international practices of center of excellence, importance and criteria for center of excellence, conclusions and some ways forward as recommendations.

Definition of Center of Excellence (CoE)

There are numerous definitions of Center of Excellence. Wikipedia ("Center of Excellence," 2020) defines it as "a team, a shared facility or an entity that provides leadership, best practices, research, support and/or training for a focus area. It may also be known as a competency center or capability center". Merriam Webster defines it as "a place of high achievement".

In the context of TVET institutions, being a "center of excellence" is a quality recognition that encompasses a validation of their systems, policies and platforms as consistent to the present needs of their clients. A "center of excellence" is expected to produce a batch of learned individuals that are well-adapted to the rigors of the labor force, are globally competitive and are effective members of society that contribute not only to the well-being of their respective sectors but of the society as a whole.

According to Development Asia (2017), which is the ADB's knowledge collaboration platform for sharing development experience and expertise, best practice, and technology relevant to the Sustainable Development Goals, one way to produce highly skilled workers is to establish COEs. Steady supply of highly skilled workers will boost productivity which will ultimately lead to improved Asian economies.

Development Asia presented three operational models which is illustrated below.

thus, it requires intensive capital and human resources investment. Involving the industry or industry skills councils in co-financing, sponsoring, and managing the COE can be highly advantageous due to immediate links with industry and government policy priorities.

Model 3: Networks of excellence. These are organizational structures or agencies that bring existing training providers together in a network. Networks of excellence may involve upgrading equipment, strengthening human resources, and the granting of

Figure 1: Three Operational Models for Centers of Excellence (retrieved from: https://development.asia/explainer/creating-centers-excellence-fill-critical-skills-gaps)

Model 1: Centers within a training institution. To establish a COE, existing facilities of an institution may be used or new ones may be constructed. This is beneficial as it empowers the COE to take advantage of the reputation and resources of an existing institution. Typically, this center will become a model of best practice in a specific field.
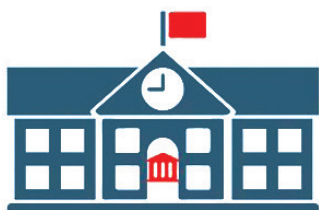
Model 2:Stand-alone independent centers. This COE is not connected to an institution,

a certification of quality. These can be effective means of ensuring that provision in specific areas is aligned with government policy priorities and useful when the skills needs of a particular sector or subsector are diverse.

Accreditation is one of the means to certify quality. There are a variety of accreditation models. The most common are institutional and program accreditation. An institution

refers to a center, institute, school, college or university in its totality. In contrast, an academic program refers to a group of related courses, packaged in a curriculum and leading to a certificate, diploma or degree.

Accreditation is viewed as both a process and a status. It is a process by which a TVET institution evaluates its operations and programs, and seeks an independent judgment to confirm that it substantially achieves its objectives, and is generally equal in quality to comparable institutions or programs. As a status, it is a formal recognition granted by an authorized accrediting agency to an institution or program as possessing certain standards of quality as defined by the accreditation agency.

Status of TVET Institutions in Nepal

Nepal has been focusing on expansion of the programs and establishment of the institutions without quality measures. There were only 5 technical schools and colleges before 1990. According to the Council for Technical Education and Vocational Training (CTEVT), there were 18 Technical Schools and Institutes under CTEVT, 107 private technical schools (TSLC level) affiliated with CTEVT, 20 Annex programs in secondary schools, 71 private institutes affiliated to

Table 1: Status of TVET Program in Nepal

S. N	Particulars	Unit	1989	2004	2020
1	Public Technical School/Polytechnic	Nos	5	18	61
2	Polytechnic Institute in Partnership	Nos	-	1	38
3	Affiliated Private Institute (TSLC and Diploma)	Nos	-	178	429
4	Community School (TSLC and Diploma)	Nos	-	20	572
5	Vocational Training Providers	Nos	-	34	1140
6	Vocational Training Provider Ministry	Nos	12	12	12
7	Grade 10 (Technical Wing) General Schoolt	Nos	-	-	434
8	Intake Capacity of Diploma Programs	Nos	320	2000	38,976
9	Intake Capacity of TSLC	Nos	600	8000	35,887
10	Diploma Level Curricula	Nos	6	40	48
11	TSLC Level Curricula	Nos	7	27	28
12	Vocational Skills Training Curricula	Nos	20	133	210
13	Skills Standard	Nos	-	-	295
14	Apprenticeship Course	Nos	3	3	9
15	Enrollment capacity (with technical wing MoE)	Nos			90,000
16	Actual enrolled students (2019/2020)	Nos			57,000
(Sources: CTEVT, 1989, 2004, 2020; Ministry of Education, 2019; Ministry of Finance, 2019)					

diploma programs and 34 training institutes affiliated to conduct short-term vocational training in 2004 (CTEVT, 2004). As a result of focusing on access and expansion, there are 61 public TVET institutes, 429 private institutes, 572 community schools offering TVET, and 1140 vocational training providers affiliated to CTEVT which was none in 1990 and only 34 were in 2004. The status of the TVET programs is stated in Table 1.

Based on the above data and facts, whatever the number of institutions and programs increased, the actual enrollment of the students has not increased for the last 5-6 years. It indicates that there are more programs and opportunities, but attraction is less. It is very clear that the key reasons for the mismatch between intake capacity and enrollment are lack of relevant programs and quality of the programs. Most of the institutions both community schools and CTEVT managed schools (established in last two years) were established with

political objectives than actual needs of the community. The institutions are lacking minimum requirements of the physical infrastructure, labs or workshops, competent human resources and linkages with industries. Similarly, most of them do not have quality management system as well. The institute which has adequate experiences of program implementation, adequate infrastructure and other facilities, competent human resources, innovations and creativity to implement programs, linkages with industries, and quality management system in place is considered as model or CoE institute. In contrast, there are model institutions without implementing programs and physical facilities.

International Practices of CoE

Considering the importance of quality management system to produce competent workforce for the global market, many countries have implemented the center of excellence model in the TVET. Some of the good examples of CoE are stated in Table 2 below.

Table 2: International Practices of CoE

Country	Definition	Criteria	Functions
Indonesia	TVET providers of high quality and relevant training programs and can play a strategic role in improving skills supply and productivity in line with policy priorities of the Government.	1. QMS in place 2. Market Relevancy Programs 3. Partnership with Industries 4. Innovation and Creativity	Implemented CoE concept based on competitive advantaged of the institution in selected sectors. For example, BLKI National Industrial Training Center and ATMI Surakarta Polytechnic

Malaysia	The Centre of Technology (COT) that involve and fulfill the workforce demand of the industries. The three elements surrounding the COT circle which are Teaching and Learning, Expert Services, and Research and Innovation are the core elements. The outer circle represents four important elements that are the strengths and determinants of the success of a polytechnic COT– Collaboration, Publication, Recognition, and Income Generation.	1. Collaboration 2. Research & Services 3. Experts Services 4. Publication 5. Recognition 6. Teaching and Learning 7. Income Generation	Awarding 3 level of certificates. • 3 Star ≥ 90% • 2 Star ≥ 80% • 1 Star ≥ 50% Note: for the 3 Star award, *required conditions is full marks for the 3 main elements (Collaboration, Research & Innovation, and Expert Services)*
Philippines	Center of Technical Excellence is a TVET institution, whether public or private, that has acquired the highest level of award of accreditation under the STAR Rating System of Technical Education and Skills Development Authority (TESDA). This system recognizes the accomplishments, innovations and improvements that a technical vocational institution has instituted beyond the minimum requirements set in the Unified TVET Program Registration and Accreditation System (UTPRAS). It has aligned the success indicators vis-a-vis East Asia Summit TVET Quality Assurance Framework (EAS TVET QAF) and the Asia Pacific Accreditation and Certification Commission (APACC).	1. Governance & Management 2. Curriculum and Program Delivery 3. Support Services 4. Program Performance Measures	• 3 Star: 475-500 points (Center of Technical Excellence-CenTEx) • 2 Star: 425-474 points (Center of Technical Proficiency-CenTPro) • 1 Star: 375-424 points (Center of Technical Development-CenTDev) • CANDIDATE: 300-374 points

| Singapore | Most of the Centers of Excellence in Singapore are connected to established institutions. They are sector specific. | 1. Innovation and Creativity
2. Digital Technology
3. Partnership with Industry
4. Learner centered learning
5. Similar Set up with industries | • Centre of Excellence in New Media and Design by ITE
• Centre of Excellence in Maritime Safety (CEMS) jointly launched by the Singapore Polytechnic (SP) and Singapore Maritime Institute (SMI)
• Centres of Excellence in Research & Development (R&D) in Temasek Polytechnic
• National Centre of Excellence for Workplace Learning (NACE) established by Nanyang Polytechnic |

(Source: Lamichhane2020)

Asia Pacific Accreditation and Certification Commission (APACC)

The Inter-Governmental International Organization Colombo Plan Staff College for Technician Education for Human Resources Development established the Asia Pacific Accreditation and Certification Commission (APACC) as one of the specific targets in the implementation of the CPSC Corporate Plan 2003-2008. With the support and commitment of 16 member countries to the CPSC Seoul Declaration of 2004 in Seoul, Republic of Korea, APACC will ensure that it is able to guide Technical and Vocational Education and Training (TVET) institutions in equipping themselves with internationally-recognized standards and systems. It will enable these institutions to

produce workforce with great mobility to move across borders and with regionally-competitive qualification skills.

The Seoul Declaration of 2004 was further strengthened by the continued support and commitment to the mission and goals of APACC, as expressed by participating governments through the Manila Resolution 2005 and Cheonan Affirmation of Commitment 2007.

APACC accreditation is an internationally recognized sign of quality. Accredited institutions and stakeholders enjoy the following benefits:

1. Greater workforce mobility and mutual recognition of qualifications in Asia and the Pacific region;

2. Quality and employable workforce in member countries through APACC coordination among its network of institutions, agencies and other stakeholders;

3. Employer confidence on the selection of employees coming from accredited institutions. Accreditation status is important to employers when evaluating credentials of job applicants and when deciding to provide support for current employees seeking further education;

4. International recognition of the institutions' quality, accountability, and public trust;

5. Eligibility and reliability of TVET institutions for funding support from donors and other lending agencies;

6. Part of a regional network of quality institutions that expand schooling and learning opportunities for students; and

7. Transferability of credits earned by a student among educational institutions. Receiving institutions take note of whether or not the credits a student needs to transfer have been earned from an accredited institution.

APACC accreditation is a tool or approach to establish center of excellence. Figures1 and 2 shows the accreditation criteria and awards (APACC, 2020).

The APACC accreditation is based on quality management system and follow the Plan, Do, Check and Act (PDCA) cycle.

Polytechnic Ungku Omar (PUO), Malaysia as an Example of COE

PUO is the first APACC Gold Awardee in Malaysia and is the first polytechnic in Malaysia to achieve full recognition status for Centre of Technology (CoT) in two fields of specialization which are:

1. Marine Engineering (Centre of Technology in Marine Engineering, CTME)

2. Air-Conditioning and Refrigeration (Centre of Technology for Air-conditioning & Refrigeration, CARe)

PUO's journey in getting the CoT recognition started in 2010 through the initiatives of the Polytechnic Transformation Roadmap by the Department of Polytechnic Education (DPE), Ministry of Higher Education
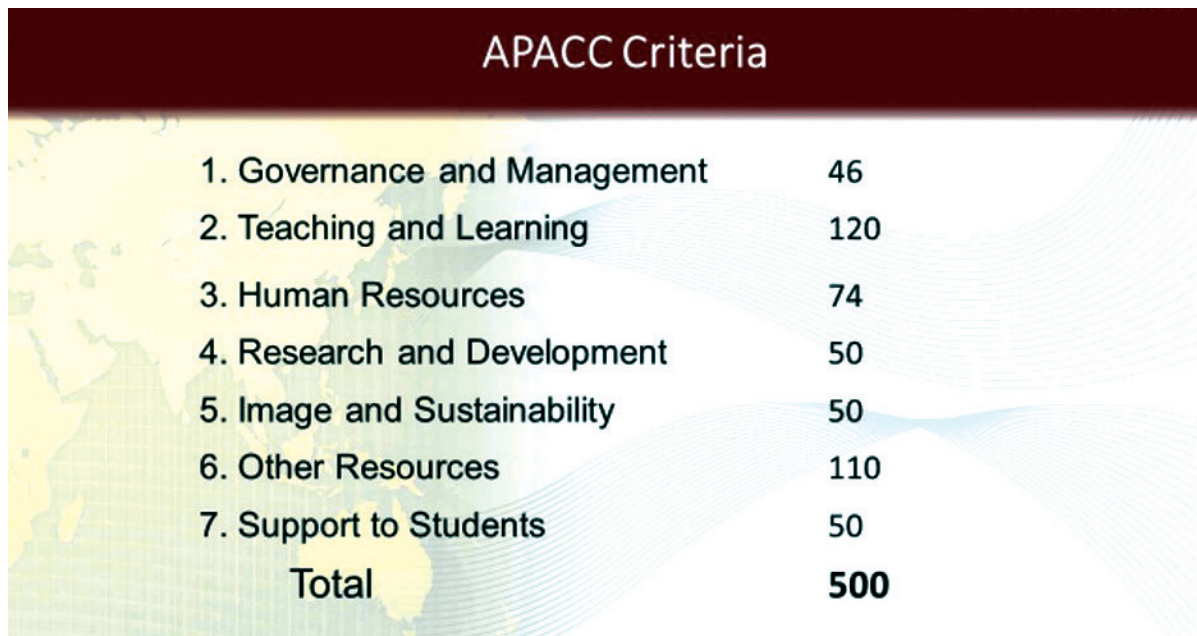
Figure 1. (APACC Criteria, 2020)

Figure 2. (APACC Awards/Levels, 2020)

Malaysia. The process started with the selection of niche areas in each polytechnic and followed by the development of focus area in the niche area. PUO had selected Marine Engineering and Air-conditioning & Refrigeration as the focus areas. Since then, both CTME and CARe have planned and implemented various activities aimed at developing human capital and upgrading of facilities and infrastructures of the COT to comply with the international standards in order to be the most referred centre by external agencies from both the government and private sectors in the fields of Shipping, and Heating, Ventilation, Air Conditioning & Refrigeration (HVAC) respectively. The successful execution of the planned activities in CTME and CARe are in line with the vision and mission of each Centre of Technology.

Importance of CoE

CoE and quality management system (QMS) is a kind of a synonym. It always focus to implement quality management system, accreditation and certification and quality outputs and outcomes. It always follow the framework of quality assurance in TVET system as stated in Figure 3 below.

All the stakeholders of TVET get benefits by establishing CoEs. The benefits for the key stakeholders are as follows:

For the TVET Institutions

- bestows national quality recognition to providers of TVET

- promotes quality and current trends in education/training in the Technical Education and Vocational Training sector

- enhances credibility and image as a training provider

- establishes national quality standards among training institutions

- Promotes a culture of continuous improvement

For Employers

- ensures the continued supply of competent employees who have been trained at institutions that comply with established quality standards and criteria

- makes the search for competent employees easier by selecting candidates with qualifications from quality assured training institutions

For Trainees

- provides recognition for entry into institutions, professions and business

- ensures quality of the training that they have received according to some agreed standards and criteria

For Parents

- is an indication of the standard and quality of training provided

- Assures them that they are getting value for their investment in the training their children pursue at approved quality assured institutions and programs.

For the Nation

- Enhance images in the global market by

producing globally competent workforce

- Increase employment rate of the people
- Increase GDP

For different countries, it is expected that different CoE criteria are also being used. They have developed their own based on the social, economic and technological context.

Figure 3: Quality Assurance in TVET System
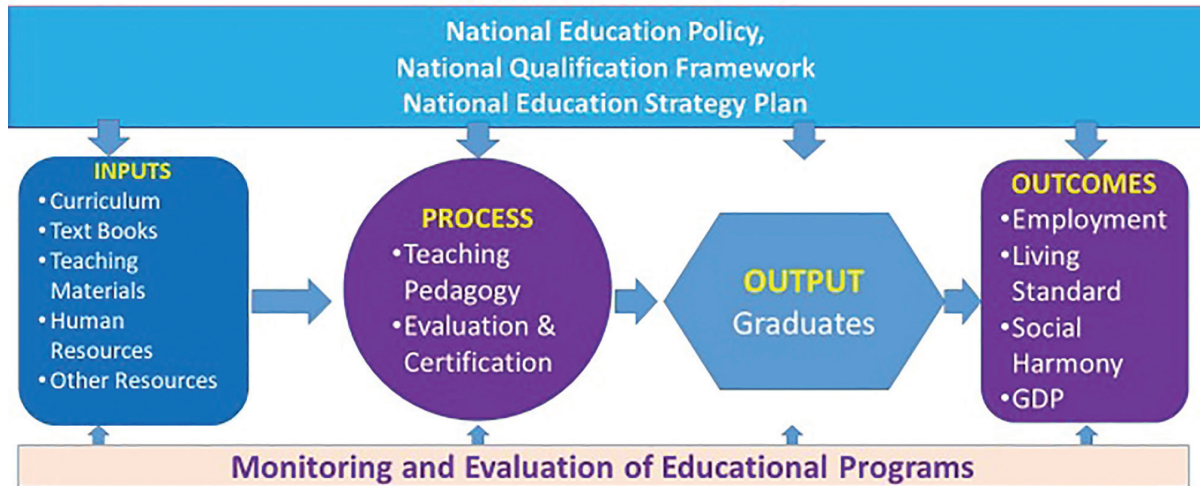
Conclusions

Center of Excellence for TVET institutes should always work for the different aspects of innovation, quality and customer satisfaction. It creates high image in the society through stakeholders' satisfaction. The broader indicators of the CoE are stakeholders' perception, customer satisfaction and image in the society. Similarly, governance and management for transparent system, adequate infrastructure, tools and equipment, competent human resources, research based programs, strong partnership with industries and less than 2 percent of student dropouts, above 90% graduation and employment rate as an output and outcome, are the in-depth indicators of CoE.

It cannot be an exact copy from one country to another. In the Asia Pacific region, most of the countries have applied an almost similar criteria as APACC. Singapore's approach is quite different than others, because they have created trade-wise CoE in different level of institution from training institute to university.

The key challenges to establish CoEs are absence of supportive policies, weak top management, inadequate resources, and inability to manage change. In general, CoEs within an institution are not financially autonomous, thus cannot operate creatively in terms of income and policies. Most of the CoE initiatives were funded by development partners, but did not continue due to lack of commitment and resources.

Recommendations

There are number of TVET institutions in every country; however, industries are not getting competent workforce as per their needs. Majority of the institutions are focusing on quantitative targets, and not the competency-based qualitative result. This is happening due to the absence of quality management system in the institutions and they are not developing as center of excellence to produce specific sector based graduates. Therefore, the following recommendations are made:

a. Each and every country may develop accreditation and certification system to ensure quality management system of the TVET institutions.

b. The TVET system should have practical partnership with relevant industries, social organizations and local communities to ensure shared ownership on quality outputs of the TVET.

c. The government and institutional management should ensure adequacy of financial and other resources to bring new technology and innovations.

d. The concept of CoE should be integrated in the system such as policies, registration, accreditation and certification. It is recommended to make use of available resources such as the APACC criteria, indicators, and sub-indicators.

e. The CoE approach was initiated by development partners such as ADB, GIZ, SDC in some countries, but it could not continue after the project. Therefore, it is recommended to continue as a system of CoE practices even after the conclusion of development partner supported projects.

f. Leadership and top level management should give their utmost commitment to establish CoEs in addition to all stakeholders' support.

g. To establish CoEs, the following criteria may apply.

 I. Governance, Leadership and Management

 II. Curriculum Design, Content and Review

 III. Teaching Learning and Assessment

 IV. Human Resources and Services

 V. Research, Publications and Linkages

 VI. Infrastructure and Learning Resources

 VII. Student Services

 VIII. Internal Quality Assurance and Enhancement System

 IX. Institutional Outputs and Outcomes (Graduation and employment rate)

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Employer Engagement in Curriculum Making Process in Nepal: Meaningful or Cosmetic?

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Abstract

The engagement of employers in the education system is interpreted on the assumption that it enables a student to enhance the knowledge according to the market demand. This helps to furnish students with skills and knowledge directly relevant to generating employment, familiarize the workplace environment, and reduce the constraints in transitioning from learning to work. The partaking of employers in curriculum preparation not only supports to increase the involvement of employers but also helps to prepare the market-based curriculum. More so, stakeholder participation in TVET curriculum preparation is crucial. However, employer engagement in the curriculum making process, in general, has been a neglected agenda. Against this backdrop, we examined the level of employer engagement in TVET curriculum making process in Nepal. We interviewed 79 individual national employers asking their level of participation in curriculum making process. Among the participants, four were further interacted to understand the reason for minimum participation. The employers, on the one hand, shared that their participation is just for participation to fulfil the requirement provisioned by law. On the other hand, they also said their inputs rarely incorporated in the process even if they had involved in the curriculum design phase. In this sense, the participation of the employer in the curriculum-making process has become cosmetic in practice rather than desired and meaningful.

Keywords: *Employer, curriculum design phase, cosmetic participation*

Introduction

Education and employment are often understood complementary to each other. In the one hand, education enhances skills that usually accounted as a tool for better employment opportunities, better earning, thus quality life. On the other hand, employment consumes the skilled human resources and provides a space for both

using learned skills and earn for themselves. Moreover, education with occupational skills prepares individual for employment in the job market (Ekpo & Onweh, 2012). Technical and Vocational Education and Training (TVET) is considered an effective means to equip one with necessary knowledge and skills which supports youth integrate into the world of work. More specifically, TVET prepares skilled graduates who are able to enter the world of work with skills and knowledge that the job market demands (Papakitsos, 2016).

TVET primarily stresses on fostering employment and enhancing the productivity for that the graduates are expected to possess specific job-related skills according to the need of the industry. These skills and competencies desired to the employers are generally met through developing a relevant curriculum. The trainees are enhanced on the basis of the TVET curriculum which also strengthens the TVET system (Schnarr et al., 2008). In this regard, the quality of TVET system, thus, largely depends upon curriculum development which prepares the graduates considering the demand of existing employment.

The curriculum also bridges the skills providers with consumer of acquired competencies. The graduates of TVET or the output of the technical school is the input for the industries. The competencies enhanced in the technical school should therefore reflect the demand and competencies of the market and the employers. This is likely to achieve when competencies and

skills are transformed on the basis of the market demand curriculum. Additionally, a sound alignment of TVET curriculum with demands of labour market results in a good curriculum quality and success of TVET. The quality and relevance of a TVET system is largely determined by the industry partners (Heinz, 2008) as they are the key drivers of the system who work in collaboration with the operators. That is why industry is regarded as the primary consumer of TVET graduates.

In this context, this paper explored and interpreted the involvement of employers in curriculum development process in TVET sector of Nepal. Doing so, it unboxes the employers' participation in the curriculum designing process and the ways they contribute to the process of curriculum development which contributes to the enhancement of the TVET system in the country.

Employers' Engagement in TVET Curriculum Making Process

Employers' involvement in curriculum making process indicates their active and meaningful participation in designing, implementing, and feedback phase (Renold, et.al, 2015). Their engagement in all these phases includes providing the input about the skills, and their training requirements that contributes ensuring relevancy and quality of TVET system. Further, they also provide the On the Job Training (OJT), placement to the graduates, and opportunities for apprenticeship (Ma, 2011). Laguador and

Ramos (2014) argue that the participation of multi- stakeholders like academician, graduates, alumni as well as the industry is essential, however, the contribution of the industry people is more significant to the TVET curriculum development as their requirement in the curriculum meets the demand of the labour market.

In Nepal, TVET programmes are provided on the basis of the curriculum, however, there has been weak linkage between the acquired competencies and the demand of the job market (Sharma, 2015). Caves and Renold (2018) highlight that employment is a key of TVET, and the quality of the TVET can be ensured through education-employment linkage. This linkage can be best reflected through the curriculum where employers involve in designing, implementing, and revising process of the curriculum development in TVET. This supports to the trainees learn competencies that are relevant to the labour market. Therefore, to meet the requirement of the market, the involvement of the employers in curriculum making process (Caves & Renold, 2018) is essential.

The term curriculum is interpreted by many scholars (e.g. Brown, 2006; Silva, 2009) in different ways in accordance with their uses in different situations. Curriculum is a written description of the planned learning process (Tyler, 1957). Normally, it should include objectives and necessary means to achieve them. The scholars who have defined curriculum, have not defined the involvement of the industry sector in the developing process and because of that the involvement of the industry sector during the process of the curriculum development is in the shade.

The curriculum is the constitution of TVET system. It is a systematic and scientific process of designing, implementing, m o nitoring a n d reviewing t h e p rogram. Quality a n d relevancy o f a n y TVET program lies on the curriculum of the training. TVET curriculum designs are suggested separately from most objectives to most subjective views such as occupational research, Develop A Curriculum (DACUM) process, Delphi technique, critical incident, function approach, personal introspection and philosophical basis respectively. By viewing these strategies, Council for Technical Education and Vocational Training (CTEVT), an apex body for TVET in Nepal, has been employing DACUM process/ competency-based design to develop its curricula and develops the TVET curriculum through different processes like need assessment, identifications of client group and content, preparation of data, job analysis, conduct DACUM process, task analysis, compilation of first draft, present the curriculum in technical committee/subcommittee, and curriculum dissemination, implementation, evaluation/feedback and revision (CTEVT, Curriculum Bylaw, 1988). The TVET institutions under or affiliated to CTEVT are mandatory to follow the approved curricula. It reveals the concept of curriculum, the curriculum development practices being

carried out in CTEVT a nd p rovides some m itigation measures of the p resent issues and challenges of the curricula for preparing the quality workforce as demanded by labour market (Badal, 2011).

The study conducted by Thapa (2018) in Nepal found low participation of industry people in curriculum development and delivery process. The employers, more specifically, industry people were not involved in the input of core competencies and there was no any opportunity given to them in the competencies development phase. Instead, the content was developed by the instructors and academicians and the industry stakeholders were involved at the end for the acknowledgement. Nonetheless, these involvements were for short time and the number of involvements considerably low. The curriculum development process of TVET in Nepal demands an intensive participation employers and provisions to follow a standard content-based method, whereby individual faculty member is assigned to coordinate and develop courses considering the curriculum in consultation of relevant stakeholders. In other word, this also implies that the importance of employers is overlooked and low participation of employer has been a roadblocks enhancing the relevancy of TVET in Nepal.

Employer engagement in TVET widely demanded relationship

The engagement of employers in the skill development process is widely discussed. The relationship between TVET providers and employers has been a subject of immense interest in the recent decades including Nepal. The involvement and the cooperation with shared responsibilities have been also one of the priorities of educational reform (Ministry of Education, Science, and Technology [MOEST], 2019a). The engagement is also anticipated as a remedy to reduce mismatch between education and workplace. With such relation, TVET providers and employers can align more closely and support youth with preparation for work (Hordern 2018). However, the expected engagements of employers in TVET system are often interpreted as weak and are low due to knowledge constrain about each other's aptitude and supportive roles within the TVET system (Bolli et al., 2020). The participation with their autonomy and respect establishes a harmony and esteems TVET system.

The engagement of employers in TVET system have become a crucial issue for the study. The engagement is perceived with ultimate goal of employability and productivity (Lamsal, 2015). Employment is assured by the competencies enhanced as per the TVET curriculum and curriculum needs to reflect competencies demanded by the employers. In this regard, a need of the employers' involvement in the TVET curriculum development is curial. Curriculum of any program must be periodically revised and ensured its relevance as per the need of the market and industry to meet the changes of the technology to reduce the mismatch of the competencies required by the employers

(Teijeiro et al., 2013). In a study carried out by Raihan (2014) in Bangladesh also found the importance of collaboration of the industry and TVET institute, as TVET systematically needs to link with the labour market. One of the ways explored in the study was minimizing the gap between industry and TVET institute by ensuring the participation of industry in the curriculum development process. Similarly, Balasubramani (2014) also highlighted the participation of the industries is instrumental in curriculum design to prepare the students according to demand for industry and employment.

Methodology

The study followed descriptive design under quantitative approach. The survey method was used employing structured questionnaire to understand employer involvement in the curriculum making process. However, we also interacted with the respondents once the survey result was derived. The total 79 employers were interviewed in the survey opting probability sampling as Muijs (2004) suggests this tool in survey to neutralize the researchers' value. The structured questionnaire was developed and used as an assessment tool to collect the data. The collected data were measured with the help of five-point Likert scale as *Never (1)*, *Rarely (2)*, *Sometimes (3)*, *Often (4)* and *Usually (5)* which also measured the different levels of involvement.

The questions were both close-ended and open-ended however, open ended answers were further quantified and analyzed.

Once, the survey data were interpreted, the researchers also conducted in depth interviews with curriculum development process expert, employers, and curriculum division official the employers to understand the result in detail. This helped the researchers to pursue the reasons of the level of involvement in the curriculum development.

The respondents were those who running the industry in Kathmandu Valley. In this study, the industries are those organizations which employ the graduates of CTEVT. The researchers requested respondents for their voluntarily participation and were ensured the confidentiality of the information they provided. The aliases were used maintain anonymity of the respondents who participated in the interview.

Result of the Survey

The study assessed the involvement of the employers in the TVET curriculum development. The computation was based on the mean value of the indicators across public and private industries. In the study, 79 employers who were respondents represented both public and private industries. Among the respondents, most of them (81%) were from the private organizations, the public organization constituted only (11.4%), and 7.6% represented others. Likewise, small enterprises industries represented (22.8%), the medium (39.2%) and large enterprises were (38.0 %).

The involvement of employers in curriculum development, presented in table 1, was found minimal across all types of industry.

Table 1.

Involvement of the Employers in the Curriculum Development by types of Industries

Type of Enterprises	Mean	N	Std. Deviation
Small	2.13	18	.93
Medium	2.10	31	.93
Large	1.97	30	1.05
Average/Total	2.06	79	.97

Low (mean 1.00 to 2.33), Moderate (mean 2.34 to 3.67) & High (mean 3.68 to 5.00) (Best, 2007)

Overall, the involvement of the employers in the curriculum development was assessed low with the mean of 2.06 and SD 0.97. Among the small, medium and large enterprises, large enterprises had the least involvement with the mean 1.97 while small had slightly high 2.13.

Further, the survey result showed the level of involvement of employers in the different processes of curriculum development was also low.

The result shows minimal level of the involvement of the employers in the above stated processes irrespective of the size of the industries. In overall, their involvement was relatively lower in the written request for the training need analysis (TNA) and in regular board advisory meetings with the average score of 1.51 and 1.53 respectively. With regards to large sized enterprises, their involvement in written request of TNA and in regular advisory board meetings were among the lowest with the mean value of 1.51 and 1.53. However, their involvement in job analysis workshop was relatively higher for all enterprises.

Table 2

Level of Involvement of the Employers in the Different Processes of the Curriculum Development by types of industries

Indicators of Involvement	Small Enterprises		Medium Enterprises		Large Enterprises		Total	
	Mean	N	Mean	N	Mean	N	Mean	N
Written request of TNA	1.39	18	1.58	31	1.5	30	1.51	79
Job analysis workshop	1.94	18	1.94	31	1.73	30	1.86	79
DACUM workshop	1.78	18	1.77	31	1.9	30	1.82	79
Regular advisory board meetings	1.39	18	1.61	31	1.53	30	1.53	79
Technical committee meeting	1.94	18	1.68	31	1.77	30	1.77	79

Considering the survey result that shows nominal participation of employers in the curriculum development process, the researchers further explored the reasons for low participation with the relevant stakeholders who were involved in the process in the past. According to participants the fundamental principle of selecting the participants in the TVET curriculum development was 33% participation from the employers, 33% from the academic sector and 33% from the association, however, it was revised with 50% from the employers and 30% from the academic sector and 20% from the occupation association (CTEVT, 2020).

The participants of the interview shared that the relevant skilled experts are not recommended for the curriculum development by the employers because the industries are affected in the production work as these skilled experts are engaged for 3-5 days during the workshop. Further, it was also argued that the employers yet to awareness that of benefit they would receive in a long run. However, the employers viewed it differently and complained that they are not involved meaningfully but just a cosmetic participant in the curriculum development process. The participant shared that they were informed to meet the quota for the curriculum development workshop. Likewise, the participants underpinned that they were informed informally and few hours before the curriculum development workshop. And it was on the basis of the personal contact. The employers are involved for the sake of formality as the competencies recommended are not incorporated. The

Table 3
Tabulation of interview summary of the participants

Participants	Provision for participation	Practice of participation	View on current practice
Curriculum Experts	Existing CTEVT law provides space to the employers	Very few relevant experts participate in the process	Employer hardly see the benefit of participation in curriculum designing process
Curriculum Division Officials	There is a guideline ensuing employer's participation	Proportion of employers is increased from 33% to 50%	The representative sent by employers are very less contribute in the curriculum designing process
Employers	Either individual or representative of employer's association invited	Send representative since the regular work in the company cannot be disturb	Not heard and invited just to fulfill the requirement

participants from the industry were not aware of the terminology and the process like DACUM. The employers underscored that to release for the few days for the curriculum is difficult in industry as it hampers the production work of the organization.

Employer Engagement is Cosmetic rather than Meaningful

The involvement of employers in curriculum development and delivery at institutions is much essential to prepare the trainees for employment. This will bridge the gap between the industry and institutions and will enable the trainees to become industry ready (Balasubramani, 2014). Nevertheless, this research showed that the involvement of employers is low in the TVET curriculum development. Further, interaction with the relevant TVET stakeholders revealed that the reasons for the low participation was lack of formal approach for corresponding the employer. This study also corroborates the findings of Thapa (2018) that the employers' engagement in TVET system of Nepal is low. In the curriculum value chain framework Renold et al., (2015) posits the argument that the linkage between education and employment, in other word, the optimum engagement of employers in the curriculum development is possible when the decision-making power is shared among the stakeholders. Nevertheless, this study affirms that there is lack of power sharing in the curriculum making process. The employers in the interaction shared they had only a cosmetic participation that

was they were invited to meet the legal provision however rarely contributed into the process. While concerned authorities claimed that employer do not participate with contributing purpose if they were invited and send the representative who would not be able to contribute. One of the process experts shared the fact to cancel the scheduled curriculum development workshop because employers did not send the occupation expert when corresponded through the formal channel. If the experts were recommended from the employers, they sent the non-occupational experts like finance officer or the administration officer.

This study also revealed that employer of a small scale industries likely to participate more than the employer belonging to a large type. According to Badawi (2013) employers have different demand and TVET should meet the need of the market. A study conducted by Tien (2009) in Vietnam also found TVET providers had not met the requirement of employers who were seeking for high skilled workers and their curriculum was too general to meet the need. The participants in the study, particularly employers, expressed their concern on the relevancy of the curriculum in their specific job. In this regard, they do not find their participation meaningful as they have to prepare the worker at their own. Scesa and Williams (2008) argue that the low involvement might be seen due to the lack of interest, lack of understanding, lack of awareness, and lack of ability through time and work pressures on the part of employers,

and the vocabulary and language used during the process. However, in the context of this study, the fact that there are relatively more curriculum developed associated to small scale of enterprises than large one. This might be also a reason the employers from small scale industries engagement measured higher.

This study also found that employers had low engagement across all the stages of curriculum designing phase. The employers' perception for the low involvement in all these stages are that they were not treated in the respectful manner as curriculum division does not disseminate information in timely manner. They were invited at basis of personal contact and when it comes to the informal process, they do not take it as important to participate. Likewise,

Figure 1
A model for preparing market-based curriculum

with each other. Further, the scholar found employers were not entertained to take part in some stages of such as identifying the right jobs for training, designing curriculum, coordinating practices for trainees, etc.

Thus, the ultimate goal of TVET is the employment and productivity; therefore, the employment and productivity need to be linked with the market demand. The curriculum can bridge the linkage, in this sense, the quality of the curriculum and market demanded curriculum is assured when the linkage of education and employment system is strong in the TVET system.

Conclusion

The engagement of employers in TVET system is crucial as they are key stakeholders who consume the output of the TVET providers. Besides, the employers are also a collaborator who can contribute in the

participants also agreed that they were not much familiar with these all the processes of curriculum development. This result is corroborated with the findings of Tien (2009) who found that TVET providers and employers were not very well networked

different stages of TVET development. One such crucial is their participation in curriculum development process. The skills requirement by the market can be addressed through the means of curriculum. The curriculum mirrors the training needs

of global market. To reflect the market need, the involvement of the employers in TVET curriculum development is found essential. It is because despite high rates of unemployment, research indicates that employers are having a difficult time finding workers who have the knowledge and skills needed for available jobs which indicates that present curriculum does not reflect the demand of the employers. However, this study showed that the involvement of the employers in the TVET curriculum development is low and it is in the alarming situation. This clearly indicates that the involvement is not adequate, although TVET curriculum working procedure guides that 33% of employers' involvement is mandatory. There were many reasons such as power sharing, lack of formal communication, and disinterest towards the process. However, it is obvious that employers have a major role in the framing of competencies and ensure the relevancy and quality of TVET. Therefore, curriculum needs to be linked with industry to address technical and work readiness skills demanded by the employers. The curriculum developed with the involvement of the employers may also support to reduce the mismatch of the skills and enhance graduates' employment opportunity.

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Ensuring Quality Assurance in Technical and Vocational Education and Training

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Abstract

Recent digital revolution is rapidly transforming the world of work and the skills profiles of many occupations. Major forces driving changes in the world of work include globalization, rapid advances in information and communications technology, changes in financial markets, new business strategies, new management practices and new forms of work. The uncertainty emerging from the fast changing environment, technological development has increased ethical and social responsibility. TVET was often a second choice of the students and was disregarded as a significant player in academic orientation in some years back. Now, that statement has been slowly discarded since awareness increased and through quality in education it is proved that TVET are the best providers of knowledgeable and skilled workers in the 21st century. Quality assurance in TVET is a concept that is concerned with high performance in entire academic process involving activities such as teaching, learning, infrastructure, students' behavior and so on. The TEVT sector and its policy makers respond rapidly to the changing scenario. Good quality education is very necessary in the total development of the student, which ensures proper development, job prospects and the realization of academic goals and objectives. There are varied factors working against the realization of quality TVET. Practical partnerships between public and private actors will have an increasingly important role to play in the delivery of TVET programs so that the fresh TVET graduates have to be world class and the education quality has to maintain of global standards. This paper outlines and discusses the relevancy and quality assurance need in TEVT to meet the requirements in the coming future.

Background

Technical and Vocational Education and Training (TVET) is concerned with the acquisition of knowledge and skills for the world of work. It is used as a comprehensive term referring to those aspects of the educational process involving in addition to

general education, the study of technologies, practical skills, knowledge and attitudes related to world of work (Maclean & Wilson, 2009). The skills associated with continuously learning and creativity dealing with ambiguity is increasingly becoming important. TVET is also a vital tool for achieving the agenda 2030 development goals. Sustainable Development Goal (SDG) 4 emphasizes the need for inclusive, relevant and quality education so that the young people should be equipped with skills, knowledge competences and values to break cycles of poverty contributing in socio-economic development. Assuring quality in education has indeed become a top priority for providers and is currently one of the most critical elements in the development of and education system (Morris, 2013). Quality assurance for TVET is quite a prominent area all over the world because of the expansion of the global competitive marketplace. International practices towards greater quality focus served to maintain professionalism, enhance stakeholder confidence, and enable personnel in the sector to adapt to the ever changing global environment. As an example, the Australian quality training framework (ATQF) was established in 2001 as a body for providing minimum quality standards for the registration of training organizations in Australia. Since 2007, it has introduced additional criteria called "excellence criteria" in a new concept called continuous improvement or reflective practice which is outcome focused, nationally consistent, streamlined and transparent (Agbola & Lambert, 2010).

Multilateral and Bilateral organizations working in TVET sectors such as the Asian Development Bank (ADB), the World Bank (WB), the European Union (EU), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Labor Organization (ILO), the Swiss Development Co-operation (SDC) and others have strongly expressed interest in quality assurance in TVET system. UNESCO has focused and emphasized the need to improve the quality of education in its Education for All 2012 Global Monitoring Report of (UNESCO, 2012). International Network for Quality Assurance Agencies in Higher Education (INQAAHE) which collects and disseminates information on developing practices on the assessment and maintenance of quality in education providing uniformity of quality internationally (Morris, 2013). Technical and Vocational Education and Training (TVET) is gaining popularity in Nepal in recent years. As a result, there has been massive expansion of TEVT institutions and provisions along with the diversification of programs. Expansion of TVET programs intensified after introduction of TVET in community schools as a separate stream. Growing expansion of TVET institutions and programs in recent years also raised the concerns of quality. Strengthening of Quality Assurance (QA) system in TVET to ensure the TVET institutions meet minimum quality standards defined nationally (Sharma, 2019). In light of those facts that

the world is becoming more inclusive and interdependent, it is evident that a clear provision of quality assurance in Nepal's TVET system is a critical necessity in order to meet the demands of learners and the world marketplace.

Understanding Quality

A number of different definitions used for quality, which generally refer to the degree to which outcomes are achieved against desired benchmarks rather than to an absolute value. Quality is also 'situational and time-based'. Quality as contained in Oxford Advanced Learner's Dictionary (2010), means the standard of something when it is compared to other things like it; How good or bad something is. Quality is used on every commodity e.g. quality health, education, infrastructures, etc. The Business Dictionary defines quality in manufacturing as being 'free from defects, deficiencies, and significant variations'. The Business Excellence Organisation makes a distinction between the quality concepts which focus on 'tangible products' and those which focus on intangible service delivery (Misko, 2015). The Health Foundation in the United Kingdom views quality as a 'degree of excellence in health care'. A quality health care service is identified as being safe, effective, person-centred, timely, efficient and equitable. In context of TVET quality can be defined as the level of excellence in training delivered by public and private training and assessment providers. It necessarily includes both quality management concepts as well as regulatory frameworks.

In recent decades organisations have focused on quality and quality management as a business concept that can be used to guide and evaluate organisational effectiveness. Quality frameworks have become important to at all level government agencies and enterprises as well as to private enterprise. Governments are eager to ensure that there is adequate accountability for the funding allocated to the provision of public services and products, while private enterprise is keen to make sure that products or services meet the needs of clients, return a profit and are delivered in accordance with government regulations.

In the education and training sector quality is important for securing client (employers and learners) and stakeholder (governments and industry) trust in the ability of the system to deliver relevant learning outcomes. This is especially critical as systems become more flexible in what and how educational program/training is delivered and accessed (Pepper, 2016). With learners obtaining qualifications for the knowledge, skills and competencies they acquire in a range of formal. The effective and efficient regulation of education/training is central to the integrity of TVET systems and to the qualifications they offer and deliver.

Quality Assurance

In education, meeting the needs of stakeholders and for fostering innovation and improvements through quality assurance is emphasized (Navaratnam & O'Connor, 1993). World is changing at high

rate. Without innovations and inventions educational institutions will lag behind. The introduction of the new digital technologies in education brought rapid changes socially, culturally and technologically. UNESCO defines quality assurance in TVET as the processes and procedures ensuring that qualifications in terms of competences and ability, assessment and program delivery meet certain standards (UNESCO, 2018a). Quality assurance comprises the processes of ensuring that specified standards and requirements for TVET provision, curriculum design and development, learning, TVET management, accreditation, assessment and the recording of achievements are met. Quality assurance as applied in education refer to all forms of internal and external quality monitoring, evaluation or review or the systematic review of educational programs to ensure that acceptable standards of education, scholarship and infrastructure are being maintained (Hammink, 2017).

Many countries have a growing shortage of skilled workers to meet the requirements of enterprises and to serve communities' needs. For instance, the UK is experiencing declining levels of participation in courses for the advanced technical skills required for its economic activities (Wolf, 2016). German enterprises are experiencing difficulties securing adequate numbers of quality candidates for apprenticeships. This has led to competition amongst companies to secure such apprentices. In country studies from a current UNESCO project shows that there is a growing concern across countries with

both developing and advanced industrial economies and long struggle to attract young people to the manufacturing sector that sustains its economy. Young people and their parents increasingly prefer higher education over TVET as an educational pathway. This preference extends even to those university programs that have no direct employment outcomes and, potentially, quite limited prospects of employment upon graduation (UNESCO, 2018b).

Quality in educational programs only can meet the needs of the industries/communities and that is determined by the governments, industry's, enterprises and communities view, support, fund, participation and engage with programs. To understand TVET quality assurance it is important to consider what we mean by 'quality'. A common understanding of quality is 'being of value' and this makes quality relative: of what value; value for whom and value for what? There is no global, absolute, objective measure for quality rather it is something agreed upon by communities. In education, there is no exact formula or a unified model for a standard TVET quality assurance system though, specific elements of quality can be defined and targeted. The stage of development and maturity of TVET systems differs from country to country. Most of the countries national TVET systems originated having operated under different government ministries or departments and different sets of qualifications and quality assurance arrangements. The form in which countries develop their quality assurance systems

for education and training depends on the specific country contexts. Generally this include traditions and governance culture, the extent to which general education, TVET and higher education, the existence and strength of apprenticeship systems, the integration of workplace experience in TVET (industry partnership) and the specific geo economic contexts (Oluwasola & Ogbuanya, 2015).

TVET was often judge as a place for those who only fated to do boring and dirty jobs resulted from their poor academic achievement. A key and growing concern is that in an era of growing aspiration, this image has negative impacts on young people's and their parents' interest and participation because TVET is often viewed as a second choice or last resort. The so judgmental assumption has been long mingling in the orthodox view of education landscape and it made the heart of those who: run it, in it, feel it, felt so crush and hindered. Those statements has been slowly discarded since many are aware that TVET are the best providers of knowledgeable and skilled workers in the 21st century TVET is often disregard as a significant player in academic orientation (Ghneim, 2018).

Within the education system the meaning of TVET quality can be quite different from that within the employment system. TVET might be of the highest quality at a certain moment in time but a sudden change in labor market needs can render its outputs, at least temporarily, worthless as regards employability. A component of quality management that is 'focused on providing confidence that quality requirements will be fulfilled' In relation to education and training services, quality assurance involves planning, implementation, education and training evaluation, reporting, and quality improvement, implemented to ensure that education and training (content of programs, curricula, assessment and validation of learning outcomes, etc.) meet the quality requirements expected by stakeholders (Coles & Bateman, 2017). The aim of quality assurance in TVET is to support processes and procedures that ensure good TVET. As described by Cole 'Good TVET' has five key features:

- responds to labor market, societal and individual needs;

- leads to nationally, or even internationally, recognized qualifications or credentials;

- provides access to decent jobs and sustainable employment;

- is attractive, inclusive and accessible, i.e. all citizens have access to VET;

- fosters capabilities that enable progression to further learning.

The application of quality assurance is critical to the future of technical and vocational education because training must be geared to the needs of individual workplaces and the graduates who seek to work in them. Employers want quality graduates. Industry sets the standards for occupational skills of various levels and types of jobs based on which curriculum standards and testing standards are set (UNESCO, 2018b)

Quality assurance is fundamental to qualifications because trust and transparency in qualifications are a requisite for the comparability and recognition of qualifications at both the national and international levels. To ensure the validity and trustworthiness of qualifications and certificates, the qualifying and certification process needs to be underpinned by reliable and standardized quality assurance arrangements and mechanisms. Quality in TVET requires its attendants employability and meeting both students and employers demand. Responsibility that increased clarity, collaboration between school and working life, and work place learning will lead to an emerged quality should be shared between the student, the school, and the industry (Jayalatha, 2017).

Why focus on TVET quality?

Quality assurance refers to planned and systematic processes that provide confidence in education and training services provided by TVET institutions. The notion of quality can be viewed from various perspectives. The British Standards Institution (BSI) has defined quality as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Market relevant curriculum, qualified teachers with high motivation, adaption of adult teaching methods, availability of infrastructures, teaching materials and proper evaluation of students etc. like standards can support to assure quality and function properly in the TVET program. The assessment of quality teaching is an on-going, multi-dimensional process which should be based on process and product. Events have shown that countries and individuals are not able to harness human and non-human resources efficiently towards the realization of specific socio-economic and technological goals which brings us to the fact that there is need for ensuring quality TVET program. Successful implementation of any education program and the effectiveness in achievement of set goals depend very much on adequate materials and resources available. The input on individuals and institutions of learning, can determine to a large extent the realization of the philosophy of TVET (Idialu, 2013).

(Navaratnam & O'Connor, 1993) agree that quality vocational education is important to industry because employers see a skilled workforce as fundamental to getting and maintaining a competitive advantage. They assert that: industries want students who can understand their work, their product or their services, be creative and adaptable, and capable of becoming multi-skilled. Industries demand that vocational graduates possess vocational knowledge, skills and attitudes that are central to industrial innovation and practice (Navaratnam, 1991). Industry needs relevant and high quality vocational education based on recent technologies. Quality of vocational education is important to both government and the general public. In most emerging economies, educators and industry operate in different worlds and often have little contact with each other.

Sometime, TVET uses curriculum created by academics with little or no understanding of industry requirements or local needs. The TVET institutions are needed to strengthen links with industries to improve networking between academia and industries to create a better understanding of each other's needs and to identify how they can be met through the industry programs. The domestic industries should have link with the industries abroad to enhance indigenous standard. The TVET institutions will have the link with their home industries to determine their standard and to develop their own curriculum (Raihan, 2014).

A study of Nigerian TVET quality reveals that there is a gap in timely revision of TVET curriculum, gross inadequate strategies in recruitment of staff, lack in supervision of program, provision of facilities, provision of scholarship and knowledge and updating program like seminar, conference, workshop and interaction programs with the industries and their association (Ogbuanya & Oluwasola, 2015).

Some of the educationists also have identified five different approaches to define quality in terms of exceptional, consistency, fitness for purpose, value for money, and transformative High quality programs provide strong links between institutions and industries leading to better employability of graduates make TVET more attractive and give status. Similarly, quality assurance frameworks serve as a common reference to ensure consistency amongst different actors at all levels (Reinsch, 2009). The process and procedures followed in quality assurance systems have transparent to ensure mutual understanding and trust between different actors. It supports in building better industry and labor market orientation and the trainers, assessors and other QA related personnel are well-qualified and familiar with workplace practices and the facilities and technologies utilized reflect industry requirements and technologies (Holland, 1992).

Different quality assurance mechanisms for TVET are established and practiced. Different systems apply different combinations of these principles depending on the specific country context. Quality assurance systems commonly vary around the principles. As per the need of the TVET system systematic professional development of trainers / instructors / teachers, assessors and verifiers, keeping pace with technological advancements and use technology appropriates, encouraging continuing TVET and lifelong learning, delivering a TVET demand approach, development and management of a robust evidence based Competency Assurance Management System (CAMS) with a view to set a traditional criteria for management of quality assurance of the TVET system, change the mindset of parents, the community and stakeholders about vocational education being second choice to academic education and implementation of the vocational disciplines through respective academic subjects at universities etc. are some of the factors assuring quality in TVET (OECD, 2013).

Ensuring Quality in TVET

Technical and Vocational Education and Training sector requires systematic approaches to measuring the quality of systems and institutions has become widespread. In some countries traditional systems of inspection continue to be the mechanisms for ensuring that institutions deliver quality training. In others the application of quality standards (developed by government regulators and commercial quality and accreditation organisations) are used as criteria or benchmarks against which organisations are formally audited, to gain, maintain or renew registration or accreditation (Murray, 2013). The effective and efficient regulation of education and training is central to the integrity of TVET systems and to the qualifications they offer and deliver.

Effective regulation ensures that the providers of training have appropriate and adequate processes and physical and human resources in place to deliver the required and relevant skills and knowledge; it also promotes continuous improvement practices and provides confidence for industry in relation to the skills graduates possess. An efficient and streamlined regulatory system and one not overly burdensome encourages compliance and quality of provision. Efficient regulation is also underpinned by a risk-based approach to quality assurance, which encourages the pursuit of excellence and self-compliance (Misko, 2015). As practiced in different countries, there needs

a strong quality assurance and management system which can preserve the integrity of nationally recognized qualifications. Well-recognized and trusted qualifications can support labour market efficiency by providing 'effective signals' to the labour market about the knowledge and skills an individual has acquired, which helps employers and graduates to have confidence in the quality of the qualifications.

Figure-1: Quality Assurance Management
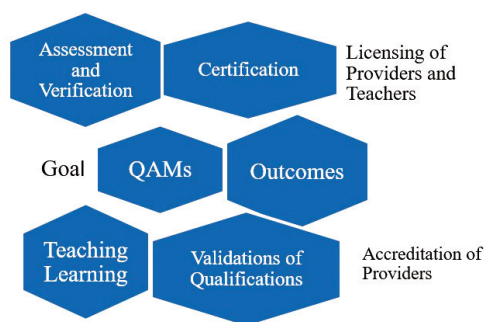
Assuring the quality and relevance of TVET has become an increasingly challenging task, which has to comply with changing labor market's requirements and needs. If TVET does not lead to satisfactory outcomes, everyone loses. TVET quality, therefore, is of common interest and this is what motivates cooperation and concerted efforts of all concerned in the field of quality assurance in TVET (Sharma, 2019b). In today's fast changing environment, new innovative approaches to performance monitoring, measurement of quality or output-based policies, such as competency

based education and training (CBET) and assessment are applied to assure the required quality in terms of competency achievement. The aim of quality assurance in TVET is to support processes and procedures that ensure good TVET.

Conclusion

The issue of quality technical and vocational education and training (TVET) as tool for self-reliance is a fact that cannot be discarded or over emphasized. The revelation from the study shows the quality of students admitted to technical colleges. The quality of students and their background is a determinant factor of how well the students will perform. Technical schools as an institution that provides craftsmen and women for the general society has some inadequacies. As revealed from the study, problems relating to diversifying instructional methods to creating enough practical periods for necessary skill acquisition as strong bane for quality training are against the requirement of UNESCO that special efforts should be made to ensure that National Technical and Vocational Education seeks to meet international standards. Again, to meet the twenty-first century demand, UNESCO advocates for learner-centered innovative and flexible approaches to all programs including curriculum re-orientation. Low performance of the Instructors/trainers, insufficient facilities and inadequate availability instructional material will make the training institution laboratory different from expected industrial setting. Quality assurance whether external or internal and irrespective of how quality is defined requires established benchmarks against which qualifications, courses and providers can be assessed. In TVET this includes several activities, starting from the self-assessment of the institution and finishing with the use of the outputs of the assessment. A quality TVET is supported by three key pillars: ensuring access to quality teachers; providing use of quality learning tools and professional development; and the establishment of safe and supportive quality learning environments. Through the analysis of the students, school, instructional materials and government have been identified as necessity for attaining quality TVET program that can cater for economic growth of the nation and the wellbeing of the country through self-reliance. Based on the studies, the following recommendations are therefore made.

- Career guidance and counseling sessions should be organized for the students in the school level to support students in career assessment.

- The federal as well as provincial government must prioritize adequate time planning and review of TVET curriculum to make it more relevant to the labor market.

- Qualified and competent staff must be developed and employed for the quality TVET.

- TVET Fund must be established and mobilized on need based.

- Adequate facilities of the TVET institutions must be ensured for the effective implementation of TVET programs based on the curriculum.

- Motivational programs should be planned and implemented to retain TVET staff.

- A good package should be provided for TVET teachers which must be subject for upward review periodically.

- CTEVT should have an effective quality assurance unit to ensure quality assurance of the TVET institutions both in the public and private sector to produce tangible evidence concerning the quality and standard of education and training programs.

The national body, responsible for standardizing and controlling the quality of TEVT is the CTEVT and being legally mandated institution responsible for quality assurance in Nepal. All TVET institutions and programs are to be brought under the quality assurance mechanism to ensure all are operated maintaining quality standards prescribed by CTEVT. CTEVT as a policy making agency should not implement the TVET programs itself. With the increasing realization that TVET programs are of paramount importance in the social, educational, and economic scene, more and more emphasis is being placed in quality control and quality assurance. In addition, investment from government or from people in TVET is significantly higher. Utility and return of the investment would be higher if TVET institution prepares students of superior quality capable enough to compete for the job in the labor market. The time has come when national responsible body authorized for quality assurance takes a public stand for integrity of action.

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'Confined Dreams' of Informal Skills Learners: Can TVET Widen Their Aspirations?

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Abstract

More than eighty percent of youth in Nepal are estimated to be learning their livelihood-skills through work. Generally, those informal skills learners either never visit a school or discontinue their school education and start a career without formal or non-formal skills training. Adopting the qualitative research approach, and underpinned by career development theories, I argue that those people have to confine their aspirations due to unfavorable TVET system. I also use poetic inquiry to analyze and present the information. I also discuss how the country's TVET system can support such a massive number of informal skills learners. The research is based on in-depth interviews conducted with six youth and adults working in three different trades— pottery, fast-food, and motorcycle service mechanics located in Kathmandu Valley. It is concluded that the struggle at school and the path of work faced by those adolescents and youths for getting a job are diverse. It is also found that informal skills learners have aspirations, mainly limited to either establishing or extending the existing enterprise with their competence acquired through workplace learning. The paper concludes that the state should facilitate fulfilling the aspirations of those informal skills learners.

Keywords: Informal skills learning, Confined aspirations, TVET

Introduction

Nepal is a developing country where the informal economy prevails. According to recent statistics, more than two-thirds of employment (69.7 percent) is in the informal sector, excluding the agricultural sector. When the agriculture sector is added, the figure for employment in the informal sector becomes 96.2 percent (International Labour Organization [ILO], 2017). This situation also reflects the country's educational scenario where access to education for many groups is limited. More than one-third (34 percent) among the children of school-going age never attended the school (Central Bureau of Statistics [CBS], 2012). Among those who enter the school drop schools in between not completing tenth grade. A recent government report states that class five's survival rate is only 88.3 percent (Ministry of Education, Science and Technology

[MoEST], 2018). From this figure, it is clear that more than one-tenth of students leave before completing the primary level of education. Those people who either didn't enter or drop school earlier (early school leavers) join the labor market and start their career as workers but indirectly as informal skills learners.

Youth unemployment in Nepal is more significant than the overall employment rate of the country. About one-fifth (19.2 percent) of the population from 15 to 29 year age group was unemployed, which is much higher than the overall unemployment rate of 2.7 percent of the population age fifteen years and above (Serrière, 2014). It shows that the youth population is more vulnerable concerning employment. There might be several reasons for this situation. But, "increased detachment from the labor market" is one of them (Serrière, 2014, p. iii) from which those youths do suffer. How those youths get access to jobs and how they envision their future career prospectus remain a pertinent area of research, the literature on which are scarce, particularly in Nepal's context.

A study conducted by Mussida et al. (2016) on early school leaving and work outcomes in ten developing countries, including Nepal, found that early school exit on work outcomes is generally favorable. It means early school leavers also do get jobs. However, the work outcomes were mainly unpaid jobs or self-employment. The study alarmed that the women early school leavers are more victims considering work outcomes. It suggests the formulation of policy targeting reducing early school dropout of females.

Similarly, an ILO report mentioned that "male youth has a much higher chance of completing the transition than female youth" (ILO, 2015, p.28). The report also state that the demand for high-level jobs is less than low-level skills demanding jobs. Acharya (2014) conducted another study under the UNESCO Nepal upon grade ten school students and working youth focusing on gender, jobs, and education and found male employment higher than female employment. This report also stated, "the traditional gender stereotypical roles and responsibilities of women and men in society" (Acharya, 2014, p. VII).

These studies on student dropout and job-transitions focus on a quantitative approach where a deep understanding of how early school leavers strive to get access to work and how they aspire to their future based on skills learned during the career seems less elaborated. This study explores the difficulties faced by some adults and youth who either did not attend a school or left the school earlier and entered a paid or unpaid informal job. It also attempts to explore how those informal skills learners see their future to be. For this, the study intends to find the answer to how early school leavers get an informal job and how those workers with their informal skill learning aspire for their future?

Early school leavers are those boys and girls who could not complete school-level education due to different reasons such as lacking financial resources, geographical isolation, and so on and dropped in-between. Similarly, informal workers are workers working in the condition where "employment relationship is, in law or in practice, not subject to national labor legislation, income taxation, social protection or entitlement to certain employment benefits" (Hussmanns, 2004, p.6). Aspiration is a qualitative term with multiple meanings such as "goals, ambitions, purposes, objectives, aims, yearnings, intuitions, plans, dreams, cravings, desires, longings, and designs" (Cobb et al., 1989, p. 12). It shows that the meaning of aspiration has multiple meanings but all associated with future wellbeing. In this research purpose, I have used two terminologies—dreams and aspirations—interchangeably, which is the future goals set by a person; in the particular case, informal skills learners.

The overall purpose of this paper is to explore the struggle pathways of informal skills learners the discuss how they have to compromise with their aspirations or dreams. I also provide some insights into how the TVET system of the country can support in fulfilling their future dreams. To do so, after this section, I first provide the methodological premise of this research paper. Then I present three thematic sections, entitled: 1) Journey to confined dreams starts at school, 2) Zigzag journeys of getting a job, and 3) Aspirations of informal skills learners.

Then I discuss and argue that informal skills learners are not getting significant support from the national TVET system so that they could fulfill their aspirations. This part of the section will be presented under the title: Confined dreams of informal skills learners: What can TVET do for widening aspirations? Finally, I provide my concluding statement towards the subject.

Methodology

The paper is based on the qualitative information obtained from six workers as informal skills learners from three small-scale enterprises (two from each)-motorcycle service mechanics, fast-food café, and pottery located inside two districts of the Kathmandu Valley. It included both traditional (pottery) and modern (fast-food café and motorcycle workshop) occupations. Among six participants of different age groups ranging from twenty-two years to about fifty, two workers from the fast-food occupations are female and all other four research participants are male. I performed more than three visits to the site of these research participants and conducted at least two interviews with each of them. I recorded the interviews using my audio-recorder of mobile phone after obtaining their consent. I transcribed and translated the interviews from Nepali to the English language. I also prepared reflective journals based on the field notes. The obtained information is clustered under three themes (as mentioned above), and findings are presented and discussed. I also used the poetic inquiry

method, considering that it is well-accepted research methods these days that can be used as a "response to the crisis of representation" of those whose voice is rarely talked and listened to (Prendergast, 2009, p.561). Finally, I have presented the conclusion and recommendations based on the obtained information and my work-experiences.

Journey to Confined Dreams Starts at School

Completion of school education is not favorable for most Nepali adolescents and youth. Of course, there might be multiple reasons for abandoning the school earlier; one of the primary reasons for the abandonment seems the family's weak economic condition (CBS, 2012). Particularly such phenomena prevail in those youth and adolescents who directly jump to the world of work where they acquire occupational skills while performing the job.

Research participants of this research range from lacking school-education to college-level education. However, the case of the participant with college-level educational qualification is the exceptional one. The story of the lady who is working as a self-entrepreneur running a fast-food café (about whom I mention in the paragraphs below) seems a bit different than other informal skills learners, particularly considering obtaining an educational qualification.

Moti Kutu is about forty at present. He is from an ethnic Newari community of Thimi Area of Bhaktapur District. He dropped his school when he was in grade eight. Though he mentioned the reason for dropping school as a *"family circumstance,"* from his expression, it was clear that the interruption of the educational journey was due to the family's weak economic condition. The family of Moti was following vegetable farming since history. His father did work in the farmland and sell produced vegetables on the market, carrying them on the *Kharpan*.[1] As the family was big, Moti's father needed help possible only by Moti as a grown-up son among the other three brothers. So, Moti started to help his father by selling the vegetables together with his father. During the conversation, Moti mentioned that:

Due to domestic problems, I could not continue my study. We are four brothers from our parents. Among the four, two brothers could not enroll in the school, but I could join it. The father was a farmer. Together with my brothers, I helped my father sell green vegetables and carry them to the market and support him in other farm-chores [Interview, October 2018].

The situation expressed by Moti is understandable that one of the reasons for abandoning school education for more than one-fifth of Nepali children (22 percent) is due to "help needed at home" (CBS, 2011, p.83). Moti could not continue supporting his father as he aspired for his career in the automobile sector. His journey to the labor market in the automobile sector started with one of the relatives' help.

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1 Traditional double cage- carrier used by the farmers Newari community in the Kathmandu village.

The story of another nineteen-year-old boy, *Yuvaraj Shah*, was different, while some of the occupational features were identical to Moti. Yuvaraj is from a rural village in Tarai (Nepal's southern plane) near the Indian Border. His family didn't have irrigable land and so worked in the land of other lords. The earning made by his parents was scarcely running the family. Being the elder son, Yuvaraj had to think about his family. Though Yuvaraj had not to pay the school fee as it was the government school, he had to think about the family and his younger brothers and sisters. So, he decided to drop school when he was in grade eight and moved to India, searching for a job. "I went to a government school in my village. I continued till eight class, but…." he could not tell further and stopped during the interview. When I requested him for completing the sentence, he continued with his faint voice:

I was a brilliant boy in my school. Teachers were happy with my study and hard work. I was eager to continue my education at the school. My family could not afford it after that class as I had to earn for the family. My small brothers and sisters also could not work and earn. The amount made by the father was not sufficient for feeding the whole family. So I left school and moved when I was seventeen [Interview, October 2018]

The expression of Yuvaraj indicates that only not paying school fees does not mean that one can continue his or her school. As he mentioned, the family could not afford the school education because he had to work and earn money for his family, which was impossible at the school classes. Such a situation is typical for average rural youth for leaving school earlier (CBS, 2011). Further, the problem faced by Yuvaraj seems evident being a youth from a disadvantaged Dalit community from the rural village (ILO, 2015).

Not only those people who have to abandon school education adopt the informal learning path. Those people who have a favorable situation can continue not only school-level education but also higher than that. As one of Nepali youth's problems is unemployment (ILO, 2015), educated people can also follow an informal working and learning path. The case of another research participant, presented further, represents such a situation.

Anita KC is in her forties at present. According to Nepal's hierarchical caste system, she is from Chhetri community, known as among the higher caste (Bennett et al., 2008). Being born into a well-off family, Anita never faced a problem of education both in school and college. However, her struggle started when she got married and became *Buhari* [daughter-in-law] of another *Chhetri* family (about this, I provide the story in the next section).

Devika Sharma, the next research participant of this study, is a twenty-two-year-old girl. Her family is from Makawanpur, the Inner Tarai-Region of the country. When she was quite younger, her mother had to leave the native town and move to Kathmandu due to family circumstances. Devika's mother started to perform domestic works in the house of Anita (the research participant

mentioned above), where they got a tiny room for residence. The house-lord of Devika's mother enrolled Devika in a public school near to the home. Devika completed her school education and obtained the School Leaving Certificate (SLC) qualification from that school. As she was now grown up, she started to work in the Café shop of Anita, where her mother was working as a cleaner cum helper. Thus, the journey of Devika towards work started but continuing the education in the same school doing further higher-secondary level education.

The stories mentioned above were from those working in the informal sector as informal skills learners. Some other people do not have to search the work anywhere as their families had been running traditional occupations for long history. Trade of *Kumale* [pottery] from Thimi Area of Bhaktapur district is one of such conventional trades from which two of the research participants are in this research.

Gopal Prajapati, approaching his fifties, is a mature youth running his family pottery occupation in one of the settlements of Thimi. Although every component of the pottery (for instance, a place for dusting clay, shorting, mudding, wheeling, drying, burning, etc.) is in Gopal's occupational premice, it was strange a single couple of Gopal was working in the workshop. It came to know that the family now does not want to make their children a potter and wants to change the occupation. But what was the educational journey of Gopal, I wanted to know. Gopal informed that he

does not have any school-level education. From his adolescence, Gopal started to work in the pottery workshop together with his grandfather and father. What everything Gopal learned is the learning acquired during the work. He mentioned that "only one elder brother studied till ten class and (we) other four don't have school education."

Education and work are inseparable parts of skill development (Eraut, 2004). However, in a traditional occupation like pottery, it seems that previously there was less awareness of education's importance. But now, together with increased attention to education and other different reasons, attraction to the trade is decreasing. Nevertheless, such a trend of youths' changing occupation also exists in other traditional works (Chetry, 2011).

Another potter *Binayak Prajapati*, 42, running the traditional occupation of pottery in the settlement of *Nikosera* in Madhyapur Thimi Municipality, also provided similar information. However, in contrast to Gopal, Binayak studied till the tenth grade of school but did not appear in the national examination—School Leaving Certificate (SLC). After having that educational qualification, he did not want to pursue the pottery occupation and change it. He could not stay longer in the altered occupational field and returned to the traditional family trade after a few months.

Of course, there are different reasons for abandoning school earlier. No one wants not to attend or to leave school class in early grades. There must be specific reasons for

this. One of the dominant reasons can be a person's family circumstance (Acharya, 2016; Rumberger, 1983), which is clearer from almost all research participants' life stories.

Zigzag Journeys of Getting a Job

Usually, each person has their career journey starting from an educational institution to different types of work. With some people, this path is less deviated, but with others, it might not be. In adolescents, youth, and adults dropping their school-level education, the career paths are comparatively uncertain and turbulent. Except in the traditional occupation, in the particular case- the pottery, informal skills learners have expressed their career journey's zigzag course.

Moti Kutu just crossed forty-five, is an automobile mechanic who has been running a workshop for more than two decades, had faced a challenging work-path. When he dropped his school, initially, he helped his peasant father. However, he could not stay longer, as his will was to work in the automobile sector. With the help of one relative, he initiated a job in a workshop in *Balaju*, located at a distance of more than fifteen kilometers from his home. He was commuting each day that a long-distance, sometimes on feet at that time (due to local transportation unavailability), made him searching for a job in another more comfortable location. Fortunately, one of the friends helped him find a similar position in a convenient location, at *Teku*, where he worked for more than seven years. Both the work-experience obtained at *Balaju* and in *Teku* made Moti confident in his occupational skills, which created the germs of becoming a self-entrepreneur. He initiated two workshops at once in the partnership with a mechanic-friend: one at *Manohara*, Bhaktapur, and another in *Anamnagar*, Kathmandu. The partner looked after both workshops, and Moti was doing another work—importing automobile parts from Delhi. However, Moti experienced challenges in running a partnership business. His partner started to suspect the time devotion of Moti and mishandling of the account. About situation how there was a misunderstanding with the partner and how he created the present workshop, Moti mentioned:

I felt that it is not easy to work with a partner. If a partner treats as a partner, only then can an enterprise run. Otherwise, it can not run well when the partner starts to show his dissatisfaction with suspicion and grievances. So, I decided to be separated and create a separate business taking risks. Some of my relatives and friends also suggested running my own independent business. Thus, I started the workshop here [Interview, October 2018].

At present, Moti is operating his workshop in Gathaghar of Madhyapur Thimi Municipality for 12 years, where despite the multiple struggles faced for the establishment and operation, he seems satisfied.

Though Moti was from a peasant family, he was from the capital city. But the story of a boy working in the same occupational sector is different. *Yuvaraj Shah*, who is, as

mentioned earlier, 19 years old at present, is from the border area of the rural southern plain of Nepal. After leaving school to support his family economically, he moved to the adjoining city in India, *Motihari*, in search of a job. Nobody was there at Mothhari who facilitates identifying the work for Yuvaraj. He spent almost a week wandering here and there searching for the job. One workshop owner found him and offered him a cleaner position, and provided a food and lodging facility as an incentive. The work started in the morning around eight and continued till eight or nine in the evening. Initially, Yuvaraj was working only on cleaning and collecting tools, but afterward, the senior *Mistri* [craftsperson] started to trust him and assign some minor tasks of repairing motorcycles. During seven months, Yuvaraj learned the preliminary skills of motorcycle mechanics.

As mentioned in the above section, the primary purpose of Yuvaraj for abandoning school was to support the family financially. But it was not possible as there was no provision of salary or wage. So, he was thinking of searching for a job where he could earn and support the family. Amid, one of his far-relatives approached him and proposed whether he wants to go to Kathmandu for a similar job. The proposal encouraged Yuvaraj to leave the present place as he has heard good stories from colleagues about the possibilities of good earning in Kathmandu. Thus, in the facilitation of his *Mama* [maternal uncle], Yuvaraj arrived at Kathmandu and initiated the work in one of the workshops. When I asked Yuvaraj regarding his journey from *Motihari* to Kathmandu for the new job and also wanted to know whether he informed the owner at *Motihari* regarding his move, he expressed how he left the first job and arrived at Kathmandu:

Ohh. No. I didn't inform the owner and left the workshop covertly, and went home. The other day early morning, when I came to the place where my Mama told me, there were other boys too on the bus together with my Mama. We arrived here in Kathmandu in the evening by bus. Few days I spent in the room of one villager together with Mama. Then, he [Mama]took me here, and I started to work [Interview, February 2019].

Though Yuvaraj mentioned Kathmandu, he was initiated a job in Madhyapur Thimi, Bhaktapur. Yuvaraj also informed that he left this place too after some months and moved to another workshop to obtain a better wage. Later on, when the present workplace owner knew that Yuvaraj left his enterprise due to being less paid, the owner convinced Yuvaraj to offer a similar amount. Then, Yuvaraj decided to return to the initial workshop, where he is still working. He frequently repeated that he has been learning multiple skills and knowledge and no regression of not completing school education. Box 1 below displays the summarized version of Yuvaraj's expression regarding abandoning school and struggles. Despite being compelled to drop school education untimely, Yuvaraj is comparing his informal learning with his school and portrays his life-picture of compromised dreams.

Box 1:

I am still in the school

I did not want to be a fool
For becoming a "wise" son
I have left the school !

I was unknown about my abilities
But, shoulders were laden with
enormous responsibilities
Seeing early-wrinkling parents
Pale brothers and sisters
Knowing family problems in bundle
How could I lived the life cool ?

Most of my school friends
Continued the journey of learning
I abandoned that school at grade eight
At the adolescence of seventeen
I shifted the school
This school is a bit different
The name of which is a "struggle."

I have learnt a lot in this school
Now, I can understand-
- the Mathematics of hunger
- the Geography of shelter
- the Economics of passion
- the Health of relation

Moreover,

I have encountered cruelty of divine
And ultimately,
Hand-shook with the claws of time

I am shaping my future
Putting in the mould of present
and clamping with the nails of past
Though it is not like usual
I am still in the school

*** *** ***

In the case of two females, *Anita KC* and *Devika Sharma*, the story of the struggle for having a job are different. Anita is a mature woman in her forties with a brought-up son. Indeed, Anita initially wanted to have a wage job, but it was not possible for her. Her in-law's family wanted her not to go for any works but stayed at home doing domestic chores. The father-in-law of Anita was expressing that there was no need for her to go to work and suggested *"staying relaxed at home"* as the family was comparatively well off. However, Anita had a strong commitment to running a business. So, it was difficult for her to pursue the family members on the matter. When they permitted doing a business, there was a strong reservation on the type of business she selects. Anita wanted to run a restaurant business, but her in-law parents did not want this because a restaurant business needed to provide service to diverse people. Ultimately, Anita got permission to run a bakery shop where she had to deal with fewer people. Her parents-in-law did not want that their daughter-in-law washed dishes used by other *strangers*. They were advising for running a bakery shop because of the possibility of using paper dishes and plates. Thus, Anita established a bakery shop near the International Airport in Kathmandu, where there are some prominent organizations such as hospitals, airline offices, and construction companies.

When Anita managed to run the bakery shop well and started making a good income, the family's trust in Anita as an entrepreneur increased. This trust opened the door to changing the enterprise from the bakery shop to a café cum restaurant. Then she rented a

spacious shop stall along the busy road and furnished it with necessary facilities and utilities. The business had been running well for seven years.

There seems a common reason why Anita stopped searching for a salaried job and decided to become a self-entrepreneur establishing her own business as females have to face comparatively more difficult for getting a job in Nepal (Serrière, 2014). Even it is not easy for them to start an enterprise.

As mentioned earlier, Devika is a 22-year old girl who was brought from her hometown together with her mother in her childhood, completed school in Kathmandu. Devika's mother was living as an au pair in the home of Anita performing domestic chores and working in the café of Anita. It made it easier for Devika to initiate the job at the café. She was managing both activities together-studying at a higher secondary level and working in the café.

Regarding getting a job, the struggle for youth and adults adopting traditional occupation seems less. For instance, Gopal Prajapati, a potter at Thimi, never worried about getting a job. As he never visited a school class, he was involved in pottery work together with his grandfather and father from early adolescence. Initially, he could not perform essential tasks such as operating flywheel, malleting green pots, and carving; he used to help other auxiliary works such as crushing clay-lumps, transporting and drying pots, and so on. Intentional instruction from the seniors was lacking. He learned some vital

> **Box 2.**
> **Jagir is my dream**
>
> *When I was in the early grades*
> *Teachers sometimes do ask*
>
> *what you want to be in the future?*
>
> *Some friends told Doctor*
> *Some other mentioned Engineer*
> *Leader, Teacher, Lawyer were some professions*
> *expressed by some friends*
> *When I was asked at the school*
> *what you want to be ?*
> *I always expressed-*
> *There is no any other destination*
> *The government Jagir is my dream*
>
> *I had a lots of friends*
> *Of the family from merchants to peasants*
> *But,*
> *Seeing the well-off condition*
> *of fathers of my friends*
> *I have made my life-scheme*
> *Jagir as my dream.*
>
> *Do job as factory worker is not easy*
> *Running own business means to be busy*
> *I cannot imagine working at a farm*
> *I don't want to enter*
> *where there is less charm*
> *Working in other's field is secondary theme*
> *The only government employment is my dream.*
>
> *I know not all dreams are fulfilable*
> *Neither all goals are approachable*
>
> *So,*
>
> *I believe in the notion-*
> *that "effort is the foundation"*
> *Every success can stand on*
> *So, I am moving with my ambition*
> *Let me see how this can I rim*
> *to achieve a jagir as dream !*
> *** *** ***

skills with his efforts. Gopal was trusted for the operating wheel and did other significant tasks when his grandfather and father knew Gopal had already learned those skills.

Regarding this "peculiar" story (not teaching skills from the seniors), he mentioned:

When I started to work in my childhood, senior people did not allow me to work on the main tasks. So, I began to assist them in pretty works, such as cleaning and transporting. When I became more confident, I started to use flywheel secretly when my father and grandfather went for a break, for taking a meal, or for other purposes. I also learned additional skills such as mixing clay, malleting green pots, etc. If they knew that I am learning, they could scold me. The main reason for this was that pot items could be broken or damaged [Interview, September 2018].

Probably, the discouraging behavior of Gopal's seniors can be taken as an exceptional case. Knowingly or unknowingly, senior family members want to help their children learn different social behaviors and occupational skills, making them self-reliant.

From the story of another potter, *Binayak Prajapati*, it can be understood that adopting a traditional occupational path can also compromise the situation. When Binayak completed his tenth grade, he did not want to follow the trace of his ancestors. So, he opted for the occupation of a construction worker. When he worked there for some six months, he started to compare a construction worker's field with his family's traditional trade, the pottery. Finally, he decided to abandon the construction sector and returned to work being performed by the family. At present, Binayak is 39 years old and following the pottery occupation since his early youth stage. When he was asked how did he select this occupation, he mentioned:

Initially, I thought that pottery is a worse occupation. So, I entered the construction work. But when I worked there, I wouldn't say I liked the (construction) occupation because it was both unsafe and challenging. It also needed regularity in work. I felt that this (pottery) occupation is more flexible. If you want, you work and if you don't want you to take a rest. So, I decided to return to my parents' and ancestors' occupation [Interview, February 2019].

As Gottfredson (1981) asserts, selecting a person's occupational choice starts from childhood and depends on gender and age. Unfit occupations are eliminated gradually. In the youth stage, the person has to compromise and follow the best available occupational option. Such a compromise in the available occupational option can be understood in the case of Binayak. Such a career compromise can also be noticed in other research participants, too, in different ways.

Aspirations of Informal Skills Learners

Aspirations generally mean what an individual thinks and strive to make the future better (Cobb et al., 1989). Of course, aspiration is the individual's life goal and ambition. As aspirations of informal skills learners are one of the focus of this research, the following paragraphs provide expressions of the research participants regarding their future aspirations.

Moti Kutu is running his sole business of operating a motorcycle workshop for 13 years. When he was asked what his future goals are, he informed that *"motorcycle is a*

craze of present youth." So he wants to extend his workshop concerning both—capacity and the use of contemporary technology. Based on his experience from the partnership business in the past, Moti mentioned, *"in our (Nepali) context partnership in the business doesn't work."* So, every effort for extending the business will solely be made by him, as he expressed.

It seems that aspiration also depends on the individual at what life-stage they are at present. For instance, Yuvaraj, another younger research participant from the same occupational field, has mainly two aspirations. First, he wants to earn money and support the family. As he mentioned regarding this:

I have to see my family. My family is in a difficult situation. I want to earn good money and send it to my parents to run the family better and have a small Ghaderi (a piece of land for a house) in the Chowk (center) of my village where my parents run a small business of grocery shop. When they have a small shop near the home, it will support running the day-to-day house expenses [Interview, October 2018].

The second ambition of Yuvaraj was to become an entrepreneur like his senior *mistries* [craftspeople]. He seems confident after acquiring skills during the jobs. However, he was suspicious whether he would open the workshop in Kathmandu due to its associated costs. He shared his plan:

At first, I want to become good mechanics knowing everything. Afterward, if I can collect some money, I will open my small workshop myself. But it is challenging here in

Kathmandu. So, I will open a workshop in a new place along the roadside in any village or Bazar [market place]. I want to become an owner of the workshop and not always work in the business of others [Interview, October 2018].

Box 3.

Please don't ask

On each early wake with fresh mood
I see the fly-wheel inside the house
where I am revolving since my sperm-hood

When I see out from my window
I see the dusty-smoky-noisy road
Where some display their luxury
But at the same time I do become nostalgic with my history.

Yes, really !
I have beaten with the mallet of regime
I am wheeling with fly-wheel of the time
I tell you, my dream is neither deep nor wide
What a potter can realize who resides and works along the roadside.

I remember the days
when I dug the clay with my Grandpa
I did feel clay is our soul
And, pottery is our goal !

When I prepared the clay-sheet
with my spade and feet
I do feel the rhythm like from a drum-set
You see !
In the moments
when I bowed down to the fly-wheel
when I dried the green pots under the shed, or
Dried it under the sun
And also when I burnt the pots at the kiln
I always thought that
Soil is ours, the gift of nature
The land is ours, the Naso [a gift] of ancestors
And ultimately,
the time is ours
as I was an indigenous inhabitant

Ahh...!

It was an illusion absolutely
Which was apparent to us slowly
The lands were captured
The soils converted to be marketed
Fuels became jewelries
Plastic and metals converted as enemies

Dignity was dying day by day
I was paling on this way

Please don't ask—
What is your aspiration and goal
We are like an owl
Doing what ancestors told
Making what parents made

Please don't ask—

What is your vision
How can I say when I am in illusion-
Which world is better ?
The time of my ancestors
Or of today's youngsters'?

*** *** ***

Future aspirations of people probably also depend on the occupation selected by an individual. Both of the research participants from the pottery occupation didn't have greater aspirations. When the question regarding future aspiration was asked to *Gopal Prajapati*, he expressed multiple frustrations over the work despite feeling love for this traditional job. He mentioned some of the points that clay-pots are being substituted with plastic and metallic items these days, so the income decreases. Further, the production process requires a significant land area, which is not easy to manage in such and urban locations. His expression of *"Lakh ko bhada banauna karoda ko jamin chahinchha"* [it requires land costing Crores for doing the Lakh Rupees pottery business] was one of the pain that facing by the potters these days. Due to such multiple challenges, Gopal does not see the future of the occupation. He shares that they (the family) are not teaching pottery skills to their children and prohibit them from being engaged in such skills learning because such skills learning *"can hinder the children's academic performance."* At last, Gopal mentioned that they do not have any future ambition and just run this traditional enterprise until they (the couple) can work physically.

Another potter, *Binayak Prajapati*, also was not happy with his occupation. According to him, previously, there was no clay problem, no scarcity of land, and was relatively good income. But nowadays, the trade is facing multiple issues and become just a subsistence one. Binayak mentioned one phrase, "Please don't ask," regarding the future aspiration with this tone. Because he had so many compromising instances so that he was limited to the traditional occupational job as his ancestors performed. His feeling is depicted in box 3. above as a poetic expression.

Confined Dreams of Informal Skills Learners: What Can TVET Do for Widening Aspirations?

In the above sections, I presented how informal skills learners acquire crucial skills for shaping their future careers. It was also revealed that they gradually gained their confidence to become an entrepreneur in the future despite multiple barriers and

difficulties. However, a great question can be raised whether becoming a skilled person through informal skills learning is based on willingness or obligation. From the expression of informal skills learners, they can be said to have both opportunities and compulsion to become informal skills learners. On one side, those learners are the social structure victims who don't get sufficient opportunities to gain their educational qualification. At the same time, it can also be seen as an opportunity to get occupational insights and skills and running livelihood through being employed or becoming a self-entrepreneur. Remarkably, this is very important in the context where thousands of so-called educated youths do wander to search for employment but can not get it due to lack of occupational skills (Sharma, 2014). The major role in addressing this alarming issue certainly lies in the national TVET system.

In an underdeveloped context such as in Nepal, most adolescents and youth dream of getting higher educational qualifications, mainly in different technical fields such as medical doctors and engineers (Rimal, 2017). None of the informal skills learners I met expressed such aspirations. Instead, they wanted to become a successful entrepreneur. In this sense, we can understand that their career aspirations are "confined" and shaped by diverse socio-cultural environments and their family circumstances (Careersnz, 2012).

But, such confinement of aspirations can not be taken as negatively because they have proven that despite the less opportunity of extending educational qualification, some of the informal skills learners are very competent artisans and entrepreneurs who can not only running the livelihood of their family but also contribute for preserving traditional skills and crafts. They are significant members of society.

Informal skills learning practice can also be taken as an informal apprenticeship. In different parts of the globe, there is a practice of imparting skills from a senior skilled person to a novice learner based on certain verbal agreements. In the case of informal skills learning, the primary intention is not the skills instruction. Instead, it is part of the performance of work. However, knowingly or unknowingly, skills learning activity occurs, and later on, a novice learner can convert to a semi-skilled, skilled, and highly competent occupational artisan. Such an invisible apprenticeship system is rampant in the countries where the informal economy and informal employment prevails. Some of such countries are focused on their TVET interventions for strengthening and recognizing informally learned skills. The experience of some Sub-Saharan African countries is very mentionable (Bankolé & Nouatin, 2020).

If we see this phenomenon through the lenses of career theories, it seems natural that the career selection process itself is a more or less compromising act. This fact is accepted by the theorists such as Ginzberg, Ginsburg, Axelrad, & Hernia (1951); Super

(1953), as well as (as cited in Gottfredson, 1981, p. 546). Aspiration of young and adults also seemed varied individual to individual. However, from the study, it could be understood that, probably, aspirations are also shaped by circumstance. In general, as mentioned above, Nepali children want to be professionals such as doctors, engineers, or other professions (Rimal, 2017), as one research participant, Devika, expressed how she had to compromise her aspiration of becoming a civil servant (Box 2). But in the case of those informal skills learners who were opting for their career path as their circumstance guided seemed different. They had not such big aspirations and just limited to establishing or extending their enterprise and continuing how ancestors were doing in traditional occupation.

It is a pity that most youth informal skills learners are not included in the national TVET system. It means their skills and competencies obtained by themselves without state investment are not being recognized. On one side increasing access of people—particularly the youths—is considered as one of the prominent issues in front of TVET sector whereas on the other side a massive number of such skilled human resources are not getting an opportunity for enhancing their skills and competencies

Obtaining education and skills is both— necessity and the right of people (Government of Nepal [GoN], 2015). Every piece of knowledge and skills acquired by a person should be recognized and certified. The critical spirit of the national vocational

qualification framework (NVQF) also exists on this principle. Nepal is also in the process of implementing newly developed NVQF. So, it is the right time to streamline the considerable mass of informal skills learners as workers—which volume is more than 80 percent in the country (ILO, 2018)— to TVET interventions.

Such massive recognition of informal skills learners can have multiple advantages. The first and foremost benefit is that it will help increase access, equity, and inclusion in TVET, one of the major emphases of the recent TVET Policy (GoN, 2012). The employment sector's next grievance about lacking TVET graduates' competencies and mismatch with the labor market need can significantly decrease by recognizing informal skills learners. Similarly, the vast mass of unskilled youth going for foreign employment can benefit directly. Besides, this intervention also can contribute to producing skilled human resources capable of global competitiveness.

Conclusions

This paper tried to express the findings under three headings. The first heading was focused on research participants' condition for discontinuation (or pursuing) school-level education. It has been found that there are mainly two pushing factors contributing to the discontinuation of the school study. In the traditional occupation, one of the reasons for either not visiting or discontinuing school was the need for support by children to the enterprise and lacking awareness towards the importance of education. Although the

journey of struggle after leaving school for getting and being established in the job can differ person to person, generally, it was found that getting work adolescent and youth jump directly to the job what is available at present. During working and learning the competence develops. It is also found that getting a job or creating self-employment is more difficult for females.

Finally, it is the essence of the paper—as well as the recommendation— that the TVET system of a developing context like Nepal should focus its intervention on widening the "dream" of those youth who are compelled to "confine" their future becoming an unrecognized informal skills learners but contributing the nation a lot. Until or unless it (TVET system) is not focused on "3A"— awareness, attraction, and acknowledgment of the young informal skills learners—the country's development effort can not be materialized as expected.

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Graduate Tracer Study for Refining TVET Programs

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Abstract

The Technical Vocational Education and Training (TVET) is key to overall development of a nation. Unemployment to TVET graduates in any country means either the country is on the wrong track of development or the TVET education not salable. Tracer study helps to move TVET in right track.. Many TVET scholars emphasize conducting tracer study frequently to save TVET from quality erosion. Selection of a method and instrument, preparation for a survey, case study and focus group discussions are the major activities to be performed to conduct tracer studies. Here, an elaborate description is made on the entire process of Tracer Study conducted in the TVET. The views of graduates as well as their employers are the main data to pull out findings and refinement has to be done accordingly. Data collection should be more accurate and tools used should be appropriate for giving right direction to TVET. CTEVT and the central and administered Technical Institutions are conducting tracer studies from time to time to reflect reality. But, the application of the findings of tracer studies is a big question in CTEVT such asthe revision of curriculum does not happen for a long time. As a result, the unemployment rate of graduates is on rise. Real tracer studies with commitment for change as per market need are the demand of modern TVET.

1. Introduction

The main goal of tracer study is to develop a clear picture on the situation of graduates after studies. Tracer study should be able to assist stakeholders in the decision making process regarding the responsiveness of education, on the supply side, to the situation of labor market, on the demand side (NCFHE, 2016). A tracer study is an evaluation and monitoring instrument. With this, we can measure effectiveness and relevance of the offered trainings and programs. The graduates will be asked to participate in the tracer study.

One of the factors determining the effectiveness of an academic institution is the employability of its graduates (Celis, et. al. 2013). As noted by Rasiah (2009), employers tend to point their fingers at institutions of higher learning when graduates remain unemployed because curricula are not industry-relevant. According to Millington (2017), when institutions conduct reviews of programs, they tend to focus on the production process not the products (graduates) of training. In order to learn the contribution of an institution to a country, especially employment prospects, tracer studies of graduates are essential (Lange, and Schomburg, 2003).

According to the International Labor Organization (ILO, 1996), a tracer study is an impact assessment tool where the impact on a target group is traced back to specific elements of a project or program so that effective and ineffective components of the program may be identified. Tracer studies, also called graduate studies or follow-up studies or destination of leavers from higher education surveys, are also a management tool for planning, monitoring and measuring the relevance of vocational training programs (CTEVT, 2016).

2. Preparations for Tracer Studies

Tracer studies can take many forms: quantitative and qualitative. We can provide a questionnaire that could be used conducting a tracer study. We even recommend using this questionnaire, to be able to compare the results of different programs and different regions. For more in-depth analysis, it might be interesting to combine a quantitative approach with qualitative approaches. We can provide a description of two qualitative approaches that could be used during the tracer study; a case study and focus group discussion (SDP, 2014).

Both the survey and the qualitative methods need good preparation to effectively and smoothly conduct the tracer study and present reliable and valid results. We can describe all steps that need to be taken to prepare the tracer study. First thing to do to prepare a tracer study is to make a planning. It is helpful to use backwards design when planning all different steps for the tracer study. Thus, the first question to answer is: when do you need the results? From this date, we can go back in time to see when you will need to start preparing the tracer study. Below, you will find an overview of different activities conducting a tracer study, and the time can be allocated to conduct the activities. You can complete the activities to make your own planning.

1. Make preparation for the tracer study (Choose what areas to trace, choose which methods to use, prepare questionnaires, test questionnaires).
2. Collect all student enrollment data of last five years.
3. Contact them by telephone before going to survey, apply snowball effect method (if contact details missing, contact other graduates and ask for missing contact details).

4. Develop a plan when to visit (which graduates and which location).
5. Orient staffs how to conduct tracer study (questionnaire).
6. Conduct survey.
7. Put all data in excel sheet.
8. Analyze tracer data.
9. Support to write report (school will be responsible to write recommendation).
10. Publish tracer study result.

In preparing a tracer study, the first question that needs to be answered is: what would you like to know at the end? Which questions need to be answered once the whole tracer study is conducted? In general, we would like to know how effective our programs are in preparing students for a job. To be able to answer this question, we need to gather two different information. We will have to know more about the jobs graduates found, and secondly, we need to know more about how students experienced the program/training. Formulating the right questions on each topic will enable us to relate answers on questions about the content and quality of the program/training to the jobs found by the graduates after finishing the program/training.

To be able to measure the outcomes, we have to know more about the jobs the graduates found. We must measure what kind of jobs the graduates found. Is the job related to the field of training? What are they earning? Are the graduates satisfied with the job they found? And, in the case of short term trainings, we are also interested in to what extent graduates job opportunities have increased after the training. Therefore, we would like to know what graduates were doing before they started the training and if they were working what they earned at that moment.

Secondly, we would like to find out the strength and weaknesses of the study program/training. What contributed to graduates in finding good jobs and feeling prepared for the jobs, and what can be improved to prepare current and future students (even) for better jobs? Questions we would like to answer on this aspect are about the content and skills covered by the program/training, the quality of the instructors, the quality of on the job training (OJT) and quality of available facilities and materials.

3. Choosing a Method and Instruments

What method and instruments you will use during the tracer study depends on the formulated questions. For some questions, you will need a quantitative method, for others, the qualitative method. We can cover different questions in a questionnaire, using multiple choice options. However, we will have to formulate some open ended questions to get all the answers we are looking for. Open questions can be formulated when the range of answers is too wide, or when the answers are unknown. It is more difficult and more time consuming to analyze open ended questions, so always think twice before adding an open question. What purpose does the question serve? How will you be analyzing the question? Is there another way to get the same information?

Conducting a tracer study might also be interesting to hear more about the experiences and stories of the graduates in depth. The stories and experiences could be used as background information to clarify outcomes of the survey. They could also be used to tell future students about former students' experiences. For more in-depth studies, a qualitative approach is more suitable. Different qualitative methods could be used to gather graduates' stories and experiences.

A case study focuses the experiences and development of one specific person or group. Often, multiple cases are examined and used in a case study. Multiple cases allow the researcher to compare cases and to look for similarities and differences. Case studies are often used in addition to quantitative data for a more in-depth study, to clarify results or to be able to present examples. Depending on the kind of case study, different instruments can be used. In case of a tracer study, an interview, potentially combined with observations is a good way to gather data on the development and experiences of graduates during and after the training.

During an Focal Group Discussion (FGD), six to twelve people participate in a group interview. A facilitator will lead the conversation where the participants can freely discuss their ideas and experiences on a certain topic. In this case, it will mean that they can freely discuss their experiences and satisfaction with the course, the support they experienced while finding a job and how they experience their current jobs.

Outcomes of FGD are often used together with quantitative data.

4. Preparing a Survey, Case Study and Focus Group Discussion

A survey consists of a set of questions that needs to be answered by the respondents. Surveys are often used when the population is quite big and the results of a lot of respondents are necessary to come to reliable and valid conclusions at the end.

The preparation of the survey starts with formulating questions. Based on the research question, different questions will be formulated. All these questions should contribute to answering the research question. Often, some background information is required for the analysis. For example, one requirement for the tracer study is to provide the results- GESI (Gender Equality and Social Inclusion) disaggregated. This means that we need to know whether respondents are male or female and to what caste they belong to. Furthermore, we would like to gather some information that could be useful once we need to contact the graduate at a later stage again.

After the background information, we developed different questions on different topics. We started the questionnaire with information about the course followed. We asked different questions to know how graduates experience the course and what kind of strength and weaknesses they indicate. Secondly, we would like to know more about graduates' experiences with the

TVET system in general. Although we call it TVET strength and weaknesses, it depends on how schools implement the common TVET aspects, so it does not mean that schools themselves cannot change things when outcomes would be negative.

Once we have gathered data on how graduates have experienced the course, we would like to know how easy it was for them to find a job. Did they receive support in finding a job? How long did it take for them to find job and are they satisfied with the jobs they got?

To be able to say something about the impact of the course, we also asked what graduates were doing before they started the course, and if they were working how much they earned. Finally, we asked more about their current employment: are they (self-) employed? How much they earn? Are they satisfied with their jobs? But if someone is unemployed, we also would like to find out why he/she was unemployed.

If you would like to use case studies besides a survey, it is important to think what purpose you have with the case study. The case study could be used to have some stories besides all data gathered through the survey or to do a more in-depth analysis. For the second, one a more thorough preparation is needed to come up with reliable and valid results.

For tracer studies, case studies are often based on a semi-structured interview. This could be combined with observations (for example, the living condition, observation of the current job). If you would like to use case studies for in-depth analysis, the first step is to think about the information you need to gather. Based on the information you would like to gather, you can decide whether a semi-structured interview will be sufficient or you will need observations as well. Because it is a semi-structured interview, questions have to be formulated in advance. Questions that could be asked during the interview are:

- How was your living condition before you started the program/training? In other words, can you describe how you were living and what you were doing (work, unemployed, studying, other) before you started the program/training?

- How did you decide to enroll for the program/training?

- How did you experience the training? Can you elaborate more on the facilities, the available resources and materials, the quality of the instructors, the content (knowledge and skills)?

- What did you do to find a job after the training? Were you able to find a job? How long did it take?

- If you are unemployed, can you describe why you are not able to find a job?

- What kind of difficulties did/do you face finding a job?

- How would you describe your current working condition? Are you satisfied and if not why? To what extent, did your income and social status increase?

- Looking back, what did you find really good about the program/training?

- And what could be improved?

- What dream do you have for the future?

These are examples of possible questions, you can adjust the questions or add questions based on the information you would like to gather. While formulating questions, always keep in mind how you will be analyzing the outcomes.

Choosing for a case study design, you will have to choose how many case studies you would like to conduct. If you would like to compare different stories and use the outcomes for more in-depth analysis, it is important to conduct several case studies. It would be good to include both male and female trainees and trainees from different castes/ethnic groups. During the preparation, it is helpful to make a table with male and female and the different castes/ethnic groups to check whether the persons that will be approached for the case studies cover the different background of all graduates.

There are also different purposes for FGDs. In a tracer study, only FGDs can be used, but whether this is useful and depends on the research question and the way the FGD is designed. As for the case study also, the FGD can be used for thorough analysis to illustrate the quantitative data or for marketing purposes.

We focus the preparations needed for a more thorough analysis. For the more comprehensive analysis, there are two options. FGDs can be organized besides and independent from the survey. This means that questions can be formulated at the same time as the survey. Another option is to wait for the results of the survey and to base the questions for the FGDs on the outcomes of the survey. The benefit of basing the FGDs on the outcomes of the survey is that you can base your questions on (surprising) outcomes of the survey. It helps for a more comprehensive analysis. As we do not know these outcomes at this point, we can only suggest questions for FGDs that will be conducted independent of the survey outcomes.

Possible questions:

- What were main reasons for you to choose for the program/training?

- What were the strengths of the program/training?

- What were the weaknesses of the training?

- How easy/difficult was it to find work after finishing the program/training?

- What kind of support did you receive in finding work?

- Looking back, how satisfied are you about the program/training followed?

- What are your dreams for the future?

These are examples of possible questions. You can adjust the questions or add questions based on the information you would like to gather. While formulating the questions, it is imperative to keep in mind how you will be analyzing the outcomes.

Choosing for the FGD, you have to decide

how many FGDs you would like to conduct and who should be participating in different FGDs. Facilitating FGD needs to give every participant the possibility to contribute to the discussion. Sometime, it is helpful to form different FGDs to make it easier for participants to contribute. For example, if the younger people would not say that much when there are also older people in the group who look more senior to them, it could be an idea to form two groups-one FGD with youth, and another FGD with older people. With the case studies, it is important that the participants reflect the whole population (thus male and female, different castes, different ages etc.). In general, FGDs are conducted with six to twelve people.

In research, we often speak about sample size. The sample size depends on the instrument you choose to use and the population. Here, we focus the sample size for the survey because that is the main instrument of our tracer study. As the case study and FGDs are not compulsory, we will not make elaborate the number of case studies and FGDs and their participants.

The sample size depends on whole population. In tracer studies of graduates from a specific study program/training from certain years, the population is often small. For example, if you have 20 students in your training and you would like to trace your graduates from the last five years, it means that your population only consists of 100 graduates. The population is so small that you cannot do sampling. To come up with reliable and valid conclusions, you actually need almost all graduates to fill the questionnaire. In general, a minimum of 100 is required. But, if the total population is smaller than 100, the analyses should be included with a smaller number; and the outcomes should be interpreted more carefully then.

With the small populations, it is important to prepare a non-response analysis. If you have, for example, five times twenty graduates to trace, there is a possibility that you will not be able to trace all graduates or that graduates would not like to participate in the survey. It is helpful to know what the reasons are for not responding. This is called non-response analysis. So, if you cannot trace a graduate, write down that you were not able to trace the graduate despite all efforts. If a graduate does not like to participate in the survey, ask for the reason and write down the reason.

5. Collecting Data

After preparing the questionnaire for the tracer study and the questions for the semi-structured interviews, and if you are to conduct case studies and/or FGD as well, it is time to train people who will be conducting the survey and case studies/FGDs.

The first step will be to interview the graduates, and the second to put all answers in the excel sheet covering the questionnaire, and in case of the case studies/FGD's, write all answers down. First of all, let the graduates know when and where the survey will take place. Make sure that they receive the information and check whether they will be there. On the day of the survey, go

to the place where you will be interviewing the graduates. Go early so there will be time to adjust the place for the interviews when necessary.

During the interview, make sure that the graduate feels comfortable. The interviewer should introduce him/herself and clearly state the purpose of the survey and how the data will be used. If the graduate agrees with the survey, the interviewer can start with the structured interview. The interviewer should follow the order of the questionnaire; should not skip questions; and should make sure that there is only one answer chosen unless stated otherwise. Skipping questions or giving more than two answers will cause problems during the analysis. Close the interview and ask whether the graduate has got any questions. Make sure all answers are filled. Gather all filled questionnaires at the end of the day.

With the survey, inform the graduates about when and where the case study/FGD will take place. Make sure that the graduates received the information and let them confirm that they will be participating. On the day of the case study/FGD, create a good setup in the place where the case study/FGD takes place. During a case study, the semi-structured interview will be one-to-one. Thus, only a small place is needed. Graduates could share confidential information, so make sure that there are no other people around to overhear the conversation.

The interviewer starts by introducing him /herself and explaining the purpose of the interview. Subsequently, the interviewer starts the interview by asking the first question. Questions do not need to be asked in a specific order, but the interviewer takes care that all topics are covered. The interviewer asks follow-up questions or asks for clarification when necessary. At the end, the interviewer summarizes the main points of the graduate's story and closes the interview by thanking the graduate for participating.

For the FGD, a bigger room will be needed. There should be enough space for all participants. It is important that all participants can see each other and the facilitator can see all participants. A big table where there is room for all participants works well. The facilitator can sit at one of the ends of the table and facilitate the discussion from there. The facilitator asks open-ended questions and makes sure that every participant gets the opportunity to contribute to the discussion. The facilitator asks clarifying questions if necessary and summarizes what is said at the end of each topic (question). The facilitator will be recording the FGD or should ask someone to attend the FGD to take notes.

The facilitator starts the FGD by introducing him/herself and explaining the purpose of the FGD. Secondly, all participating graduates will be asked to introduce themselves. When everyone is introduced, the facilitator will ask the first question. From then on, the facilitator takes care that all questions will be covered and that all participants are able to contribute in the time given for the FGD. At the end of the FGD, the facilitator will

summarize the most important outcomes and check these with the participants. The facilitator will explain how the outcomes will be used and of course thank the graduates for participating in the FGD.

It is important that all notes and records of the interview are written down as soon as possible after the interview. It is important to make sure that no information will be lost. Besides, all records should be labeled in such a way that it is easy to retrieve the right document. So, always write down when the interview took place (date and time) with whom and at what place.

6. Tracer Studies in TVET Sector of Nepal

Jiri Technical School (JTS) in Dolakha District, since its establishment in 1985, started the tracer study in each two year to find out the situation of the graduates. JTS has conducted tracer studies of last two years' graduates through postal survey in two years interval, in which the questionnaire has been sent through post office in their home address. Inside one envelope, there would be questionnaire and another envelope with postal ticket mentioning to fill up the questionnaire by the graduates or parents or wife/ husband and other relatives of the graduates and send it in the another envelope. The report has been prepared and actions taken accordingly. This is the first best practice of tracer study in CTEVT introduced by JTS.

Labor Market Survey (CTEVT, 2016) states that the increasing trend of opening of agro-industries as well as the emerging agro-businesses like trout framing, off-season vegetables farming, organic farming, farming of several kinds of livestock like poultry, ostrich, pig are creating self-employment opportunities in the informal sector. Since all of these activities are running informally, the formal employment opportunities are hardly available within these sectors. Although the market for public jobs in agriculture sector have saturated, present plan of expansion of agriculture service (including livestock) to wider range of beneficiaries creates job opportunities immediately for the middle level technicians to almost 3,000 and another 1,000 within few years.

Likewise in engineering sector, scarcity of workforce was already prevailing in the market because of the attraction of youths to foreign employment. Some currently running infrastructure projects such as hydropower, irrigation and road and bridge construction have suffered the crisis of skilled workforce. The need of new construction and reconstruction in the post-disaster phase has further multiplied the previous need. Some junior level technicians in construction sector like welder, plumber, carpenter, scaffolder are also demanded in significant number.

Because of diversification and modernization of health technology and services, demand of more specialized courses instead of general courses of medicine and nursing is emerging. These are Orthopedic Assistant, Radiography Assistant, Optical Fitting and Dispensing, Dental Mechanics, Operation Theater (OT) Technician, Dialysis Technician and so on.

Unlike the new and specialized occupations, the graduates from presently available health courses such as Staff Nurse, General Medicine, Lab Technicians, Auxiliary Nurse Midwifery, and Community Medicine Assistant are found saturated in the labor market at present set up of public health service. However, the provision of existing government policy to expand and extend free and quality health services to rural and ward level paves way to create more employment opportunities for the graduates of these programs in a significant number. But, before reaching any conclusion, we have to wait for the proper implementation of the policy.

Likewise, the same survey (CTEVT, 2016) states inflow of tourists during the last decade is not encouraging. However, slight upward trend is observed. In the interview with key informants, it is reported that hotel business was shrinking day by day and it is facing much difficulty to retain the existing employees. The sector is dominant with informal opportunities. Tour and travel sector is also covered by the informal sector and demands differ from region to region because tourism activities do not take place in the same manner in all the regions. Trekking business is another area considered by the study and the study found out that 90% activities slumped, thereby showing huge fall on employment opportunities in the informal sector.

CTEVT in line with the study needs to modify the program related to Agriculture, Engineering, Health and Hospitality Sectors accordingly. To continue the programs as it is against the research is to create human resources useless for the TVET market.

In the Tracer Study of the Graduates of Diploma and TSLC Programs under CTEVT (Acin, 2016), only 49% of the CTEVT graduates are employed, which is very discoursing factor in TVET. Graduates are lacking skills due to inadequate practical opportunities. Time provided for practicing skill is inadequate in most of the programs in private institutes. There is a need of substantial improvement on workshop and lab equipment. Ample opportunities need to be provided for practice and industrial attachment. Periodic revision of curricula is also needed to make the programs relevant and practical-based to address the growing demand of labor market. The study also indicates the need for updating its programs to prepare the human resource in line with the skill demanded in the job market. 'Lack of link with the employers', and 'inadequate technical and other soft skills' were the other reasons for them being unemployed.

According to Tracer Study Report of IT Graduates of Nepal Banepa Polytechnic Institute (NBPI, 2017), 28% continued their further study; 35% got job; and 34% are still looking for jobs; and out of 35% employed graduates, 27% are working in different fields than their training. It is a serious matter in deed about the IT course in NBPI-employment rate is very low, and graduates are working out of their field which cannot be counted in employment through the TVET.

The Tracer Study of CTEVT, Skills Development Project (DEVTEC, 2018)

shows that majority (63.7%) of graduates were employed after training. While short of the project's 75% target, this rate is still a good achievement and may increase with the inclusion of all employment data at the end of the project. The rate of employment was slightly higher in round two (63.7%) than in round one (61.1%) and the rate of male employment (73.3%) was much higher than that of females (49.1%). (Review at least one of 2019 and 2020 tracer study as well. The research division of CTEVT would be able to provide you with the study reports.)

As mentioned above, CTEVT is conducting the tracer studies in the central level as well as in the constituted schools to strengthen the program. But, it is still questionable that the refining of the programs as per the findings of tracer studies is being done. Unemployment rate of CTEVT graduates is on increasing trend while opening of the new technical schools in political interest is increasing day by day. Another big issue is the quality of the teaching learning activities; practical teaching with On the Job practices are lacking in technical schools. Technical Education outside the CTEVT umbrella is another part of TVET in Nepal. Lack of instructors, resources and experiences in TVET are the problems in the TVET program.

7. Conclusions

Reaching this point, we have implemented the minimum requirement, conducting a tracer study. But, if we would stop here, we are missing the most important part of the tracer study. The purpose of the tracer study was to use the outcomes to improve the study program/training. Thus, we do not stop at the point where we have drawn conclusions. These conclusions are the first step in formulating recommendations for improvement.

To be able to use the outcomes to improve daily practice, it is important to discuss the outcomes within the school with all staff. It would be even better if outcomes could be discussed with students/graduates and representatives of the industries. Outcomes, for example, can be discussed in different forums. During different meetings with different stakeholders, the conclusions will be discussed and debated. During these discussions, the following questions can be asked:

- Which conclusions are surprising and what did we already know?

- Where is action needed and what kind of action?

- What is our strength? How do we maintain it?

Based on the discussion, recommendations for improvement can be written. It is important to make this the recommendation SMART (Specific, Measurable, Achievable, Results-focused, Time-bound) and to make all concerned sides responsible for implementing the recommendation. The activities resulting from the recommendations can be included in the Yearly Plan of Operations; and progress implementing the activities can be monitored by the Quality Management Unit.

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Differences on Job Satisfaction among Technical and Vocational Education and Training Schools Employees in Kathmandu

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Abstract

Job satisfaction is crucial for occupations such as instructors and admin staff of the Technical and Vocational Education and Training (TVET) schools. In this context, this study explored the level of TVET school employees' job satisfaction and differences by educational qualification among the sampled employees of Council for Technical Education and Vocational Training (CTEVT) constituted TVET Schools in Kathmandu, using quantitative research method. The SPSS was used for the data analysis of the study. The results of overall job satisfaction of the TVET employees showed moderate level, which also means that the level of job satisfaction yet not at satisfactory level. This demands a specific strategy to motivate them and increase the level of job satisfaction. The higher the academic qualification of the TVET employees was lower level job satisfaction. It indicates that other attributing factors are also necessary to consider for job satisfaction of the TVET employees. The social capital theory was used to analyze and discuss the results.

Keywords: *Job Satisfaction, Educational Qualification, Social Capital Theory*

Introduction

The major role of Technical and Vocational Education and Training (TVET) is to equip young persons with skills for the world of work (Kintu et al., 2019). The human resources working in the TVET institutions are crucial in preparing such competent graduates for the labour market. In this regard, job satisfaction of TVET schools' employees is very important for TVET schools.

Job satisfaction is the mental feeling of favorableness which an individual has about the job (Kalluvelil et al., 2011). The job satisfaction can be achieved from various sources such as working environment, supervision style, and organizational culture. Job satisfaction has always been an important issue globally. Job satisfaction refers to any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say that I am satisfied

with my job (Hoppock, 1935). The factors influence internally for the satisfaction. The different monetary and non-monetary factors play a role to ensure job satisfaction. Job satisfaction is predictive of performance (Vrinda & Jacob, 2015), indicated that job performance is the by-product of the job satisfaction. Employees' job satisfaction is important and necessary because it can lead to their better performance. To improve performance, it is necessary to ensure that staff are satisfied with their job and deliver excellent performance (Murtaza & Siddiqui, 2011). In this regard, the enhancement of skills is directly affected by the job satisfaction of the TVET employees.

In Nepal, there are 1081 short term vocational TVET training institutions, 1312 technical and vocational education secondary level institutions and 261 higher technical education provider institutions (Ministry of Education, Science and Technology, 2019). This sectors employed numbers of employees in TVET sectors. So, job satisfaction TVET employees play crucial for the success of the TVET schools. Personal attributes are crucial for job performance (Templer, 2010). Samad (2006) concluded that demographic variables, such as job satisfaction and job characteristics contributed significantly to turnover intentions with variance. Individual characteristics influence employees' job satisfaction in vocational schools (Daryanto et al., 2015). This shows that job satisfaction of TVET employees is important for TVET institutions, and is affected by personal variables. In this regard, job satisfaction of TVET employees differs by educational qualification.

When the employees are motivated to tasks, then the organizational performance and success will be higher (Manzoor, 2012). So, involvement of the TVET employees in TVET sectors is dependent upon job satisfaction. School related employees' job satisfaction is crucial to their work performance (Baluyos et al., 2019). In this regard, in organizations including TVET schools, job satisfaction plays an important role for work performance. In TVET institutions, TVET employees are the vital persons who ensure fulfillment of goals and objectives of the organization and they are core persons who skilled the students to excel in their career path.

The TVET employees in the TVET related institution were positive with the work but were dissatisfied with the benefits (Sapkota et al., 2019). Job satisfaction among employees of TVET related institution was not up to the expectation (Timalsina et al., 2018). So, past research revealed low satisfaction in the TVET related institution in Nepal. This influences the researcher to explore some pertinent questions including a) Are TVET employees less satisfied or what is level of job satisfaction in existence? b) Does job satisfaction of the TVET employees differ by educational qualification of the employees?

Literature Review

Job Satisfaction and its Factors

Job satisfaction can be described as employees' feelings or state of mind regarding the nature of the work. Job satisfaction is an effective response of employee's situation at

work. Job satisfaction plays a vital role for optimum productivity (Agarawal, 2016). Job performance is related to motivation and ability of the individual. Only motivated people can do work satisfactorily. Motivation is the act of stimulating or energizing catalyst for achievement of intended actions. It is the input for better performance to contribute to goals achievement and link with productivity of the employees.

The factors, such as supervision, pay, responsibility, advancement, recognition, security, working condition, working itself, colleague, which contribute to determining job satisfaction (Shabbir et al., 2014).In this sense, TVET employees' job satisfaction plays an important role to enhance productivity of the organization. Nevertheless, employees have different perceptions of the factors pertaining to job satisfaction. Job satisfaction is always related with the needs of the human beings (Pfeffer, 2010). Job satisfaction refers to overall affective direction on the part of employees towards work roles in the profession (Kalleberg, 1977).

Job satisfaction consists of seven factors, such as fellow workers, company policy and support, promotion and advancement, job itself, supervision, customer and pay (Chirchill et al., 1976). Barusman and Mihdar (2014) categorized the attributes of job satisfaction in five factors, namely pay, work itself, co-staffs, promotion opportunities, and supervision. Shrestha (2017) determined the factors of job satisfaction into five groups: pay or salary or incentives, work itself, work environment, supervision, and recognition. For the purpose of this study, the work itself and recognition belong to motivating (intrinsic) factors and the other factors such as pay or salary or incentives, work environment and supervision incorporate hygienic (extrinsic) factors.

According to Bakan (2013), job satisfaction and income are interrelated, higher the income, higher the job satisfaction. So, higher salary plays a vital role for job satisfaction of employees. The policy covers all the security and benefits of the employees and stimulates for job satisfaction. The work itself incorporates daily tasks, autonomy, and creativity in the work (Lester, 1987). The implementation of the organizational goals makes the employers feel that their employees' job is crucial and they are important for the organization to achieve organization goals. The work itself plays a major role in determining the level of job satisfaction to the extent the job provides an employee with interesting tasks, learning opportunities, higher responsibility, autonomy, task variety, etc. The employees would rather desire the sound working environment in the organization and this soundness will result in better physical console and expediency. The absence of such sound working environment crashes badly on employees' physical and mental wellbeing (Parvin & Kabir, 2011). The employees are always concerned and satisfied with the comfortable working environment. If there is alter of a good working environment, it fluctuates the job satisfaction.

According to Suchyadi (2018), there is a positive relationship between supervisor and school employees job satisfaction, meaning that the higher the supervision, the higher the job satisfaction. The employees' job satisfaction can be improved through supervision which indicates that supervision increases the job satisfaction of the employees. Recognition is the act of management to acknowledge the efforts of the employees. It indicates that happiness in the part of the employees creates a suitable environment for excellent performance or outstanding behavior. It incorporates the "appreciation, esteem, and attention, prestige, esteem of supervisors, coworkers, and parents" (Lester, 1987, p.231). The appreciation of recognition ensures the job satisfaction among the employees.

There were many research studies carried out on job satisfaction of general school teacher (examples: Thapa, 2003; Shrestha, 2004; Maharjan 2012; Thadathil, 2015) in the context of Nepal. But there were limited research studies so far carried out in the TVET sectors pertaining to employees' job satisfaction in Nepal. Timalsina et al. (2018) mentioned that job satisfaction among universities nursing faculties in the Kathmandu was not up to the expectation. According to Sapkota et al. (2019) nursing faculties had a positive attitude towards their job but were dissatisfied with the benefits offered to them and the operating condition. The studies in TVET sectors depict low level of job satisfaction. In this regard, what is the level of job satisfaction of TVET employees to be analyzed?

Past studies in TVET sectors (examples: Timalsina et al., 2018; Sapkota et al., 2019) focused on the factors of job satisfaction of technical staff only. So, this research study also integrated both teaching and non-teaching staff of the TVET school employees. The past study did not carried out job satisfaction differences by educational qualifications of the TVET employees. In brief, this research study tried to bridge the gap with regard to employees' job satisfaction in the TVET schools in Kathmandu. This study also tries to build up differences of job satisfaction by educational qualifications of the TVET employees.

Jeremiah and Martin (2019) illustrated that higher degree holders among public TVET educators had a high level of job satisfaction. According to Ampadu (2015), job satisfaction was found positively correlated with intent to remain in academia among nursing faculties. The result of the study showed that higher academic qualification positively contributed to job satisfaction. The higher educational qualifications of TVET employees affects positively at the work station. According to the Ahmed et al. (2010), founded that higher the educational level of the employees higher the job satisfaction level.

Methods

Research Design

This study was based on the post-positivist research paradigm, which advocates the single reality of job satisfaction of the TVET

employees. The researcher employed a quantitative approach to conduct this study. The quantitative approach became relevant for this study because it helped the researcher to fix the objective knowledge specifying the single reality related to job satisfaction of the TVET school employees. Under the quantitative study, the researcher used survey method, which helped to quantify the collected data. The study was based upon the field survey. The information collected gave the experience of job satisfaction at a point of time when the survey was conducted. The researcher used the quantitative research approach to collect data from employees of the TVET schools with the help of structured questionnaire. On the basis of those collected data, the conclusion was drawn.

A study population is the employees of Council for CTEVT constituted schools in the Kathmandu. To conduct the study, researcher selected Kathmandu as the most important study area because the model and long run TVET schools exist here. The researcher examined the differences of job satisfaction of the TVET employees by educational qualifications of the respondents. In the Kathmandu, there are only two CTEVT constituted schools. So, researcher selected Balaju School of Engineering and Technology, Balaju, Kathmandu, which employed 80 staff and Shankarapur polytechnic Institute, Shankhu, Kathmandu, which employed total 35 staff, altogether 115 employees comprised the population under study.

The researcher employed the Yamane's (1967) formula for sample size determination. This formula was applied in this research in 95% confidence level. The research had 5% tolerance for the errors in the study. After applying the Yamane's method, the finalization of the sample size was 90. The respondents were selected applying random sampling method in the study. The employees, who worked for more than one year in the organization, were selected for the study.

Measures

The researcher constructed the Likert scale as the measurement tool for the data collection, which formulated 5-point ordinal scale used by the respondents to rate the degree to which they agree or disagree with a statement in the given scale. In the research, the Likert scale incorporates a large number of statements which collectively assess a single construct as factors of job satisfaction. Each statement contained five response options: completely not satisfied, not satisfied, neutral, satisfied and completely satisfied. In addition to this, all responses of the scale were picked up on a numerical form to make it easy for quantifying the responses in the form of information.

Before finalizing the scale, the researcher conducted number of meeting with TVET experts and administered a small scale for a pilot testing outside from the sample population of the study. Thus, the researcher took sample of 15 respondents, which

was more than 10% of the sample while conducting the pilot test and established the internal reliability of this scale. The researcher finally constructed 23 Likert scale questionnaire for the purpose of this research. From this pilot testing, the researcher drew the Cronbach's Alpha coefficient value of entire scale as assuming a single section of the questionnaire.

The value of Cronbach's Alpha coefficient was 0.6 and above in the five factors of job satisfaction and entire scale was derived 0.9. The following rules of thumb: "≥ .9 – Excellent, ≥.8 – Good, ≥.7 – Acceptable, ≥.6 – Questionable, ≥.5 – Poor, and ≤.5 – Unacceptable" (George & Mallery, 2003) were considered as a basis for alpha coefficient. However, the alpha value 0.6 was also acceptable (Buthelezi, 2014). For this research, the researcher designed and self-administered structured questionnaire as tools of the data collection.

Methods of Analyzing Data

After the data collection, the collected data were edited, coded, tabulated and analyzed by entering into Statistical Package for the Social Sciences (SPSS 20) program. The descriptive statistics was employed to illustrate the data analysis of the study. The information was gathered as the answer from the respondents (TVET employees) through Likert scales. The three different levels of categorization (lowly satisfied, moderately satisfied and highly satisfied) were derived from the Best's (1977, as cited in Shabbir et al., 2014) criteria as follows:

$$\frac{\text{Higher score - Lower score}}{\text{Number of Levels}}$$
$$= \frac{5\text{-}1}{3} = \frac{4}{3} = 1.33$$

Consequently, the researcher generated three levels of job satisfaction to analyze the derived information. Among them, the levels of the job satisfaction were classified as low (1.00-2.33), moderate (2.34-3.66) and high (3.67-5.00) based on their mean scores from the information of the respondents pertaining to job satisfaction of the TVET employees.

Results

Educational Qualifications of the TVET Employees

The Table 1 shows that the educational qualifications of the respondents, the Master's degree holders were with the highest percentage of 37.8%. It was the highest representation. 14.4% of the respondents completed the SLC/ SEE. Hence, Master's degree holders incorporated the highest percentage of the employees.

Level of Job Satisfaction

This section includes the collected information about job satisfaction and aims

Table 1

Educational qualifications of the Employees

Educational Qualifications	Sex of the Employees		Total
	Male	Female	
SLC/ SEE/ TSLC	10.00%	4.40%	14.40%
Plus Two (Diploma)	10.00%	7.80%	17.80%
Bachelor	21.10%	7.80%	28.90%
Master	31.10%	6.70%	37.80%
Others (Skill Test)	1.10%	0.00%	1.10%
Total	73.30%	26.70%	100.00%

to identify the level of job satisfaction (pay, incentives and benefits, work itself, working environment, supervision and recognition) among TVET employees in TVET schools in Kathmandu. For this purpose, the collected data was analyzed and interpreted through the descriptive statistics like mean score and standard deviation respectively. The obtained result is expressed in Table

score and standard deviation respectively. In addition, the researcher sorted out the obtained mean score in three categories: High, Moderate and Low respectively. These three levels of job satisfaction were obtained mainly based on the TVET employees mean score of 1-2.33, 2.34-3.66 and 3.67-5.0 respectively.

Table 2

Comparing Average of Major Variables of Job Satisfaction

Factors	Mean	SD	Level of Job Satisfaction
Work itself	3.55	0.67	Moderate
Recognition	2.94	0.71	Moderate
Pay, Incentives and Benefits	2.84	0.66	Moderate
Work environment	3.41	0.71	Moderate
Supervision	2.9	0.76	Moderate
Job Satisfaction	3.19	0.58	Moderate

2. Table 2 presents the data in relation to the job satisfaction collected from TVET school employees. This section contributes to analyze and determine the level of job satisfaction through the derived mean

Among this three level of job satisfaction, all five factors and overall job satisfaction of the employees showed moderate level of job satisfaction. The work itself (Mean = 3.55, SD = .67) seems higher than the other

remaining factors of job satisfaction. But, the pay, incentives and benefits (Mean=2.84, SD=.66) consist of the lower level of job satisfaction. The overall mean satisfaction was (Mean= 3.19, SD=.58) showed the moderately satisfied employees with the work. These moderate levels indicate that the TVET schools employees were fairly

Table 3

Job Satisfaction by Educational Qualifications

Educational Qualifications of the Respondents	Mean	N	SD
SLC/ SEE	3.51	13.00	0.74
Plus Two (Diploma)	3.22	16.00	0.36
Bachelor	3.30	26.00	0.58
Master	2.96	34.00	0.54
Others (Skill Test)	3.70	1.00	
Total/ Average	3.19	90.00	0.58

happy towards their five factors of the job satisfaction in the TVET institutions.

`Table 3 illustrates that the employees having SLC/ SEE qualification had 3.51 mean score with higher satisfaction level and Master's degree holders' mean score 2.96 showed the lowest satisfaction level. The result showed that the lower the educational qualifications status, the higher the job satisfaction level of the employees.

Discussions

Moderate Level of Job Satisfaction among the TVET employees

Among five factors of job satisfaction in this study, TVET school employees had a moderate level of pay or incentive or benefit,

work itself, work environment, supervision, and recognition. The moderate level of job satisfaction and its factors revealed that the TVET school employees were either satisfied or dissatisfied with their job. The result is similar to Ghosh (2013) who claimed that more than half of the school related employees experienced moderate level of job satisfaction. The moderate level of job satisfaction of teachers was due to their pay scale, recognition, work, supervision and environmental factors.

Similarly, Shrestha (2017) mentioned that supervision, working condition, pay factor, work itself and recognition collectively determine the satisfaction level of job among school employees. Among them school employees were satisfied with three factors but they demonstrate the moderate level of recognition and pay, incentives and benefits as the factors of their job satisfaction. Overall, the school related employees consist of moderately on the way to achieving job satisfaction.

Among these factors, overall represent the moderate level of job satisfaction (Shrestha,

2017). Thus, literature is similar with Ghosh's (2013) finding, but two factors were similar with the finding of Shrestha (2017). Other factors were different due to different social and economic contexts of TVET and general school. In brief, all these validated the findings of this study that there is moderate level of job satisfaction among TVET school employees.

Job satisfaction of school related employees is associated with their better performance and also with better academic achievement in the part of their students (Iqbal et al., 2016). The employees who are satisfied with their job willingly performed their responsibilities as both instructors and administration. Finally, TVET school employees' level of overall job satisfaction was compared and it was found out that there was no statistical difference. All factors of job satisfaction as well as overall job satisfaction held moderate level of job satisfaction. The most probable impact could be because of the same management policy followed by the TVET schools applied by CTEVT and another reason could be because of the same TVET policy implemented by the CTEVT and the ministry of education. Low productivity would result if workers were low satisfied (Iaffaldano, 1983). The study showed moderate satisfaction, which indicated average job performance of the TVET employees.

Differences on Job Satisfaction by Educational Qualifications of the TVET Employees

The educational of the respondents were found to make differences on job satisfaction of the TVET employees. This study revealed that employees having lowered educational qualification had a higher level of job satisfaction, but in contrary, the employees having a higher qualification had a lower level of job satisfaction. The SEE/ SLC passed employees were highly satisfied and Master's degree holders had a low level of job satisfaction. Jeremiah and Martin (2019) illustrated that Master's degree holders among public TVET educators had a high level of job satisfaction in South Africa. The result was opposite with my research study. According to Ampadu (2015), job satisfaction had found more job satisfaction having with the higher level of educational qualifications; they stayed on the job longer in USA. According to the Ahmed et al. (2010), higher job satisfaction was noted in employees having higher education of master and above in Pakistani university. Thus the job satisfaction result of this study was inversely propionate of the employees in term educational qualifications with comparing to international literature.

Educational qualification of the CTEVT employees was considering one level below for the particular job position with certain years of work experience (Council for Technical Education and Vocational Training, 1994). The CTVET regulations was amendment and adopted all the employees who were working for more than twelve years for the same position as a permanent, they were automatically promoted if they get more than 90% score in the appraisal

(Council for Technical Education and Vocational Training, 2008). In this regards, the some employees of CTEVT in the entire organization, holding one level below qualification than the prescribed position and when they completed 12 years of work experience they automatically promoted without holding training of occupational skills up gradation or education qualification one level below of the prescribed position. The employment of such staff is still countable in number in CTEVT system. Still they do not have minimum required qualification but are promoted in the higher position (Council for Technical Education and Vocational Training, 2008). The provision of such past bylaws affects still in the organization. The new recruitment of the staff was based on academic qualification (Council for Technical Education and Vocational Training, 2012), but still have to work under such senior staff holding lower level of educational qualification in some places of the CTVET organization. These make higher educated had lower level of job satisfaction of the TVET employees.

Personal attributes controlling the job satisfaction (Huang & Hsiao, 2007), indicated that differs on job satisfaction by personal attributes. From Bourdieu's perspective, the field of social position of agents is related with the interaction between the individual persons and society where they belong to and socio-cultural capitals were inherited by individuals as a form of attitude which marks the differences in the class (Bourdieu, 1986). Based on this theoretical premise, the entire

TVET employees also belonged to different cultural groups and they have different cultural capitals as well as attitudes. These different cultural capitals tend to be different habitus and these habitus are reflected in the form of attitude (Bourdieu, 1986) among the TVET employees. So, the variables like educational qualifications make differences in the level of job satisfaction of TVET employees.

In the context of Nepal, due to developing country people's concept is more focused on pay or money rather than education. People having more money and higher position though holding lower level of educational qualification, society recognize more prestigious. So, lower educational qualifications showed a higher job satisfaction level. TVET School provides the similar pay and benefits to the same designated employees irrespective to their qualification. Thus, the TVET School did not prioritize the high qualification of employees. They perform the similar types of duties although they have different levels of qualification. Thus, the higher qualification showed lower job satisfaction among TVET employees.

Conclusions

The study reveals that the level of job satisfaction among the employees is at moderate level. This shows that high level of job satisfaction gives the high level of job performance of the employees. So, the job satisfaction level is directly linked with the organizational performance. The job satisfaction also differs by educational

qualification of the employees; the higher level of jobs satisfaction in terms of higher educational qualification gives positive result in the personal performance in the organization. However, it varies according to employees. So, academic and vocational qualification holding employees need to segregate in the separate stream in the organization.

The job satisfaction entirely determines the organizational achievement and effectiveness of the TVET School. The low level of job satisfaction among TVET employees' negatively affects the entire TVET output in TVET schools. This study gives facts as the source of information for TVET school leaders making job satisfaction friendly environment in TVET School. It indicates the status of job satisfaction of TVET school employees and makes differences by attributes like educational qualification. Thus, it contributes to the TVET school leaders to consider these factors while leading the schools for high level of job. The job satisfaction may be differs by personal and school related attributes such as sex, age, marital status, work experiences and job status. So, this study can be road map for other upcoming researcher to consider those other attributes for job satisfaction.

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Conceptualizing Structural Reform for Nepal's TVET Sector

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Abstract

Reduction in enrolment is a growing concern in Nepal TVET which could have been caused by, inter alia, lack of career path for the graduates and therefore, has been the focus of this paper. Nepal's long term TVET programs - under general secondary education that starts from Grade 9 and runs through Grade 12 and those under CTEVT - end at Diploma level unless some get exceptional enrolment opportunity at tertiary level. Therefore, structural reform is envisaged to help mitigate the problem in context by introducing TVET from Grade six as 'elementary TVET' followed by Level 3 (Grades 9 and 10) and as next step, Level 4 (Diploma) with three years learning followed by Level 5 (Advance Diploma). These reforms are envisaged to be based on NVQS operationalization. This paper, leaving some questions for readers, also suggests redefining TVET definition to widen sector coverage and changing the term 'TVET' itself.

1. Background and the Problem

Council for Technical Education and Vocational Training (CTEVT) has been supporting technical and vocational education and training (TVET) system through development of various apparatus while also preparing a competent workforce necessary for domestic and world employment market. Along with critical achievements made so far, Nepal's TVET system also suffers from various problems, issues and challenges. This paper however, focuses on insufficient enrolment and drop out of students from TVET programs as these are common problems in Nepal (Figure 1[1]). Hence, this paper has made an effort to dig out major causes behind this problem and propose improvement measures through TVET/ educational structural changes.

2. Objective of Reform Conceptualization

The objective of this paper is to initiate a professional advocacy for structural changes

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1   Calculations based on CTEVT enrolment data 2013/14 to 2018/19.

Figure 1: Actual Enrolment as % of Capacity
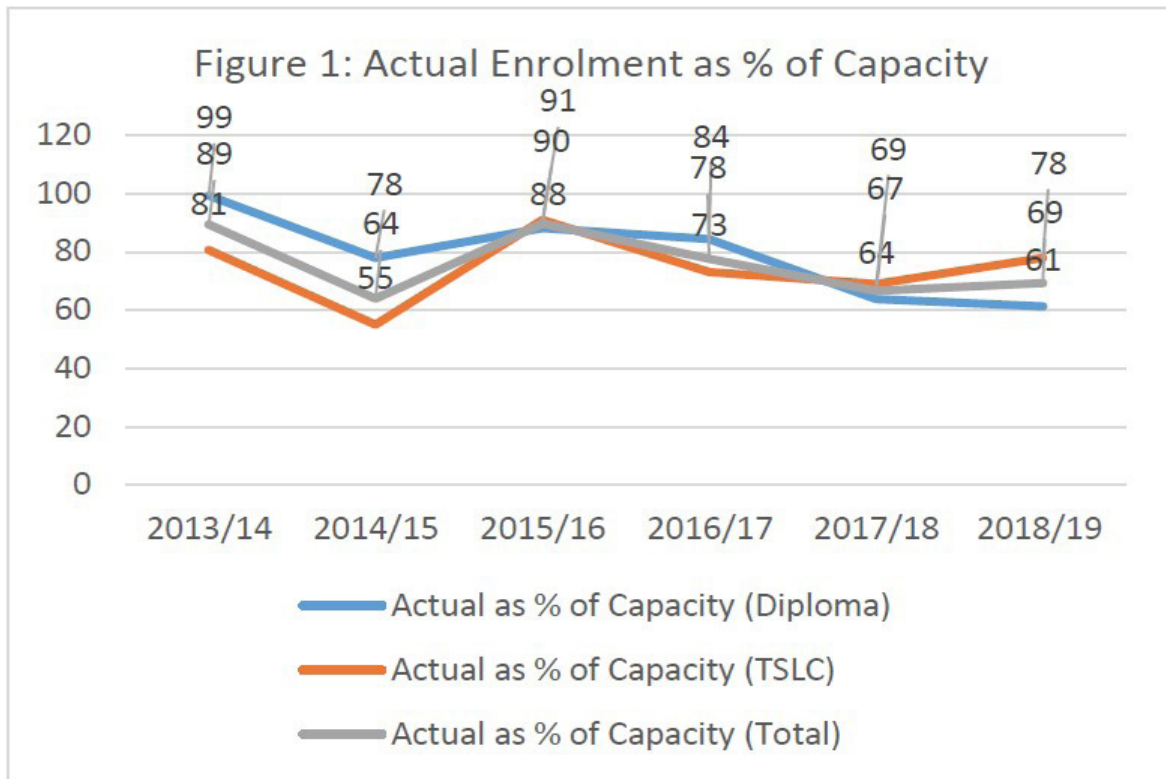
in TVET/ education system that could potentially contribute to mitigate some of the problems that are responsible for the current situation.
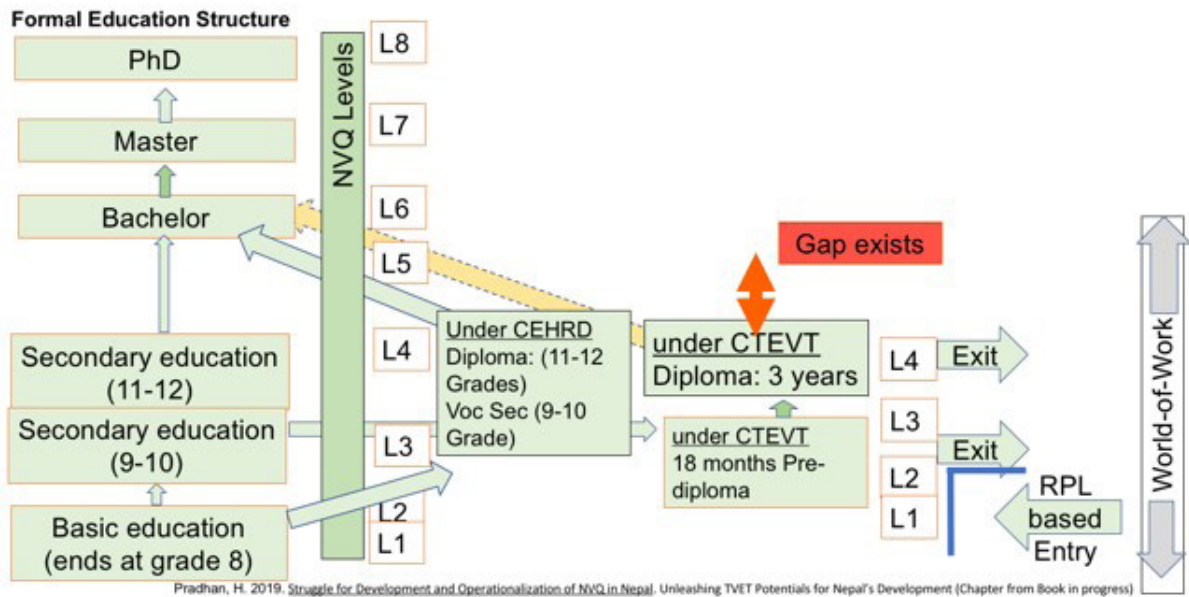
3. Methodology

This paper draws heavily from authors' on-going work on their upcoming book entitled 'Progress and Pitfalls in Nepal's TVET' and report entitled 'Roadmap on Development and Operationalization of National Vocational Qualifications System (NVQS) in Nepal'. Both these resources, in turn, are massively benefited from large number of international research resources including published articles.

4. Cause behind the problem

Graduates of general education have a clear career path in both academic and employment world and their certificates are normally well recognized in and outside the country. This is however, not the case with TVET graduates. TVET is often considered as an option when a student lacks other educational opportunity or when one needs to make earning earliest possible. The word 'training' attached to 'TVET' could be another problem as being incognizant of the fact that education also mean 'training'[2]

2   According to Oxford English Reference Dictionary, page 484, Educate – mean to give intellectual, moral and social instructions to; provide education for; train or instruct for particular purpose.

Figure 2: Gaps in TVET System

Pradhan, H. 2019. Struggle for Development and Operationalization of NVQ in Nepal. Unleashing TVET Potentials for Nepal's Development (Chapter from Book in progress)

(Pearsall and Trumble 2008), people have tendency to consider it as 'second option' and ignore its academic potential as has been growingly practiced in many countries now. Amidst this challenge, rather than struggling for changing the 'academic biased mindset' and making effort for establishing the fact that the ultimate goal of TVET is to develop 'competency', this context has further been made complicated by TVET professionals. By adding 'skills development' after the term 'TVET' and it is now called as 'technical and vocational education and training and skills development' (TVET&SD). This could miss lead the overall concept and ground reality of the sector. It may contribute to further worsen the already existing distaste among students and parents on TVET and strengthen the 'second option syndrome', eventually adversely affecting the possibility of TVET

being their spontaneous choice. Again there could be several reasons behind this situation but this paper focuses only on the structural failure with the current education system. Keeping aside the short term training, which is yet to be converted into a credit based modular format and its potential to be one of the modules of a long term course, the current TVET system appears to be stand-alone subsystem as presented in Figure 2 (Pradhan 2019).

Another related cause for the above problem could be narrow understanding in TVET. In Nepal, basically engineering, health and agriculture sectors are considered as TVET. This understanding ignores many areas considered as TVET, for instance fashion design in India.

There are two practices in Nepal's long

term TVET programs. The first is TVET stream under general secondary education that starts from Grade 9 and runs through Grade 12, known as 'TVET stream'. This stream is viewed as academic course. There is lack of data but by far most of the TVET stream graduates are believed to have moved to higher education and therefore, is considered as opportunity for academic bachelor level technical education under university. The second path is CTEVT's pre-diploma courses (erstwhile, technical school leaving certificate- TSLC). The pre-Diploma graduates have opportunity to move to Diploma program and then unless they have excellent performance or are able to invest huge amount of resources as tuition fee, their education may come to a halt after this level. There is absence of advance Diploma called post secondary-non tertiary courses in Nepal. Hence, they have to compete for limited opportunity at bachelor's program which is

highly challenging. On the other hand, due mainly to the quality issues, graduates even after three years of rigorous learning, are considered to remain from being industry-ready.

In summary, as conveyed by Figure 3, the current TVET system has limitation to offer seamless career path for graduates and is criticized of being unable to ensure adequate employment outcomes. Structural changes in current education/ TVET system is considered as one option to address these issues and hence, are discussed below.

3. Proposed structural changes

A well designed and implemented NVQS could help TVET sector reform which eventually could contribute to the whole education system. As such, NVQS has capacity to reform the TVET sector by putting a clear target on educational and employment outcomes. However, such a

Figure 3: Learners' two goals
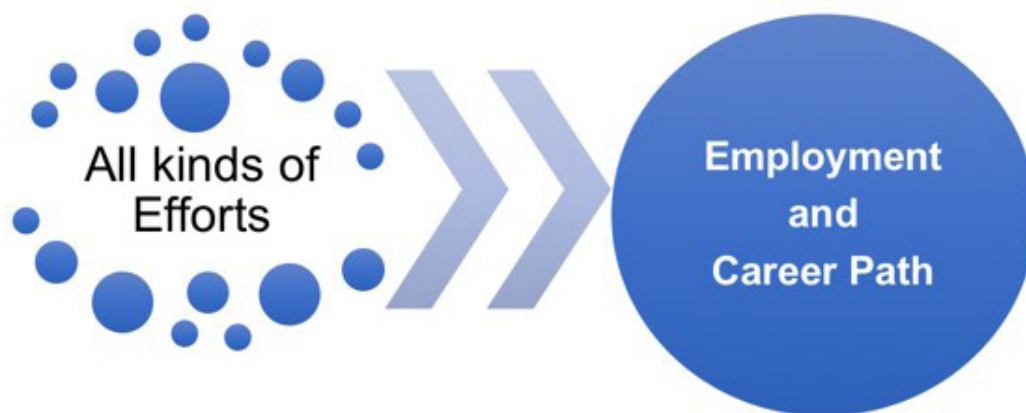
system needs to follow the standard NVQS provisions. Based on our national context and learning from efforts made in large number of countries to address similar problem, reform in Nepal's TVET and education system is conceptualized and is explained below with help from Figure 4 (Pradhan 2020).

vocational education already exists at this level, it simply needs a review and alignment with NVQS to make it as preparation for next level of TVET.

c. The real TVET could start from Grade 9. With competence and credit based

Figure 4: Reforming Nepal TVET & Education System
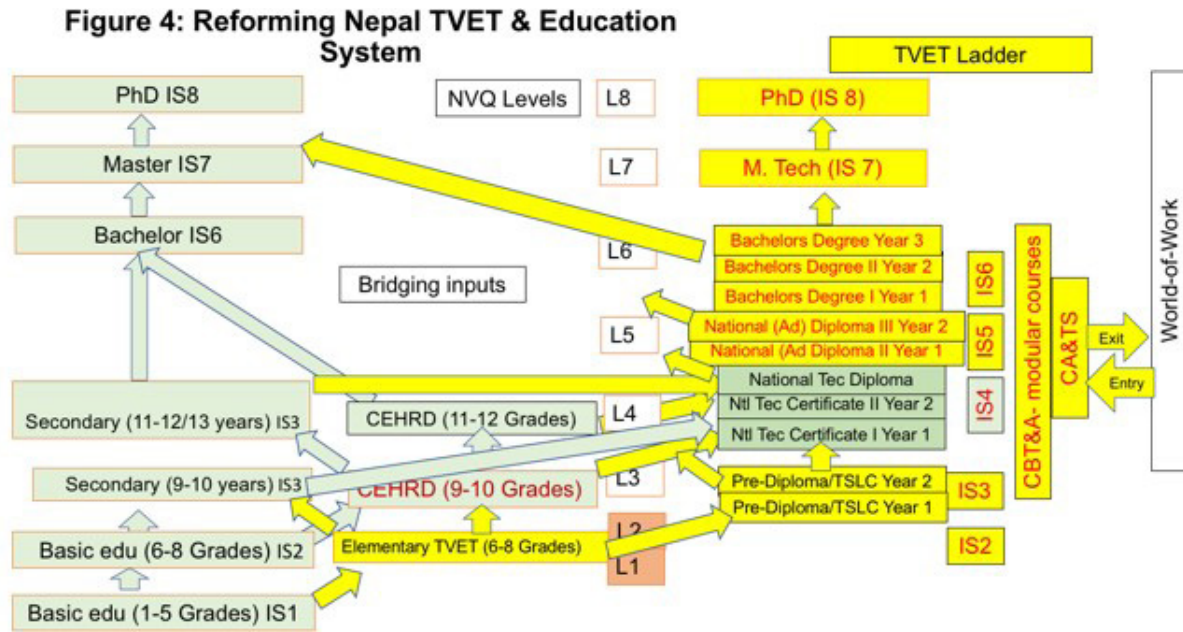
Pradhan, H. 2019. Roadmap on Development and Operationalization of NVQS in Nepal (modified from Pradhan, H. 2019). CTEVT/Swisscontact.

a. School education after Grade 6 could be bifurcated into two streams: general education and TVET. While general education stream could continue from Grade 6 by including information and general career guidance relevant to TVET in all levels school education and beyond. The another wing of Grade 6 could be separated as TVET stream and continue up to PhD as envisaged by the Cabinet approved NQF/NVQF.

b. TVET between Grade 6 and 8 could be only of 'elementary nature'. As

modular curricula, graduates could get a certificate after completion of each year of learning but the NVQ Level 3 qualification will be awarded only after completion of 2 years or duration specified by NVQS.

d. The current Pre-Diploma graduates under CTEVT could be converted into Level 3 with standards, curriculum and duration specified by NVQS which probably could be for 2 years' duration. This provision will remove the current pre-Diploma program which even after

18 months of learning, currently the learner does not get credited certificate and is forced to remain equivalent to school education examination (SEE) completer.

i. After completion of Level 3, graduates under TVET stream could further their education and learning through following options: i) TVET stream graduates could continue TVET stream in Grades 11 and 12. Unless, it is fully 3 years courses, it will remain as part of Level 4; or ii) As second option, these learners could choose to join CTEVT's Diploma program; or iii) The third option is opting for Grade 11 in general education stream leaving the TVET stream altogether.

ii. The CTEVT Level 3 graduates, on the other hand, could proceed to Diploma program (Level 4) offered by CTEVT's TVET Schools/ institutes.

e. Advance Diploma (post secondary-non tertiary) programs need to be introduced to offer opportunity for Level 4 graduates. Similarly, to build students confidence on TVET system and mitigate the 'second option' stigma, CTEVT work on introducing/ facilitating level 6 and beyond appears to be an urgent need and is possible through NVQS operationalization.

f. As CTEVT is entrusted with higher level technical workforce preparation responsibility by CTEVT Act 1989 second amendment (Article 6.16 foot note 13), the institution could steer its work on these needs earliest possible. It could consider finalizing the necessary changes in standards, curriculum, duration and qualifications by operationalizing NVQS earliest possible.

g. As NVQS will be basis for all the proposed structural adjustments explained above, graduates from both streams (CTEVT and TVET stream) will need to be awarded with unquestionable recognition equivalent to general education. Further, in order to raise image of CTEVT graduates and build their confidence, some of the current CTEVT schools in each province could be developed into specialized 'model'/ 'centers of excellence (CoEs)' Technical Colleges (for level 3 and 4) and Polytechnics (for Level 4 and 5). However, in order to match the industries' competent workforce needs and learners' employment interests, all these 'model'/ 'center of excellence' institutes should be tightly connected with specific industries/economic sectors.

h. With the NVQF operationalization responsibility which encompasses all the quality assurance responsibilities – research, standard and curriculum development, teaching learning materials development, sector human resources development, and assessment and certification – CTEVT could work as a federal quality assurance body. In the analogy, following its 11 August

2020 decision, it may take responsibility of model schools/ CoEs leaving the others to provinces. This could create opportunity for CTEVT to provide technical backstopping support to the provinces and local for a considerable time in future.

i. Taking departure from traditional definition of TVET covering few economic sectors, time has come for redefining it by also including other sectors of economy as done in other countries. It may contribute to enhance both the TVET image and increasing its scope.

4. Conclusions

The proposed structural changes in Grade 6 to 8 could enable students in making an informed decision to or not to choose the TVET path after their Grade 8 graduation. Introducing Level 3 under TVET stream of the general education could not only give graduates a clear pathway but also ensure quality through application of NVQS. It will also help the country in preparing technical workforce from as early as secondary education level. Further, improvement in Diploma level (Level 4) will help enhance quality in employment outcomes and introduction of Level 5 and beyond will offer a seamless career path for the graduates. This provision could also offer the graduates in accessing nationally and internationally recognized certificate and securing better employment.

By making bridging input provisions learners in each TVET level will have opportunity to pursue education and learning in their preferred trajectory. The competency and credit based modular curricula and assessment with multiple exit and entry options could help not only the regular learners but also to existing workers in various economic sectors/ industries including farmers. Such curricula and provisions could prove to be blessing option for learners who are unable to spend whole 2 or 3 years, for example, duration in a specific degree program which mean after completing certain modules or one year, one could enjoy three options: i) continue further years/ modules; or ii) leave the course with a credited credential and enter into world-of-work for ever; or iii) return to continue education after some years of work experience. Further, by virtue of their long engagement in world-of-work, may have gone through a long hiatus from formal learning environment but still the credited courses could help them make a return. Therefore, such a provision, in real sense, could help make the 'TVET/TVE for All' possible.

The structural changes proposed could possibly not only reform the TVET sector but also contribute towards the reformation of the overall education system. Therefore, based on the discussion above, the authors would like to leave four questions for readers to contemplate:

a) Would the above changes be helpful to increase TVET(TVE) enrolment resulting into an increased competition and preparation of a world class

workforce?

b) While respecting the globally accepted term 'TVET', considering Nepal context though not only unique to the country, would it be possible to change this term and rename it to only 'Technical and Vocational Education (TVE)'?

c) Has time come to redefine the scope of TVET?

d) Would these structural changes be helpful in raising TVET graduates' image, quality and finally, boost their competency and confidence?

e) Finally, by working under the continued guidance of MoEST and in collaboration with other federal and provincial ministries, local level governments, private and non governmental sector, and international development partners, would CTEVT as a federal quality assurance body be able to reverse the TVET haywire explained earlier quite sometime soon?

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E-Learning Initiatives at CTEVT: An Attempt at Innovation and Paradigm Shift in TVET Pedagogy

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Abstract

Information and communication technology (ICT) has brought innovative approaches to teaching and learning introducing pedagogical innovation that leads to paradigm shift in education. However, Technical and Vocational Education and Training (TVET) sector in Nepal has little exposure to ICT integrated pedagogical practices. In this context, this paper presents lessons from e-learning initiatives at CTEVT based on a study on e-learning pilot projects from three leading technical schools. It uses both qualitative and quantitative data received from 152 survey responses, two focused group discussions and 10 individual interviews. The study reports that e-learning is promising for TVET sector as an innovative ICT integrated alternative pedagogy. However, instructors and schools want additional support for training and ICT infrastructures to design, develop and implement courses for e-learning locally. The study also draws implications to scale up the initiations and interventions of e-learning at institutional level that are meaningful for expansion of similar pilot projects, ICT integration across TVET programs offered by CTEVT, pedagogical innovation, workplace learning opportunity for students, increase access and quality in TVET programs and institutional reform.

Keywords: E-Learning, Pedagogical Innovation, Paradigm Shift in TVET Sector, Workplace Learning, ICT Integration, Institutional Reform

Introduction

Innovative digital technology has potential to revolutionise our traditional educational institutions (Vassiliou & McAleese, 2014) providing learning opportunities with a flexible schedule for students to learn beyond the classroom settings yet provide social constructionist learning environment (Kafai & Resnick, 2011). The attraction of self-regulated learning design in an e-learning courses lies in its scalability where any number of students can take their own pace to learn as a cost-effective choice

(Conrad, 2008). Besides, self-regulated learning provides freedom and flexibility with learner-content interactivity (Ally, 2008) in learning. Technology bridges the gap of 'virtual' (internet-mediated) and 'real' (physical) settings (Woolgar, 2002). Such technology provides us with the opportunity to adopt all possible pedagogical methods that are used in the physical settings into the virtual settings. However, face-to-face dominated culture of education in Nepal (Pangeni, 2016) has created the gap of online learning design and pedagogy in practice. It may take some time to change the mindsets of people to understand the strength of the technology for pedagogical innovations.

As the "use of ICT in education has brought new possibilities for learning online" (Pangeni 2020, p.26), to integrate technology for pedagogical innovations, educational institutions need to develop their infrastructure, review curriculum, introduce policy for alternative modes of teaching and learning. Besides, teachers need to develop their competencies with sound knowledge of technology, pedagogy, and content together as stated in the TPACK model (Mishra & Koehler, 2006). It demands huge interventions in teacher training and ICT infrastructure that helps teachers to integrate technology along with content and pedagogy. Therefore, educational systems in Nepal including TVET sector need to learn more about how to contextualize and integrate experiences of modern ICT tools for e-learning supportive to online and distance education. To be effective, we must find the

ways to connect our students and teachers beyond face-to-face classrooms reaching out to their workplace and home. Such effort would also facilitate in crisis times such as COVID-19 and other natural disasters.

E-Learning Initiatives at CTEVT

E-learning program piloted at Centres of Excellence (CoEs) was an effort to initiate and create awareness on ICT integrated alternative pedagogical innovation. There are three CoEs under CTEVT to represent one each TVET discipline: agriculture, tourism and construction. These CoEs are expected to serve as one stop resource centers, a place where successful examples come together and best practice training models in industry are identified and promoted. The e-learning pilot program was an attempt to explore and examine the possibilities of introducing new ways of teaching and learning across the schools under CTEVT. The pilot project was initiated during December 2019 to February 2020 by assessing need, establishing e-learning server, orientation to all instructors to use e-learning portal and providing some IT infrastructure support to CoEs. These initiatives were funded by European Union through SAKCHYAMTA project at CTEVT. However, from March 2020, it was hard to visit CoEs because of country wide lockdown. Meanwhile, IT team at CTEVT with expert support extended online support and conducted basic level virtual training sessions to all instructors from CoEs to design, develop and implement courses using e-learning

portal. Modular Object-Oriented Dynamic Learning Environment (Moodle™), an open-source learning management system (LMS) was used to create web-based learning opportunities responsive to mobile devices too so that students and teachers without technological expertise can easily handle applications and tools available for learning facilitation. During lockdown orientation to e-learning portal was extended to other affiliated schools of CTEVT too. The e-learning portal had been the main site for CoEs to provide learning resources during COVID-19 pandemic.

In the background context stated above, this study was conducted to explore the status of e-learning platform use by students and teachers at CoEs. The platform was hosted from central server established at Council for Technical Education and Vocational Training (CTEVT), Santorini Bhaktapur. The study was focused to explore the status including problems and prospects of e-learning portal use at three CoEs.

Though the main streaming general education programs are transforming with ICT integrated approaches and are successfully offered in the form of e-learning/online mode, it is rare for TVET sector in Nepal. In this context, this study has explored successful stories and experiences of e-learning/online mode of teaching and learning from piloted schools. Problems and prospects observed from the study would be supportive as data driven practice to scale up the alternative pedagogy and innovation

to other schools selected by CTEVT across the country focusing the education through e-learning for quality, equity, efficiency, and sustainability of impacts.

Method of the Study

The study used qualitative interviews, FGD and quantitative survey methods. Three centres of excellences (CoEs) recognized by CTEVT namely Pokhara Technical School (PTS), Lahan Technical School (LTS) and Tikapur Polytechnic Institute (TPI) were selected as study site because e-learning was piloted from these institutions. Students, teachers, and principals from the COEs were included in the study as research participant. Survey was distributed among the students and teachers who registered in the e-learning system established at the central server of CTEVT. Likewise, students and teachers who expressed their interest to participate in research communication in response to a question in survey were selected for interview. In addition, principals, and project focal persons from the CoEs were also included as participant for the interview. Thus, this paper is developed based on data received from 152 survey responses (59 from PTS, 63 rom LTS, 23 TPI and 7 Other institutions), two virtual FGDs (students and teachers), and 10 telephone interviews (students-2, instructors-2, principals-3, and coordinators-3).

In addition to survey, interview and FGD, user log from e-learning server was extracted and analysed accessing the e-learning server established at CTEVT to host LMS/Moodle.

Table 1

Distribution of Survey Participants by Institution, Role and Gender

	Staff (IT)	Instructor/Teacher		Student		Total
	Male	Female	Male	Female	Male	
LTS	0	1	3	14	45	63
PTS	1	0	4	22	32	59
TPI	0	0	8	6	9	23
Other	2	0	3	1	1	7
Total	3	1	18	43	87	152

As a part of user log tracing, all users registered into the server for e-learning are reported in the paper.

Findings and Discussion

This section presents findings, conclusion, and implications. As implications are important for CTEVT for further actions, the implications are detailed out into different themes and sub themes.

Status of E-learning

E-learning is considered as an alternative process of teaching and learning in TEVT programs that utilizes modern ICT and web/mobile based LMS. E-Learning is also considered as easy and supportive tools for both teaching and learning. Students and teachers believe that e-learning promotes quality with audio and video materials. The statement *"It will add value to my organization CTEVT"* reflects the reality. With basic level of training teachers have developed and implemented their courses for e-learning, without any orientation or training students started using the system. 90.8% (n=152) of survey respondents used e-learning rest 9.2% did not use because of various problem. Lack of learning materials, lack of awareness about existence of e-learning site, support for learning, lack of orientation, connectivity/network, and personal family related problem are reported as the reason of inability to access the site by 9.2%. To access the e-learning WIFI (used by 55.8%) and Mobile data (used by 61.6%) are the dominant medium of connectivity for students and teachers. Likewise, smart mobile phone (used by 89.1%) and laptop (use by 21.7%) are two major devices that students and teacher used to access the e-learning site. IT admins suggest providing internet facility support for data package to students and teachers for connectivity and appropriate use of e-learning at CTEVT. More than 50 teachers and 400 students got initial orientation to use e-learning during COVID-19 pandemic. This initiative has created greater awareness among teachers and students. Teachers who responded to the survey claim that they have created at least one course in e-learning, and they handled different group of students in e-leaning (Minimum 10-20 students and Maximum

above 50). 100% instructors/teachers want to participate in training related to online teaching using e-learning system and 85.7 % teachers recommended e-learning courses to be available for all subjects and all schools at CTEVT. 92.8% of teachers expressed higher importance of e-learning and they stressed to expand e-learning across CTEVT systems. Same percentage of teachers also have highlighted to continue e-learning parallelly with face-to-face. They also shared that they had valuable experience by creating online courses.

80% student who responded survey had attended 2 or more courses in e-learning. 72.8% students expressed the higher importance of e-learning for them. 89% students agree to expand e-learning across CTEVT systems. 75% students wanted to continue e-learning site parallelly with face-to-face classes. However, 38% student disagree to accept e-learning as better option to classroom learning. Nonetheless, e-learning was valuable experience for 72% students and 75% agreed that they got good support for e-learning during COVID-19 pandemic.

The e-learning system established as a pilot project only for three CoEs has now been exposed to a total of 52 institutions all over the country within a noticeably short period. However, the status of e-learning portal use is unknown. A separate study for the study to include all 52 institutions is needed. As of December 14, 2020, the e-learning portal established at CTEVT's central server accessed via *http://elearning.ctevt.org.np* has a total 2283 registered users (378 teachers, 1683 students, and 222 others). 1961 users are confirmed, and 322 users are not confirmed. The number of not confirmed users indicates that users did not get support to complete their account registration on the site. There is a small number of active users (N=243) comparing to the total confirmed registered users (N=1961). In this regard, students and teachers who create account must get prompt support for confirmation of account and further use. Nonetheless, active user's data (330 during last three months and 125 during last 15 days) shows that the use of e-learning portal is continued. LMS – Moodle (version 3.8) installed at the beginning has not been upgraded yet. Moreover, a latest version of the Moodle 3.10+ is available with many more features for interactive, collaborative teaching-learning and secure use of the system. Therefore, a system upgrade is expected.

Furthermore, extension of the e-learning project pilot is envisioned. In this regard the project has planned to capacitate 25 schools with installation of e-learning labs and ICT enabled and equipped classrooms. In addition, process of developing electronic teaching learning material (eTLM) for 127 subjects of agriculture, construction, tourism, and health related diploma level programs are started. Likewise, trainings to all instructors who are involved in writing eTLM are started.

Prospects of E-Learning at CTEVT

Teachers participating in survey, FGD and interview highlighted e-learning as means to engage students when teachers are absent "*If teachers are in leave, they can assign self-learning tasks on e-learning site to engage students in learning*" (T1). Another situation mentioned by teachers to use self-learning was bout completing course content set by curriculum when they are unable to cover all lessons indicated by curriculum in classroom. In addition, teachers highlighted that it is also a technological innovation that paves the base for anytime learning from anywhere. Features of e-learning exemplified by teachers are time saving/flexibility "*Teacher can be available from any possible place and time*" (T2). In addition, teachers reported that e-learning system is easy to explain, easy to prepare lessons, comfortable to team, easy to deliver e-materials, easy to update and share knowledge, and possible to engage learners with interactive activities.

Features of e-learning in student's view are presented her. A student said, "*It is the best option for study during lockdown at home surfing internet where we were able to get much more knowledge than a particular learning in classroom*" (S1). The e-learning provided an opportunity to continue classes from home even in lockdown. In addition, students were privileged getting notes and new materials from e-learning website. They got more knowledge in less time, opportunity to study anywhere, it was easy to reviewing lessons, easy to contact teachers, technological innovation in study, all time access to course lecture/assignments even classes are not running, time utilization, learning new things from smart phone, quiz and other interesting materials to study and most importantly no disturbance of classmates and pay full concentration in study in peaceful manner "*In the eLearning classes the most satisfying thing I have experienced is that I can study without any disturbances of my classmates. I was able to concentrate in a peaceful manner. It was beneficial for me*" (S2). In addition, students also got all subjects in one place, surfing more for extra knowledge and alternative ways to learn. Students were also benefitted during COVID-19 lockdown, "*I got chance to continue my studies during the lockdown time...that was the best part*" (S3). It means students e-learning could be an alternative to continue education during crisis time like COVID-19 pandemic.

Challenges of E-Learning at CTEVT

Some challenges for teacher in using e-learning at present are data cost, quality of network connectivity, "*I spent money for data but connection was not stable. So, it is hard for developing course in e-learning site*" (T3), time for development of e-learning materials, conversation and interaction with students, lack of skill to handle all tools available in provided LMS, "*I cannot use all tools available in e-learning website. I need more training to develop my course*" (T4). Teachers also expect simplified layout, uninterrupted

connectivity, reward for extra work "*I used my time and money for data/internet but there is no return for me. No incentives*" (T5). It indicates demand pay and incentives for extra effort and time that teacher use for e-learning course development and implementation. In addition teachers also highlighted the need of intensive training, support for computing devices, integrated synchronous communication, school wise e-learning system, and guideline to handle tools.

Problems faced by most of the responding students are: network problem, cost for data and device "*E-learning is not better than classroom learning due to slow network connection while study. It is expensive for all student while using mobile data and there is connection problem*" (S5). In addition, students reported not opening downloaded materials and other technological issues "*Most challenging thing about the e-learning is technical problem. We can't ask teachers immediately when we don't understand*"(S6). It was about asynchronous mode of e-learning. Likewise, there was problem of access to device and connectivity, sometimes e-learning site was not responding, electricity cut, file upload limitation, not clear sound and visuals in live class, long online classes.

Therefore, students suggest to provide free WIFI and support for device to access e-learning, complete set of e-learning package in each subject, electricity and internet facility, encouragement and orientation

to use e-learning, school wise and course wise easy access to e-learning, updated contents, more presentation and research work to be included, offline features, video calls from e-learning site, full lecture notes of all subjects, practical experience beyond the e-learning "*I think engineering student must need practical rather than theoretical, so eLearning is not the best way to produce engineer*" (S7). Perhaps this student was indicative to field based practical part of lessons. However, there was demand for continuation of e-learning forever.

Provided infrastructure support for e-learning lab with development cabinets and lecture share facility has not been sufficient for CoEs. Intensive training package for teachers to develop courses in e-learning site, orientation session for student to use the system and user guidelines for both students and teachers are highly demanded.

Way Forward for E-learning Implementation at CTEVT

The study has shown greater prospects of e-learning as an innovative alternative pedagogy for CTEVT programs that has capacity to cater the service even in time of crisis. In normal situations e-learning can go parallelly to face-to-face classroom teaching and learning activities as supportive extension for day-to-day workshop/lab/field practical or theory classroom teaching and learning. Therefore, scaling up the provision and implementation of e-learning initiatives at CTEVT are fruitful for the following

reasons.

Lessons From Piloted COEs

Efforts from SAKCHYAMTA project on e-learning program piloting at CoEs were too little – 1) basic orientation to use LMS for e-learning course development. 2) Support for infrastructure such as computer, interactive board, server, and computers depending on local demand. 3) Additional virtual training for interested teachers during lockdown period. However, impact of these efforts has been reflected in greater extent. Some teachers developed courses in e-learning with full of contents and learning activities. After developing courses in e-learning students were enrolled and engaged in e-learning to obtain lecture notes, reading materials and participate learning activities such as quiz and assignment. COEs were able to connect their instructors and students during school closure period of COVID-19 pandemic.

In the study, both students and teachers expressed their greater interest to move ahead with full flagged e-learning in parallel fashion to face-to-face mode. In addition, they demand training, orientation, digital contents, and technological support with greater prospects of e-learning. They also have highlighted some issues they encountered to use e-learning. These are good lessons to learn for further interventions towards e-learning program scaling up to other schools. It is obvious to place greater effort on scaling up the initiatives by providing basic level of infrastructure, training for

instructors, eTLM, orientation to students, follow up trainings, regular meetings with implementing bodies, motivation for teachers, support for students, and user guidelines or manuals. Support for access to connectivity and computing devices would be meaningful when programs are to continue in distance mode. However, e-learning lab with development cabinet, video conferencing capability and other infrastructure support for schools would open the door to integrate ICT for e-learning as extended support in students' learning parallel to face-to-face classroom activities.

Integration of ICT Across CTEVT

One of the major concerns on scaling up e-learning programs would be the support for integration of ICT across CTEVT's programs because it would add value for access and quality of TVET programs offered by CTEVT. Ubiquitous nature of ICT would offer higher accessibility of TVET programs to the focused group. In addition, ICT has been the major skill these days demanded by employer in the marketplace. Graduates from CTEVT without having ICT skills required for their job-related tasks would fail to compete in global market. Therefore, 21st century education offered at CTEVT without integration would be meaningless.

On the other side, UNESCO (2009) claims "when used effectively", ICT can make education more accessible by improving access to information, enabling greater access to education, providing affordable any where any time learning, and sustaining

life long learning. The same literature advocates that ICT can improve the quality of eduction by improving students' motivation, personalizing student learning, enhancing student learning, giving feedback and reinforcement, enhancing the quality of teaching, and improving teacher education. Different form of teaching materials such as audio, video, animations simulation would encourage students for interactive learning boosting up the learning quality. Different teaching methods and varieties of options with ICT would also set the base for quality teaching.

Integrating ICT and introducing e-learning in education programs offered by CTEVT would take time following a process. An advanced practice of ICT can gradually be developed as it must be started from level zero at CTEVT. There are certain steps of initiating practice of ICT in education process. UNESCO (2009) states that learning institutions are under pressure to prepare students for the changing face of society and the workplace,

forcing the issue of integrating ICT into education. Institutions are at differing stages in the process of integrating ICT. Emerging, Applying, Infusing and Transforming are the major steps in adopting ICT as shown in the figure given below.

CTEVT can use this idea to identify its status in the integration process of ICT and e-learning into its skill focused technical and vocation education programs. Once the status is identified, further plans can be redirected to upper steps of integration process.

Pedagogical Innovation and Institutional Reform

Currently pedagogy in CTEVT programs is dominate by conventional classroom-based activities. It needs reform to be relevant in the time of 21st century education. Use of ICT and e-learning are at the front for pedagogical innovation and institutional reform for relevancy of TVET education to produce graduates for global and local marketplace. At the age of innovative ICTs,

Table 2

Stages of ICT Integration in teaching and learning

Specializing in the use of ICT		Transforming		Creating innovative learning environment
Understanding how and when to use ICT	⇑	Infusing	⇑	Facilitating learning
Learning how to use ICT		Applying		Enhancing traditional teaching
Becoming aware of ICT		Emerging		Supporting work performance
Stages of ICT usage			Pedagogical Usages of ICT	

(Adapted from UNESCO, 2009)

schools under CTEVT should introduce use of e-learning as an innovative alternative pedagogical approach. There are number of ways by which use of ICT can be meaningful in schools. The e-learning can be useful for pedagogical support, teaching practice, student assessments, teacher evaluation, teacher efficacy, lesson planning and material development, teacher job satisfaction survey and attendance, teachers' access to resources and use of equipment and materials, student motivation, access to large ICT resources (Strigel & Ariunaa, 2007).

Another major use of e-learning in education is associated with the purpose of communication. E-mail based formal communications have grown tremendously and they have been formalized in educational settings over the last decade. Presenting this facts O'Neill and Colley (2006) states that web-based communication has replaced face-to-face meeting and written or printed letters and it is the primary means of communication between students and teachers in virtual era as different form of computer-mediated synchronous and asynchronous communication. This has potential for institutional reform and relevance at the ate of technology.

Moreover, ICTs have capabilities to bring reasonable change and paradigm shift in TVET pedagogy. Anderson has shown that the roles of teachers and students have been shifted after the implementation of ICT and e-learning. Traditional role of teachers as a knowledge transmitter has been changed to facilitator, collaborator, and knowledge navigator. Table 3 is a figure that compares the roles of teachers and students before and after using ICT in instructions.

This is about inviting reform shifting the paradigm with innovative pedagogy at the level of roles that instructors and trainees play at schools under CTEVT.

Workplace Learning Opportunity

We have noticed that workplace learning is one of the major concerns of higher education institutions in the context of

Table 3

Paradigm shift in teacher and student roles in e-learning context

	A shift from		To
Teacher	Knowledge transmitter; primary source of information teacher controlling and directing all aspects of learning	$\Rightarrow$	Learning facilitator, collaborator, coach, knowledge navigator and co-learner; teacher giving students more options and responsibilities for their own learning
Student	Passive recipient of information reproducing knowledge learning as a society activity.	$\Rightarrow$	Active participant in the learning process producing knowledge; Learning collaboratively with others
			(Adapted from Anderson, 2010)

the 21st century learning. CTEVT should reach out to trainees' workstation such as workshop, farmhouse, kitchen, clinics, and fields wherever they work. It can never happen with traditional approach of classroom focused teaching and learning activities. However, ICT has potential to bring U-turn through e-learning that ensures anytime from anywhere learning. Mainly CTEVT graduates are skilled workforce for the market. In most cases they are already employed and would like to earn and learn together. It is essential for CTEVT to facilitate them for earning while learning (Geel & Backes-Gellner, 2012) in practical ways to mitigate the gap of theoretical and practice of skills and knowledge. In doing so, attending schools every day leaving their workstations/ workshops is not comfortable. Students may encounter various problems with frequent travel to the schools for theoretical knowledge. It may be waste of time for them. Instead, they want learning at their workplace practically aligning theoretical knowledge through e-learning.

One of the opportunities provided by the e-learning/online learning technology is virtualization of learning that reduces gap of physical distance so that students can learn without travelling to their school's classroom or learning takes places at their workstation or workshop. We also can say learning takes place beyond the classroom. In this regard, Allen (2007) also focuses on creating an online/e-learning learning environment that uses classroom simulations and expert performance coaching to provide real work experience in a safe environment and support the integration of new behaviours into the workplace.

E-learning also helps students with skills of using technology to access education from home: independently browsing, communicating, finding resources, and learning. But, in the conventional face-to-face mode of learning, students may not learn those skills without mandatory provision. These skills are also preferred because the new generation of Web-based tools – Web 2.0 allows users to organize information, create, edit content, share, and collaborate with others. Such skills practised using Web 2.0 and mobile learning are valued at workplaces by employers of the 21st century (Russell, 2009). Thus, there is no way to ignore the prospects of online/e-learning for TVET as greater part of education sector in Nepal.

Theoretically, workplace learning is associated to *Situated Pedagogy* which is a strategy to offer the curriculum of practical significance and contextualization of learning experiences. For example, on the job learning/training opportunities for students with support to address issues in society through project/problem-based learning approaches. In addition, this strategy also offers the contextualized experience of learning and assessment to meet the personal and professional goals of the students (Witthaus et al., 2016). Thus, pedagogy that offers situated learning aims at fostering students' engagement in the learning process

that connects them to the context and real-world relevance. In addition, situated pedagogy offers flexibility in learning and strong student support system for self-paced interactive learning with technology.

Therefore, it is important for CTEVT to consider e-learning initiatives to scale up across its system – pedagogy including assessment, administration including policy, plan, and curriculum reform. In short institutionalization of e-learning program is important for pedagogical innovation and institutional reform to produce technologically sound and skilful workforce required for local and global marketplace in 21st century.

Conclusions

E-learning is considered by instructors and students as promising catalyst to introduce innovation for alternative pedagogy across CTEVT programs. A little effort on piloting has profound impact and was supportive even during COVID-19 Pandemic. E-learning was used actively by teachers and students who had access to connectivity from CoEs. It is possible to implement e-learning across the CTEVT systems. However, data cost for connectivity, training for users and a responsive e-learning site to smart mobile phones are essential to consider in further plan as maximum users use mobile phone to access the site. E-learning can go parallel with face-to-face classes after providing basic infrastructure support, training, and e-content. Overall status of e-learning is encouraging in compare to the efforts placed on piloting interventions. Therefore, it is important to consider scaling up the e-learning initiatives based on the lessons learnt from CoEs by minimizing challenges and maximizing the opportunities and support indicated in findings.

Moreover, ICT provides an efficient management tool for improving the efficiency of education planing and delivery and facilitating policy making and management (UNESCO, 2009). UNESCO-UNEVOC has emphasized ICT as one of the essential components in 21st century TEVT system for transforming TVET programs with full potential to enrich classroom and workplace learning. It is important to realizing the transformational potential of ICT integration and e-learning pedagogy for innovation in TVET system. The changing patterns of processes, products, and services in the world of work are what drive the relevance of improving TVET delivery using ICTs and innovative e-learning models to prepare learners for vocational and generic skills they need for lifelong learning and gainful employment.

Therefore, institutionalization of e-learning at CTEVT is most important implication drawn from this study for pedagogical innovation, access, quality, and relevance of TVET education with integration of modern technologies and creation of workplace learning opportunity through e-learning. This can be done by establishing an **E-learning/ICT Development Directorate at CTEVT**. The directorate can prepare policy and plan for curriculum reform, IT

infrastructure, human resource development, training and development, innovation in TVET pedagogy through e-learning and reform in instructional design, e-content development, and support students and teeachers for e-learning implementation. In doing so, the directorate can prepare policy guidelines to integrate the e-learning system into all the programs offered by CTEVT and work for its implementation. Likewise, the directorate can coordinate curriculum reform initiatives for ICT integrated instructional design to recognize the value of e-learning as an integrated part of instructions that covers both synchronous and synchronous online learning.

For IT infrastructure and human resource, the directorate can plan to establish at least one e-learning lab with a development cabinet in each school and provision at least a full time IT staff in each school for smooth operation of the e-learning lab and other IT equipment. In addition, the directorate can also focus on training and development programs to enhance the knowledge and skills of all instructors and other administrative staff to integrate e-learning required for their job tasks. Likewise, promote e-learning as an integrated part of instruction as alternative pedagogy that can go parallel to the face-to-face mode. Nonetheless, the directorate can coordinate for development of interactive electronic teaching learning material (eTLM) for all subjects and establish continuous e-learning and IT support system for teachers and students. It will help them to use various tools and techniques to continue

their engagement in e-learning system.

Thus, by establishing an e-learning/ICT development directorate, CTEVT can enhance effectiveness and efficiency of technical education delivery system and skills development services using ICT based teaching-learning and support. In addition to the key areas stated above, the structural and functional scope of the directorate can be making technical and vocational education more accessible to a broader audience/wide range of users/all learners using ICTs and focusing on providing all essential technical backstopping to the ICT development units of each CTEVT offices and technical schools.

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Capability Approach to Skill: Bridging the Disciplinary Differentials over Conceptualizing Skill

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Abstract

The 21st-century social science calls for trans-disciplinary perspectives. In an attempt to address this call, this paper offers a trans-disciplinary take on the concept of skill. The author delves into understanding the concept skill and explores its conceptualization across disciplines economics, sociology, and psychology. In so doing, literature review over this concept suggested that there currently exists disciplinary differentials over the concerned idea. Further, the author offers the capability approach as an alternative to understand and define skill. While skill gets explained from the economic, sociological, and psychological fields, the persistent disciplinary differentials make the conception of skill fuzzy. The author argues that the capability approach potentially bridges the disciplinary segmentation over the concept skill.

Introduction

The 21st-century world of work is highly technocratic. In this setting, acquiring skills and their required associated skill levels is complex. The world of work is transforming, and this change has implications for the industry, academicians, practitioners, and policymakers. This changing world of work calls for generating new skill sets, skill actuation methods and techniques, a better place of skills learning, and skill measures. Keeping this new development of the world of work and the need of new skills generation aside, this paper primarily focuses on the concept of skill per se. In so doing, it explores answers to the questions on how skills have been understood? How is it being understood? And how can it be understood as per the need of the trans-disciplinary nature of 21st-century social science.

The concept of skill is explained and understood through the lens of several different disciplines. These disciplines are namely economics, sociology, and psychology. The meanings of skill vary across these disciplinary domains. Hence,

a view from an economist, a sociologist, and a psychologist over the concept of skill differs. The same concept means different things to each of them within each of their domain. Green (2011) explains this as disciplinary segmentation. He states that such segmentation persists because inter-disciplinary dialogue and discussion among stakeholders over skill is rare, and hence, there is a need to chalk out similarities and differences across disciplines and resolve them. Another argument that supports the need to resolve these differences over conceptualization of skills across different disciplines is the nature of definitions, and meanings of skills which are contesting, conflicting, and confusing. Each defines skill narrowly within their disciplines to the extent that there exists no consensus among social scientists, academia, and policymakers. This persistent disciplinary differentials over the concept of skill potentially pave the path for revisiting the existing conceptualization of skill across them and calls for work upon the conceptual differences for better clarity by revising definition that bears trans-disciplinary characteristics such that social scientist could agree relatively more than the existing domain-specific conceptualization of skill.

Disciplinary Differentials over Skill: Economics Lens

The concept of "skill" in economics is explained by both neoclassical and heterodox economics (Green, 2011). For the neoclassical, skill is one of the composite elements of human capital. Skill is understood to be acquired, valued, and utilized at the individual level, and human capital is valued as an individual's potential current and future earning discounted to the present earning (Becker, 1964; Mincer, 1974). Further, education and training are undertaken for skill acquisition and are considered to be investments at the individual level. The neoclassical envisions skills from an individualist perspective, where an individual makes rational choices over the type of skills to acquire and value and decides upon how much to invest. Skills in this regards are only productive if it generates earning. This understanding of skill by the neoclassical is clear, consistent, and simple too. However, this conception of skill is silent about the content and composition of skill per se. The neoclassical are blamed to be biased with regards to understanding skills as just potential earning, and the claim that they make on productive skill to generate earning is not always the case. This claims that skill can be understood through economic dimensions and such claim lacks understanding on the composite elements of skill in concern and misses understanding on the potentiality of social aspects that can contribute to understanding skills. Heterodox economists are no different regarding investments in education and training to skill enhancements like the neoclassical, but in contrast, heterodoxy takes into consideration the value of education and training against the price it takes. Heterodoxy also doubts the differences between individual employee's

skill to that of skills demanded in the labor market or skills required in the concerned jobs. Further, heterodox economics does not limit to just rational decision-maker but also suggests that the context for learning and uncertainty while making a rational decision be taken into consideration by the rational decision-maker (Tversky & Kahnemaan (1986); Green (2011). Heterodoxy finally differs from neoclassical by giving more space for other theories and conditions while examining and evaluating skills Lave & Wenger (1991). To sum-up, the conceptualization of the notion of skill within the realm of economics is fuzzy. This fuzziness is an attribute of different assumptions and viewpoints taken by neoclassical economics against heterodox economics. These intra-disciplinary differentials will continue to persist, while the following sections continue to view skills from other disciplinary lenses.

Sociological Lens

The discipline of sociology departs from the economics conception over skills because it looks at the process of production rather than just product, its production, and efficiency. The sociological definition of 'skill' assumes that it is a bundle of activities that constitutes tasks. According to Attewell (1990), 'skill' is exercised by carrying out concerning activity or task, and higher skill is about performing a more complex activity. The sociological definition of 'skill' is biased on understanding skill as a job skill, and here the concerned activities associated with a particular 'skill' are job-related. 'Job skill' according to the sociological viewpoint is primarily determined by social class (Green, 2011), where individuals can acquire the ability to perform tasks. In cases where individuals need to perform more complex tasks, in such a case more learning is required, and the ability to perform complex tasks gives a greater reward.

In this context, the sociological conceptualization of skill is limited to understanding 'skill' in terms of the measurability of complex activity embedded within it. Few questions that arise here are Does understanding or measuring complex activity explain all that we need to know about skill? If so, how do we measure this substance of skill? 'Skill' can be broadly considered soft skills or cognitive skills that are difficult to measure and need proxies. On one hand, sociology looks at the skill as a measure, while, on the other, it considers skill as socially constructed. This differential within the sociological understanding of skill is a noted contribution towards understanding skill. The social construction theory suggests that 'skill' can be of higher value or lesser value. In this regard, 'skill' of high value returns higher wages, and skills with less value return low wages. Further, 'skill' can be accounted for gender discrimination too. It gives a new flavor to understand skill in subjective terms.

Though understanding of the concept of skill offered by sociology shed light on the production process, activities, tasks, and

complexities as compared to the economic definition of productive 'skill' and return of skills, the objective and subjective divide over the understanding of 'skill' through the sociological approach still does not resolve the fuzziness in the conception of skill. The concept of skill in the domain of sociology is still contesting, conflicting, and confusing.

Psychological Lens

Yet another disciple that offers an extended understanding of skill is psychology. It departs from economics and sociology on the grounds that it takes into consideration the process of learning towards understanding skill. This lens looks at complexity of activities involved in the concerned skill and how the skill can be learned. According to Green (2011) the psychological understanding over skill is that it's the ability of an individual to successfully perform range of activities, and measure the performance. He assumes that to perform a range of activities associated with a skill, an individual need to have required certain standards needed to perform the set of tasks. This standard is called "competence". The idea of competence has significantly contributed towards understanding and measurement of skills (Green & Keese, 2011, Green, 2011). Many countries have designed competence framework as a reference to evaluate qualifications. However, conceptual differences over skill across countries have resulted into dissonance in skill standards (Clarke & Winch, 2006).

Capability Approach: An Alternative Lens

The capability approach to skill connects to human development through its focus on the ability of human beings to live the life they reason to value (Sen, 1997) by exercising the skill they possess or by learning new skills. This is established through reasoning processes for valuing the kind of skill they prefer. The possessed skill or the newly acquired skill potentially can further help enhance people's choices, which in turn, give them alternative life-choices by their preferred lifestyle. The main assumption of this approach is that people in their societies differ across several dimensions such as personal characteristics, socioeconomic background, and economic circumstances. These dimensions define who people are and what they can do and be. This implies that each individual can do or be things she/he has reason to value. In this context, the approach calls for government and partners in the education sector to focus on policies for skill generation that directly connect to the state of being of diverse people, and, which skill they want to do and be skillful for which they have reason to value.

The capability approach to education for human development is concerned with available opportunities for individual advances. This approach differs from human capital and a rights-based approach in a way that it calls for the expansion of the human capabilities of each member of the society. This approach puts more emphasis on

human life as compared to other approaches to education. Likewise, while it primarily concentrates around human life, it puts less stress on income, consumption, expenditure, and even productivity, which are necessary but not sufficient (Sen, 2009). The approach stands at the core founding principles of human well-being and human freedom. Such lens to skill potentially focuses more on the opportunities that people can have to live the kind of life they value and have reason to value. Unlike other approaches to skill, which looks at instrumental roles of skill being just economic, the capability approach includes the non-economic and constitutive role of skill too. Moreover, scholars namely Sen and Nussbaum argue for the capability approach and suggest that it potentially bridges the gaps left out by other approaches to education and can imply skills too. They claim that this approach to education is bottom-up, which, aims to address issues of equality, distributive justice, well-being, and freedom of each member of society. The approach is also free of being culturally and traditionally rooted like the case of criticisms of human capital and the human rights-based approach.

The economics and sociological approach to skill disconnect from human development as it has less connection to the 'human-ness' that capability offers (Sen, 2006). This implies that there should not be a problem if an individual is well skilled, as well as be well educated, and have a healthy life. Similarly, another approach seems to be distinct from the capability approach on

the ground of skills being identified as just analytical concept in terms of its importance as measures and measurement, but skills should also be a normative concept, such that, skill is the means and ends to better living. The capability lens assumes that skill enhancement improves the 'being' and 'doing' of a person who engages in taking training and that the trained person can implement the learned skills to improve his/her well-being. In this regard, this approach helps understand how TVET can directly be linked with human development. In this regard, TVET is also a tool for human development, albeit it is primarily, still concerned with productivity, employment, and better incomes.

Capabilities and Skills: Intrinsic and Instrumental Values of Skill

Sen (1999) defines development as the process of expanding the substantive freedom that people enjoy. To operationalize the given concept, Sen uses another concept of human capability. Human capability relates to the ability of human beings to lead lives they have reason to value and to enhance the substantive choices they have. Sen suggests that it is the expansion of the capabilities of people to control their own lives that connects with development and not income growth. The major assumption in this regard is that human capability expansion improves the quality of people's lives. Sen argues that at the center of development processes is freedom. He supports this argument for two reasons. First, human development as

freedom is an objective of development because it has intrinsic importance of human freedoms, and secondly, human development as freedom has instrumental effectiveness of freedoms of different kinds, which can directly contribute to economic progress.

Hence, the value of freedom such as good education, training, skills should not only be compared with the income-generating capacity of the same. Sen's notion of freedom comprises fundamental things like basic education, enjoying the freedom of employment choice, receiving or possessing skills of choice, and each opportunity to live long and healthy lives, being well-housed and even clothed. All these are developmental virtues in themselves. Besides their intrinsic value, or, Heckman (2016) '*internal capabilities, skills embodies in agents'*, better education, skills, health, opportunity, employment are instrumental ('*external capabilities, promote the expression of skills'*) in promoting economic growth and these further help expand other human freedoms.

If people expand their social, economic, and human capital, this coincides with increasing potential levels of one's human development. Having skills, being skilled, and engaged in some vocation, having or being educated, and engaging in or receiving pieces of training adds to one's well-being. Acquiring new skills can potentially motivate youngsters around the world to discover new horizons. It is this intrinsic nature of skill possession that counts as an integral part

of human development. The instrumental part of possessing skill is using it, having its knowledge, and transferring it through training. These offer more opportunities in terms of better work, occupation, and gainful employment and income. It is assumed that acquiring such capabilities often strongly motivates people to gain more out of learning skills and get involved in it.

This perspective in its rights is an agent-oriented approach. Here, stress is laid on the capacity and responsibility of individuals to shape their destiny. In this context, three general mechanisms can be identified that offer understanding of linkages among capability, freedom, and skill. First, the development of a certain minimum level is needed for the establishment and flourishing of the skills that people can acquire. Here, people involved need to possess certain freedoms and have access to skill training to gain knowledge, skills of their choice. This adds to the intrinsic value of the very freedom of being skilled and trained for gainful employment and productive working (Sen, 1999). The second acquiring skill has the potential to affect the well-being of the individual, her/his family, communities, and nation. Skill translates to gainful employment and productive work capacity which can further contribute to the improvement of living standards. This can be attributed to access to better housing, sanitation, food, clothing, and health, where, gains from employment and income can be put to use. Third, besides the intrinsic and direct well-being, enhancing

the potential of skill acquisition, the freedom enhancing potentials of skill may also have an instrumental value in increasing people's capabilities to improve their livelihoods and in contributing to general economic growth and social change.

Conclusions

This paper argues that there exists a dissonance over disciplinary understanding of the concept skill. While this disciplinary segmentation cannot be completely ignored nor erased, the possibility towards understanding skill from trans-disciplinary perspective still exists. The author attempts to offer capability approach to skill in the light of understanding skill in a trans-disciplinary way. The approach conceptualizes skills as both analytical and normative by nature. Any skills have intrinsic value and an instrumental value, which are two dimensions need to understand skill from capability perspective. Intrinsic value of skill refers to interpersonal skills, and, instrumental value of skills refers to the outputs skill generates while performing associated set of tasks or exercising skills. The intrinsic value of skills connects well with social and psychosocial dimension of skill namely complexity and competence, while, instrumental value connects well with productivity and efficiency of economic dimensions. In this regards skill viewed from capability approach potentially brings varied conceptualization over skill to a central and more agreeable point, and hence, provides a trans-disciplinary

platform for skill evaluation. This paper does not attempt to erase the already existing disciplinary differentials over conception of skills. It revisits the already existing disciplinary segmentation over definition and understanding of skills, and, attempts to offers a new approach to the conception of skills that potentially fits the need of 21st century trans-disciplinary social science.

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School Production Unit: A Production-based Learning Model in the Context of TVET Polytechnic Institutions

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Abstract

School-based production unit is a part a school practice area where material and human inputs could be combined for the creation of goods or provision of services. It is one of the important categories of work-based learning among cooperative work, field trips, internship and youth apprenticeship. Production-based learning model is a set of procedures that need to be adopted by the instructor to facilitate students to learn actively, interactively and in a participatory way, so as to produce either goods or services needed by society. This model can facilitate students in preparing to enter the world of work and gain competence as well as the entrepreneurial spirit. School-based production unit promotes work-based learning, increases the relevance of the curriculum, promote academic achievement and employability skill. It enhances entrepreneur sprit of learners, helps in income boost, increases the cooperation/collaboration ability with society and market likewise improves learning motivation, creativity and attitudes. Management of seed capital, human resources, modalities of operation and benefit sharing among stakeholders from income of products or services are major issues of production units. These issues should address before the planning of production.

Keywords: *TVET, School production unit, Work-based learning, Production-based learning model, employability skill*

Introduction

School-based production unit is a portion or part of the school laboratory or school practice area where material and human inputs could be combined in the creation of goods, items or provision of services. Production unit as an industrial sector where goods and/or services are produced by students under the supervision of qualified instructors (Chukwu & Omeje, 2018). In Nepal, school production unit is a Council for Technical Education and Vocational Training (CTEVT) encouraged mechanism for its constituent school to enhance the relevance of schools with the view that the programme integrates classroom learning and learning transference through creativity

and innovations in making products and providing services (CTEVT, 2020). A Technical and Vocational Education and Training (TVET) institution having production units has the capacity of ensuring that students acquire market based skills beyond the requisite, ensuring that abstract learning are reinforced with practical skills, also that curriculum addresses the market demand and above all inculcate in the recipients the entrepreneurial spirit, innovative and creative skills necessary to be self-reliant (Ananda & Mukhadis, 2016). TVET institutions are required to prepare students to become productive workers who are able to meet the needs of the world of work and to change the status of the learners from being dependent on income from others to be an independent productive earner(Aw, 2019).

Production unit is set up for the production or services in institution and sales of products and services by ensuring students' acquisition of adequate practical skills, sufficient knowledge and certify a student's level of readiness to face the world of work before graduation (Ogumbe, 2015). Production/service unit also helps for the profiting and sustaining of hosting polytechnic institutions. Production or service units in TVET institutions are not only school laboratory or workshop, the objective of its estabilishment is a way to ensure continuous practice of knowledge learnt in classroom through meaningful engagement of students in real life (world of work) encounters amidst customers and masters of the skills (Chukwu & Omeje

2018)

School-based Production unit is one of the important categories of Work Based Learning (WBL) among cooperative work, field trips, internship and youth apprenticeship (Rabiu & Yusri, 2019). This learning also applied student-centered learning, according to Harmer (2014), instructor act as tutor that helps student in their learning process by supporting them, if necessary. It is expected that with less teacher control, students have more responsibility for their learning through school production unit. Production Based Learning focuses more on learners as learners and on issues that are authentic and relevant to be solved using all the knowledge they have or also from other sources. Students are required to be able to work in groups to achieve better results by the Production Based Learning model. Production Based Learning starts from defining problems regarding production, then students and instructor conduct discussions to equalize perceptions about problems and set goals and targets to be achieved. After that students look for planning of production materials and start to collect information about these materials from the library, the internet, or through personal interviews or observations.(Agustina,2019)

The objective of the school based-production unit is to provide students with work-related experiences to translate theory to practice within the school setting.

These units are linked to the technical subjects that are among the core subjects

at diploma level, namely the supply of facilities/equipment and the training of the faculty/staff, and translating these into real-life benefits for transferring learning from theory to practice, developing raw materials into finished goods, and integrating both learning with production principles into the related trade subjects by applying the school based enterprise. The school based-production unit helps students and local stockholders to start up and grow their new businesses through the delivery of educational resources for building capacity and empowerment. They provide work-based learning in the institute so that learners do not have to wait in vain for an in-plant or on job training. This school based-production unit are linked to the respected trade subjects taught in these TVET schools and the production units of the technical institutions.

Establishment and operation of production unit in TVET institutions is expected to provide on-the-job training of students and provide commercial activities to sustain the day to-days running of the institution as well as help students to fulfill the concepts of learn, earn andy pay (CTEVT, 2020). Production units is set up for the production and sales of products while ensuring students' acquisition of sufficient practical skills, adequate knowledge and attitudes of production in line with area of specialization, and certify a student's level of readiness to face the world of work before graduation. (Ogumbe, 2015)

Production-Based Learning Model

The model is a reference which is arranges in a logical and systematic sequence to guide the conduct of an activity, while the method and approach are different ways or strategies for the implementation of learning, with the aim of involving active involvement of learners during the process of his/her education (Ganefri & Hidayata, 2015). The model are helpful in explaining that is difficult to describe and it may be an illustration and representation of something (Brown, & Green, 2016). According to Genfri 2013 Learning is a process of interaction between instructors and students who can support them to learn by active participation, interactively and use of practical methods, approaches, and media and appropriate learning environment.

Learning models is a direction from the implementation of learning which are applied by instructors with the aim to guide the students being active in the learning process. Learning model is one of the important mechanisms in supporting the learning process. Learning model is a procedure or steps which are needed by the instructor to facilitate their students to study actively, participative, and interactively with the aim to be able to achieve the aims of technical and vocational education and the development of self-potency of students optimally. (Ganefri & Hidayat, 2015) Therefore, learning model is important to develop by empowering and organizing production unit in institutions, to achieve desired goals. The learning model is work procedure which is regular

and systematic and containing of thoughts, description or explanation of a concept.

Production-based learning model is a process or steps that need to be done by instructors to facilitate students to learn by active participation and making more interactive and practical, with competence-oriented produce a product either goods or services needed by society (Ganefri, 2013). This learning model can facilitate students in preparing to enter the real world of work environment and increase their capability as a whole with entrepreneurial spirit (Ganefri & Hidayat, 2015).Technical and vocational education is responsible for preparing individual for the world of work for gaining skills, knowledge and attitude to serve community as well as improve his/her socioeconomic condition. Practical knowledge and work-based learning is important for individual to gain employment Production-based learning model is in line with the concept of vocational education. Production-based learning model is a process of expertise or technical and vocational skills that are designed and implemented based on standard working procedures and real job to produce goods or services that suit the demands of markets or customers.

Production-based learning model emphasizes learning, where students can undertake the production of goods or services that meet the standards of the business world and society(). Production based learning model allows arrangement of the curriculum needed the business, industry, services and the community with the availability of the

quality of learners who are competent, qualified students can be seen from the increase in study results (Ganefri, Hidayat, Kusumaningrung, Dewy, & Anori, (2017). Students are invited to produce innovative quality products based on the needs of the market, industry and society are standardized, after the completion of production students must make a business plan from products made (Kusumaningrum, Ganefri & Hidayat, 2015), all of these activities realized or not are an impact on the increasing of interest in student entrepreneurship. Production-based learning model is the learning model that gives learners the opportunity to improve their skills and capability to think and work together. In the learning process with this production-based learning model, students are required can be as active as raises significant questions relating to the goods and services to be made.
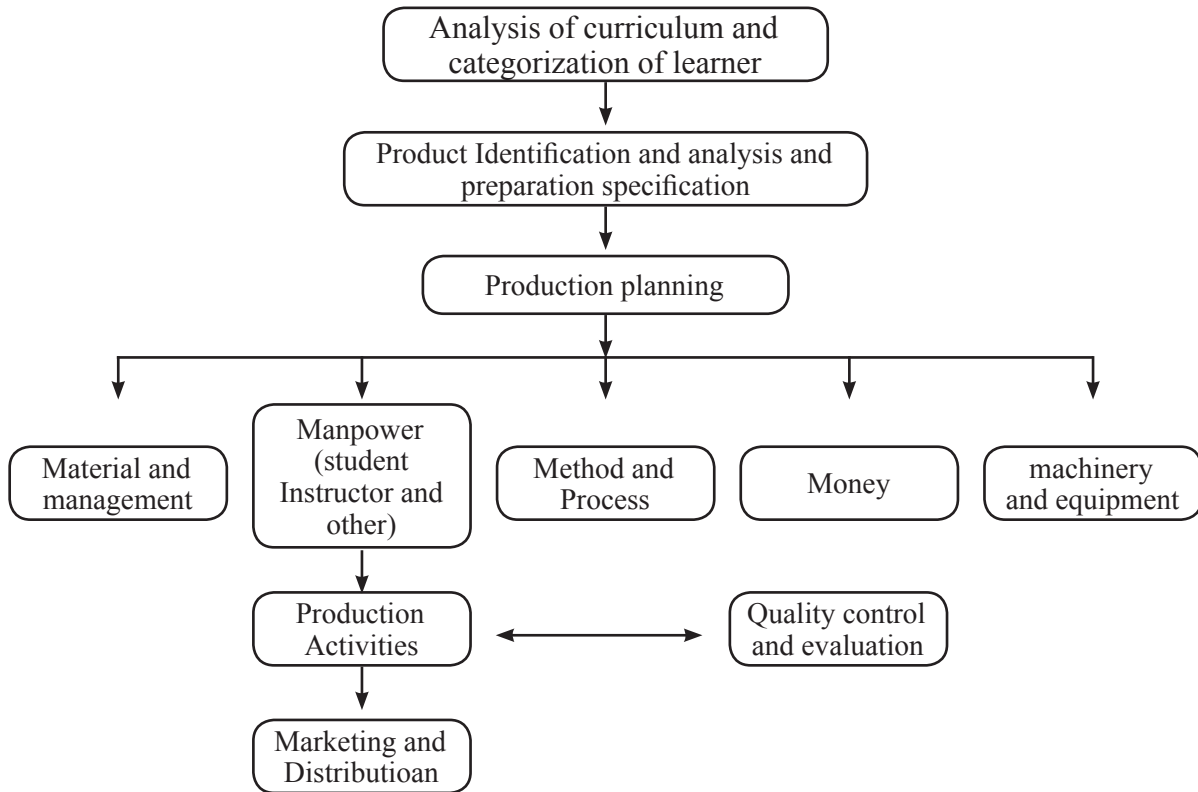
Improvements should make to make students feel motivated since they are given real problem, as in real manufacturer, each member has a specific task and responsible with their task. Students will have to make a standard operational procedure (SOP) on each production step for production with the help of qualified instructors, so that production process will control and evaluate. Production based learning improve student's hardkill as well as soft skill (employability skills) especially the ability to work in the group (Hanney & Savin, 2013), in production based learning, students are exposed to a complex series of interaction and active particepationa between group members and

they develop their communication, planning and team working skill with their team.

Figure 1 shows tha production based learning moder in TVET school. Production Based and preparation specification according to market and community need. The next step is production planning.Production planning is the crucial step for production unit. It is a

Figure-1 Production Based Learning Model in TVET School

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┌─────────────────────────────┐
│  Analysis of curriculum and │
│   categorization of learner │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│ Product Identification and  │
│   analysis and preparation  │
│        specification        │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│     Production planning      │
└─────────────────────────────┘
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- Material and management
- Manpower (student Instructor and other)
- Method and Process
- Money
- machinery and equipment

Production Activities ←→ Quality control and evaluation

Marketing and Distributioan

Learning starts from analysis of curriculum and categorization of learner likewise defining

problems related to their technical subjects, then students conduct discussions to equalize perceptions about problems and set goals and targets to be achieved After that students look for product identification, analysis

planning and mamagment of raw materials, human resources management, management of money, management of proper machineries and euipments and management work proceeder with workstations to fulfill manufacturing orders on time. Stuents can use optimum available resources with help of a good production plan . After production plan students have to start production as per

their planning under the supervision of the skilled instructor with regular monitoring to assure the production of quality of product according to predefined specifications

Application/Benefits of production unit in TVET Sector

Promote Work-based learning(WBL)

School-based Production unit is one of the important categories of Work Based Learning (WBL) among cooperative work, field trips, internship and youth apprenticeship (Rabiu & Yusri, 2019). Work-based learning (WBL) is an experiential learning programme which uses work environment as a crucial element of the curriculum. WBL entails beyond the notion that it implies two characteristics: learning in a work context and learning through practice (Amadi, 2013). School based-production unit provides students with work-related experiences to translate theory to practice within the school setting, These units are linked to the technical subjects that are among the core subjects at diploma level. School-based Production unit holds career development as one of its elements that provides an exposure of different work settings to learners which then helps them to make appropriate decisions for their future career choices, Hence, School-based Production unit enhance WBL by learning at work, learning through work, and learning for work.

Increase the relevance of the curriculum

Production unit affords the opportunity to see the relevance and application of learning through work based learning (Ogumbe, 2015). By enhancing theory and practice integration, production unit increase the relevance of the curriculum by addressing issues like curriculum mismatch, curriculum failure in addressing market demands, obsolete curriculum etc in expressing the challenge of TVET teaching and learning in terms of meeting the expectations of the labor force. It also enables TVET institutions to regularly check the relevance of teaching and learning in meeting market demands from first experiences with new technologies and products through school-production unit.

Increase students' academic achievement and employability skill.

With the help of Production-Based Learning, students get knowledge, technical and generic skills, and attitudes. In Production-based learning students and instructor create tasks or problems which are more concrete, and arrange potential resolutions by using theoretical and practical knowledge. Production-based learning can be an effective model for producing gains in academic achievement to increase employability skill (Ergul & Kargin, 2014). An employability skill are set for skills, knowledge and attributes that likely make individual to increase, maintain and excel in employment, gain new employment, move between roles within the same institution and to get promotion (Rasul, Bekun & Akadiri 2017). There are three categories of employability

skills stated in the literature across the world, namely Core (technical) Skills, Generic(soft) Skills and Personal Attributes (Zaharim, Yusoff, Omar,Mohamed, & Muhamad, 2009). Production-Based Learning (PBL) provides students with an opportunity to learn these skills which cannot be obtained in the classroom leaning in technical and vocational training institutes (Cunningham,Dawes & Bennet, 2004). In production-based learning, Instructor can focus on the development of a range of skills like personal, social, communication, problem solving, creativity and organizational skills, that result students can acquire core technical, academic, and employability skills by working in the real world of work environments (Holzer & Lerman, 2014) as well as professional practical experiences, learning about business and marketing practices, and engaging in production and work-based learning activities (Hoffman Spada, & Fox, 2016). Production units in schools provide employment opportunities for graduates. As a result, young creative, innovative and talented graduates are attracted and engaged actively in the production sector of the school where their potentials are greatly harnessed.

Increase entrepreneur sprit

Production-based learning, which is one of catagory of work-based learning, is one example that can help learners to foster their interest in entrepreneurship. Production-based learning model can help learners in preparing to enter the world of work and competence with the entrepreneurial spirit

(Ganefri & Hidayat, 2015). Entrepreneurial spirit makes one ready for job creation over job searching. It is imperative therefore that entrepreneurship through production units has the capacity to transform the copper economy to production-based economy using the wealth of knowledge, attitudes and skills available in institutions. This can be extended as well when individual recipient of education transfers successfully the idea of production as observed and inculcated. Production unit is required as a cure to the dependency culture. Entrepreneurship Interest is a motivation to start doing entrepreneur activities, in the form of services or goods. However, this entrepreneurial interest is also similar with doing something different and interested innovation and breakthrough in the institutions. Entrepreneurial spirit cannot be taught by conventional educational methods, so that the necessary changes not only in the learning process but also the development of an entrepreneurial culture (Eka, Panjaitan & Muslim, 2015) The implementation of production based learning with entrepreneurship approach using workshop based lectures, qualitatively improved the quality and meaningfulness of the learning production-based learning should also be innovative, unique, and attentive on solving problems interrelated to the lives of the learners or the needs of the community or the local industry. According to Gugerty, Foley, Frank, and Olson, (2008), School-based production provide linkages, context, and realize the learning resources that are not

learned in the classroom, it provide a product or service to the problems that exist in the community or school, face the challenge of a different nature with modern education to engage students in a cooperative effort (community collage), it increase students' awareness about the relationship between social welfare and employment, similarly it allows the students to feel proud of their work and it allow students to develop confidence in their leadership abilities (Gugerty, Foley, Frank, & Olson, 2008)

Income boost and sustainability

Production unit is expected to lead TVET institutions to self-sustainable through income. generation through product or services. Students can increase their income in cash by selling of goods/services provided, commercialization of knowledge and skills etc. that could be ploughed back into the system for better production capacity (Chukwu & Omeje 2017). The practice of production unit over time will enable TVET institutions stand the test of time, become sustainable, and reduce dependency on external resources and save the economy. It helps learn, earn and pay the concept and helpful for students having poor economic condition.

Platform for increases cooperation/ collaboration ability

With production-based learning, students work in teams and they collaborate learning in their group discussions, increases collaboration and communication behaviors.

All students have the opportunity to interact and develop skills with the incorporation of cooperative or collaborative learning (Ganefri & Hidayata, 2015). Collaboration in the learning process is a higher level of cooperation. The production-based learning has several characteristics that would stop the students from one way activities of classroom study and make them more active, participatory and dynamic. Production-based learning help students in learning and improving skills in the problem solving. The production-based learning support students to develop real-world skills such as the capability to collaborate well with others people, make decisions and help them in facing a complex problem solving, better communication and self-management (Yalçın,Turgut, & Buyukkasap 2009). Students develop their self-confidence and independence to work together in a real-world setting by collaborating on a task which they have defined for themselves (Blumenfeld., Soloway,, Marx, Krajcik, Guzdia & Palincsar, 1991). production-based learning helps students to improve their social relationship, often lead to increase their attendance in work-place and reduce discipline problems in the classroom.

To increases students' learning motivation, creativity and attitudes toward learning

Production-based learning increases the motivation and creativity of students. When teachers successfully implement production-based learning, students can be highly motivated, active involvement in their

learning, and produce better, high-quality work (Blumenfeld et al., 1991). Production-based learning meets the students' needs with different levels of skills and learning styles. Morgil et al. (2008) found that there is a direct relationship between students' attitudes toward activeness with their performance. Students can learn a lot with Production-based learning compared to traditional methods. In the application of the production-based project, the students benefit from simulation experiments practice. Simulation experiment practice becomes their visual resource and also they can look back on when needed.

Issues to manage production units in TVET school Budget Allocation and Managemnet: In the TVET institutions where equipment are available, funds become a challenge. In Nepal, Council for Technical Education and Vocational Training (CTEVT) had allocated budgets for school-production unit to promote work-based learning in its constituent polytechnic institute. It is lacking in other community and private TVET schools. In the same way, an institution with a clear vision of her intended production/service unit can map out budgeting strategy from internally generated revenue to operate their production units. (Chukwu & Omeje, 2017).

Human Resources Managemnt: The human inputs required for proper take off could be insufficient especially in TVET institutions where technical and technology staff are required and number of members are few. Use of students and their managemnet in production is also a challenge. In the light of this, employment should create for individuals with the capacities who should be paired with students and younger staff members for assistance. Nevertheless, institutions intending to float a production unit could begin with outfits where it is most capable to handle in order to reduce initial cost implications (Chukwu & Omeje, 2017).

Modalities of Operation: Vision, mission and objective of the institute, school management relationship with workers-teachers and students, income distribution and sharing are important areas in working document.All standard operating proceeder should made and validate them with help of the expert before starting production. School production units are for both learning/academic and commercial purposes. Like such students' time management is considered in the planning for proper exposure and sufficient practical experiences. Efforts of teachers and instructors should ensure that students are not relegated to passive players and observers but are actively involved in the entire stages. More so, the relationship of the workers with the teacher/instructors is vital in achieving the dual purpose of production units. There should be stipulating on workers' job security to foster their confidence to share technical information easier, enable trust and cordial rapport with all involved.

Benefit Sharing: Income distribution proceed with disbursement, and management

issues are most important issues to run school production unit. Sharing of benefit obtaining from selling product and provding service from school production unit should be on the basis of standard rules and regulation. Allowances and incentives should be provided and paid to all involved persons in percentages in which all are agreed. It is believed that the support, sustenance, growth and expansion of any production unit hinges majorly on how its modalities are articulated and the degree of acceptance it receives among workers in TVET institutions.

Illustration of a Case

In Nepal, school production unit is a Council for Technical Education and Vocational Training (CTEVT) encouraged mechanism for its constituent school to increase work-based learning practices. CTEVT had allocated budget for establishment of production unit to each constituent school that can improve the student skills through work practices. Bhimdatta Polytechnic Institute (BDPI), Baitadi, is one of the constituent school of CTEVT running school production unit to develop learners' skills and ability to think and work together, to enhance their level of readiness to face the world of work before graduation, and to promote learn, earn and pay concept. Currently BDPI is producing off seasons vegetables, mushrooms, fish and poultry production through school production unit. BDPI is planning to produce paver block through production unit from next months through its production unit.

Conclusions

Production-based learning is one of the important learning approaches of work-based learning by focuses more on learners as learners in work places of TVET polytechnic institutions.TVET polytechnic institution has the responsibility of producing skilled and competent workforce having entrepreneurial spirit, creative and innovative with employability skill abilities in the students before their graduation. Every TVET polytechnic institutions have the capacity to run at least one production unit according to their trade so as to properly link its learning to demands of the market and societal needs. Production based learning model in TVET can help students in preparing entering the world of real work, be able to develop critical thinking, active participation in learning and having good morale.

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TVET Reform in Federal Republic Nepal [1]

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Abstract

The Technical and Vocational Education and Training (TVET) includes two components - education and training that offers both academic and skill development. However, there is no uniform understanding among the countries on what these aspects should entail and variations can also be observed in governance and management. The Constitution of Nepal 2015 has demanded a complete restructuring of the country's governance, including the reform of the education and TVET sector.

This paper aims to shed light on the status of TVET in Nepal in the federal context and explores the management structures for the country to move forward in the changed context. Reviewing international practice, proposals are made with regard to the restructuring of the TVET. It suggests Nepali education system adopted a two-pronged strategy to facilitate the required reform in TVET sector and setup: a) reforms in existing programs and, b) structural changes.

Introduction

The Technical and Vocational Education and Training (TVET) includes both education and training that can be operated within one or combination of different modes (informal, non-formal and formal) of the education system. This indicates that education and training should be considered as the two primary components of TVET. The education component is closely related to the formal education system, whereas the training component is associated with the labour market (Cardoso, n.d.). UNESCO and ILO also agree on such definition (https://unevoc. unesco.org). In addition to the general education, TVET includes the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (UNESCO, 2014; and Mack & White, 2019). Based on this understanding, the scope of TVET programs should be understood to range from livelihood courses to the higher education (university) degrees.

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1. The opinions expressed in this paper are personal opinions.

In Nepal, TVET programs are broadly categorized into three groups- skill development activities through short duration with short-term interventions including professional development training; secondary education and diploma level program under the formal schooling system; and the technical higher education program (MOEST, 2019). However, these programs are all structured against a traditional design that has not seen reforms over the past decade that were based on stocktaking different practices observed abroad, such as the German dual system, workplace-based learning, England's modern apprenticeships (Cardoso, n.d., Caves & Renold, 2018).

The main objective of TVET program in Nepal is to contribute to the preparation of lower level and mid-level human capital, thereby contributing to the economic and overall development of the country and enabling people to be engaged in self-employment (CTEVT, 2021). TVET programs as such are viewed as a tool for productivity and enhancement and poverty reduction (Pavlova, 2014). In line with this thinking, Caves and Renold (2018) also note that quality TVET program provides benefits to individuals, as well as the wider society and its industry. So, the provision of adequate and quality TVET can be understood instrumental to reduce poverty by expanding the economic and social benefits of individuals and the communities they live in.

Although TVET is not a new concept in Nepal, its modalities and institutional setup have not seen any meaningful adaptations and reforms in the past decade. At the same time, the country has seen drastic changes in its structure and the markets to which its people's skills need to respond accordingly. This obviously demands a thorough restructuring of the TVET system-both its governance and program aspect. In order to make the TVET system compatible with the federal system, readiness is must to engage in reengineering of its programs, institutions and delivery mechanisms. In this context, this paper aims to describe the existing status of the TVET in Nepal and explore models that will be suitable for the federal structure.

International Context

Study of human evolution indicates that skill development has evolved alongside human civilization. Over the centuries, this has been gradually modified, refined and developed into the present stage. Skill development is traditionally linked with the ability of humans to adapt to their livelihoods and within their communities.

This goes back to when the initial hunter-gatherers started to apply new techniques to hunt animals and gather plants, thereby refining their techniques and weapons to increase their food intake and protect themselves from threats (humanorigins. si.edu). In course of time, humans continue to develop and adapt themselves and their tools to survive and thrive. The acquisition of new skills and survival strategies is based on trial and error practices, with new methods being successfully introduced would become

dominant practices replacing less efficient ones (https://humanorigins.si.edu).

Formal education emerged alongside skill development, but where practices related to skills and securing basic commodities resembled each other across the globe. Irrespective of different contexts and cultures, formal education saw a more diversified path. Its development is closely linked with the emerging civilizations around the world. The concept of education is believed to have come into practice around 3500BC although several sources argue that education emerged earlier in the Hindu tradition.

There are several events that have served as catalysts in upgrading skill development and education. In Europe, for instance, the introduction of crop-rotation and the agricultural and industrial revolutions prompted practices to be marketization and urbanization (www.courses.lumenlearning.com) that ultimately led to modernization. In the instances where new techniques and technologies were introduced, labors are either expelled from their works or they are forced to acquire new skills and techniques to fit the changed ambience. These times of innovations drive development of new skills and competencies. The extent to which a country or community is able to exploit new developments largely depends on the way the formal system can accommodate the supply of required persons to the market.

Industrial revolution brought major shift in country's economy (www.oposinet.com). This revolution increased the production of goods in cheaper rates than manual production; promoted market, thereby moving the society towards urbanization; changed the lifestyles together with the food habits and consumption culture. All these changes are named as modernization where the machines, supply of skillful persons, provision of higher wages for such skillful persons contributed to the urbanization. It further caused the creation of middle class in terms of work conditions, consumptions, and lifestyles. But, such system had not happened in uniform manner across the globe. In the beginning, it happened in Europe and America, and gradually in the East Asian countries. All these development facilitated the skill development process within the formal education system.

In 1989, the United Nations adopted the Convention on Technical and Vocational Education, recognizing the development of technical and vocational education. In 1999, the World Congress on TVET was held in Seoul, South Korea. Among other agendas, the Congress also recognized the term Technical and Vocational Education and Training officially for the first time. Before this, other terms had been used to describe similar educational and training activities, such as Workforce Education (WE), and Technical-Vocational Education (TVE), Apprenticeship Training, Vocational Education, Technical Education, Technical-Vocational Education (TVE), Occupational Education (OE), Vocational Education and Training (VET), Career and Technical Education (CTE),) etc. The UN Convention

in 1999 passed a resolution to establish an international center for TVET. The UNESCO-UNEVOC, an International Centre for Technical and Vocational Education and Training was established in 2002 in Bonn, Germany as the UNESCO's designated center for TVET. (https://www. unevoc.unesco.org)

As mentioned earlier, the development of TVET, however, is not uniform across the globe (Caves & Renold, 2018). In the developed countries, it is closely linked with the enterprise development. Diversity is being observed in TVET in terms of program, duration, management and governance. However, vocational education within education systems as a whole remains a matter of scholarly debate not only in the past but also at present.

National Context: TVET in Nepal

Technical and Vocational Education and Training (TVET) in Nepal has been further prioritized recently with the government reiterating the importance of TVET in several policy documents. TVET programs have been grouped into four categories; skill development activities, TVET in secondary education, diploma level program, and higher technical education program (MOEST, 2019). However, TVET program under the Council of Technical Education and Vocational Training Act, 1989, a main legal tool to govern this sector throughout the country, aims to produce the middle level and lower level human resources by implementing short-term skill development

activities and long-term training (academic program) (https://www.ctevt.org.np). In response to the provisions given in the Act, different structures and institutional arrangements are created.

The long-term training programs (academic programs - diploma level program) are being coordinated by the CTEVT with its constituent and extended agencies, public agencies of different ministries and affiliated agencies (private companies) (CTEVT, 2021). The short-term programs are implemented by several government and private agencies with varied duration and purposes (CTEVT, 2021). In addition to this, Ministry of Education, Science and Technology (MOEST) has also run grade 9-12 TVET oriented secondary education in the community schools (https://www.moest. gov.np).

At present, Nepal aims to transit to developing country by 2022 and upgrade as a low middle-income country by 2030 (NPC, 2075). These timelines are set in line with the SDGs 2030 framework as set by the international community. The available indicators relating to education, health and economic aspects show that the current pace of growth is not sufficient for achieving such target. Nepal is yet to leapfrog its economic growth and development including improvement in social development to achieve its long term goals and targets. The average economic growth in Nepal over the last decade has been observed at 4.6 per cent which is considered low compared to the South-Asia average. There is huge trade

deficit and remittance inflow is about one third of the country's GDP (https://www.mof.gov.np). The society is dependent both on consumer demand for goods and services. The production sector is poorly developed and is not able to produce goods to supply the demand created in country (NPC, 2075, and https://www.mof.gov.np). Among others, shortage of skill workforce and inadequate skills of the graduates remain as a challenge.

Issues and Challenges

Skill development in ancient time was linked with the survival of people. It was directly linked with the production, safety and movement. The development was driven by trial and error through both informal and formal systems. Whereas some countries jumped ahead through revolutionizing their practices and industries, others remained to rely on traditional models, largely defined by manual work and family related occupation. As such, skill development efforts should be seen as an integral part of the economy. If economy does not promote or force people towards further skill development, the efforts to produce adequate human capital through the formal education system may not be sufficient.

In Nepal, the history of skill development through the formal system is less than 75 years. However, informal systems have been in place to facilitate transfer of skills from one generation to the next one since ancient times. As a result, indigenous practices remain major option to be used to develop skills among youth.

The issues and challenges faced by the TVET in Nepal has been recorded by various scholars (e.g. Caves & Renold, 2018; Gautam, Poudel & Poudel, 2018; and Poudel, 2020). It is also a frequently publicly debated topic. Among others, the major issues are fragmentation in allocating resources, inadequate access, poor quality and relevance, inadequate coordination with the private sectors, and poor linkage with the markets. The change in the political and governance system- from unitary to federal structure (federal, provincial and local governments) will have a significant impact on the skill development sector.

TVET in Nepal till now is managed and coordinated by the CTEVT which is placed at the federal level (CTEVT, 2021). It is yet to be restructured and decentralized in line with federal setup. School education falls under the exclusive functions of local level, but it is still to be confirmed whether the TVET programs governed by the CTEVT will be moved under the mandate of these governments.

In Nepal, the debate has not provided adequate focus on whether the market should follow TVET or TVET should follow the market as mentioned by Mack and White (2019). Both should move ahead in a coordinated manner, not as parallel streams. The fragmentation of skill development programs in the Nepali context manifests itself in different ways, there is, for example, a huge demand to run a nursing program under the health stream, while simultaneously, some other programs under the health have not found student

enrolment as per their capacity. This raises serious question why there is not demand of student enrollment in certain health programs. The obvious answer is there is no demand of graduates of these programs in the market. It means, first we should create demand from the market, then need to think diploma program in the education institutions. These processes of demand and supply must be understood while running and expanding the TVET program in the country. In order to create demand in the market, the economy and livelihood of people need to be kept in mind.

Discussion on TVET, Economy and Livelihood

Cave and Renold (2018) mention that TVET helps to develop human resources for economic growth, which is often seen as a key to address the youth joblessness. The quality TVET has direct link with the literacy and education, skill development, employment, income, and livelihood, whereas economic growth, poverty reduction, health conditions, life expectancy are some of the areas of indirect linkages. However, the understanding on TVET is not uniform across the globe. It is socially constructed and heterogeneous concept across the world.

As stated earlier, Nepal government has already implemented 15th periodic plan with a vision of upgrading the country to the status of developing country by 2022, transforming economy into middle income status by 2030 and realizing prosperous Nepal in 25 years from the base year 2018 (NPC, 2075). In order to achieve such these goals, we need to achieve two-digit economic growth, to which quality TVET can play a significant role. Two terms – two-digit economic growth and quality TVET -are main concerns which are interrelated and interdependent. Absence of one, another may be difficult to achieve. Skilled workforce can contribute to the economic growth. And economic growth may not be sufficient if there is a lack of an adequate redistribution of its gains (Stiglitz, 2019). Pertinent questions that should be discussed in this regard are:

Stiglitz (2019) raises concerns about the progressive capitalism where focus should be given to the universal basic income and other welfare scheme by the State. This also relates to us. As we discussed earlier, the long term goal of 15th plan is to achieve prosperity, have we defined the term "prosperity" in Nepali context? What does this mean to citizens? Let's take an example, what dose prosperity mean to a poor family living in high hill or mountainous region or remote village of Terai region? Once defined, questions will have to be addressed, such as; What is the roadmap to reach this? Have we identified our destination with timeframe?

When are we expecting to reach the identified destination? How much resources are required and how much resources do we have at present? And, how can we explore the additional resources that is required to reach the goal? What are we expecting from citizens in this whole process?

Therefore, the ultimate aim of any economy should be fulfilling the goals of decent life of citizens irrespective of their differences in capacity and livelihood. In simple term, among others, few can be narrated as- all children must have access to quality education, at least quality TVET for those who are in need, and all citizens must have affordable services (in addition to the basic services) in terms of their fees and service charges.

It means the State should aim its policies to create the ideal, fair and just society. The question is: Will there be such ideal society? The experience from some of the OECD countries show that such society may be achieved where all citizens will enjoy the jobs as per their capacity and social security schemes within the country. And the basic health services are made available free of costs, and children have access to quality education.

For this, we must focus economic growth with social justice. As per Stiglitz (2019), economic growth depends upon two major factors - growth in the size of the labour force, and productivity (output per hour). Only national outputs should not be taken as growth. It is not necessary that national productivity can provide a fair share to ordinary people. If ordinary people do not get fair share from the growth and productivity, the benefits only go to the people who are on top in terms of wealth capacity. It is also important to identify best practices observed within the society, such as; jobs will be more decent and working conditions will be further improved, and a better work-life balance and reduction of exploitations.

In order to achieve all these conditions in our society, it is necessary to achieve more dynamic economy, growing faster an economy that serves people (Stiglitz, 2019). The concern that must be considered here is: How can we provide middle class lifestyle to all citizens, a major challenge of our future endeavors? In order to provide a foundation for this, the State should ensure universal access to health care and quality basic education, as well as guarantee a minimum income to all.

Government must play a role to ensure that the exploits of economic growth are shared fairly within the society (Stiglitz, 2019). Furthermore, the relation with the private sector needs to be revisited, and based on mutual gains and trust, private sector can be

allowed to focus its productivity to be driven through wealth creation rather than through exploitation.

The second concern in skill development is the management and organization of skill development activities, which should be accomplished by the education system. Once demands are created in the market/economy, the supply can be fulfilled by the education system. In order to match the quality and standard of the demand and supply, the market and education system should work together in a coordinated manner (Gautam; Poudel & Paudel, 2018). One of the biggest challenges of the TVET in Nepal is-demands in the market and supply from the education system do not match each other. On the one hand, the graduates are not getting jobs in the market, the markets are not getting skilled person on the other. Critics argued that education system is characterized as a machine to produce unskilled and unfit people. First, economy must introduce machines in the production sector (agriculture, tourism, fisheries, forestry, mining, farming, biodiversity, waste management, hotel and restaurants etc.), modernize the production functions, establish and strengthen the supply chain, and expand the service sector. All these demand skillful people which can be supplied by the education system.

The third concern is whether the skill development activities are implemented in a coordinated manner or through a fragmented approach. At present, skill development programs are under the jurisdiction of different ministries. Rather than bringing all functions under a single umbrella, innovative approaches are required to facilitate and coordinate activities from different agencies. The regulating agency should be made strong and independent. The existing CTEVT can be restructured into this unit. The representation from different ministries can be ensured in such regulating bodies which can provide overall policy direction and coordinate among various agencies.

Next Step

a) Setting the Macro Framework of Skill Development

One of the urgent tasks in TVET of Nepal is the need to identify the steps to move ahead. TVET development in Nepal is only possible if it is linked with the macro-economic aspects of the country. Expansion of domestic demand, scientific and technological innovations to foster new growth drivers, reform and energize the market and quality TVET should move in a chain. The quality TVET programs must be linked with the economic growth as shown in the diagram below.

b) Assigning the responsibilities of TVET
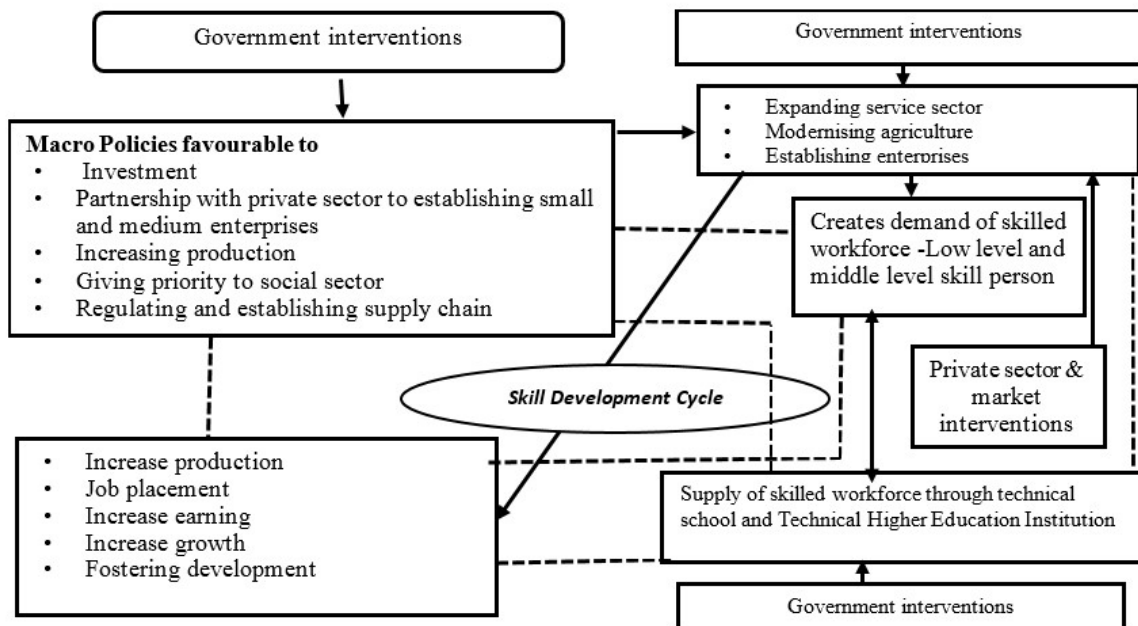
in Line with the Federal Structure

Two pronged strategies - reform in existing strategies, structures and programs, and formulation of new legal tools should go hand in hand. Two strategies should move together where one complements other. It is difficult to say we move to second once we complete the first strategy. Clarity on roles and responsibilities of three tiers governments should be outlined in federal legal tools as given below.

c) Operationalizing the Framework

Once the above mandates are reflected in legal tools, there is a need to develop a framework to materialize these concepts into working policies. Secondary schools could be categorized into general and technical vocational. Similarly, general schools should not be allowed to run technical vocational education program. Technical vocational secondary school should only be allowed to run such programs, for example, diploma, higher diploma and other intermediate courses. Such technical vocational schools can be a venue for both skill development and testing.

Technical vocational secondary schools must be linked with small and medium level enterprises, collaborating to run technical vocational program under an integrated framework, where the former runs academic course and the latter focuses practical aspects. Large companies can also work with the schools to train their employees and allow students to work in such companies as an intern for the period of certain duration. In this way, technical vocational secondary education will consist of both school-based

Areas or Themes	Federal Government	Provincial Government	Local Government
Policy	Framework policy	Program level policy	Skill development level policy
Curriculum	Framework and Standard	Curriculum elaboration for academic program	Curriculum elaboration for skill development program
Teachers	National Standard and competencies	Managing teachers for academic programs and focusing their development and performance assessment	Managing facilitators for skill development activities
School/ Institutions	Norms and standards to open and run institutions	Establishing schools of academic programs and running of programs	Establishing skill centers and running skill development activities
Exams	Norms and standards of exam procedures, certification, validation	Examination and certification in coordination with Federal level	Assessment and certification of skill testing
Skill Testing	NVQS and NVQF	Managing skill testing and certification for skill graduates	Managing skill testing activities
Research Development	Mega research, norms and standards	Medium size program level researches	Rapid assessment in the areas of skill testing
Monitoring and Evaluation	Monitoring and Evaluation framework and standards - policy level	Monitoring and evaluation framework and standards - program level	Monitoring and evaluation framework and standards - skill development level

learning and workplace-based learning. The composition of these components could be determined based on research and international best practices.

Children should be allowed to attend technical vocational education and training after completing their basic education and on the basis of certain criteria (for example, merits) and interests of students. Quota system must be introduced at secondary level - for general secondary education program and technical vocational education program. Increasing numbers of students should be motivated to enroll in technical vocational secondary education program by introducing incentivized schemes and other motivational initiatives. Technical vocational secondary schools are only allowed to run the technical vocational academic programs which are compatible with the focus areas or specialized areas and the areas identified or recognized by the government.

In addition to the above working policies, other major principles responsible for the re-

form are as follows:

1. Consensus on integrated and holistic vision: Skill development should not be limited to the jurisdiction of education ministry as this ministry alone cannot develop diverse skills. In addition to the public sector, market is also equally responsible for its development because skill development process and products are highly influenced by the market.

2. Focus on small and medium enterprises: Small and medium enterprises can be useful tools to boost up the rural economy as the majority of the people live in village and they are relying on agro-based economy. So, macro policies should aim to promote rural economy through providing incentives to establish and run small enterprises. Government should facilitate to regulate the supply chain i.e. managing to purchase the local production. Further linkage of skill development activities with locations are required where enterprises are established e.g. by allowing communities to run schools with the relevant program relation to the local economic activities. There should be a close tie up between local economic activities and skill development program offered by schools. Medium level enterprises should establish linkage with the technical higher education institution.

3. Investment in an integrated manner: Unpacking the model that is applied to reach the vision of the constitution-

Nepal to be made a socialist country. For it to happen, it is imperative to develop legal infrastructure, policies, program and budgets, and institutional mechanisms which would facilitate the model. Only privatization, marketization and globalization cannot work for all. They may increase disparities, pushing the poor and marginalized further into the periphery. Therefore, state interventions are required to provide incentives, which is only possible through economic policies. For socialism, we need economic policies that ensure basic services including education, health, food and shelter to all citizens.

4. Introduction of practical economic policy that promotes utilization of labor force within the country and seeks to encourage skilled workforce for decent jobs abroad. Creation of job within the country or in the rural areas, and village- economy-oriented economic policy especially focusing agro-based small and medium size enterprises and modernization of agriculture sector should be in place that prevent the people to go abroad for 3Ds jobs - dangerous, dirty and difficult.

Conclusions

Federalism is a process of power sharing among/between different levels of governments to govern the country to which the foundation is laid by the constitution. Education is one of the basic functions of every government and society; and the power and authority of the governments

under the federal structure depend upon the law as determined by the constitution.

In Nepal, the functions relating to school education are assigned to local level where higher education and universities are kept under the jurisdictions of the provincial and federal governments. This provision indicates that TVET belongs to the functions of the local governments. This does not mean that federal and provincial governments will not have any roles in school education because the federal government has the authority to formulate policies, norms and standards in TVET sub-sector. But, the role that the provinces can have in the provision of TVET needs to be further defined in a clear manner.

The experiences gained over the year by the TVET system itself, and practices from the international arena suggest that policies, norms and standards relating to curriculum, exam, certification, teacher development and licensing, certification and equivalence, and standards of polytechnics and institutions are the basic functions of the government of Nepal. And, local government will have the basic responsibility of managing and running the school education program, including skill development activities. By nature, many functions relating to the running of polytechnics, development of programs, conducting examination, skill testing functions should be kept under the jurisdiction of the provincial governments.

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Perception of Green Technology Among TVET Professional in Pakistan

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Abstract

Green technology concept is increasing in Pakistan. The objective of green technology is to make clean environment and sustain biodiversity. The increasing implication of sustainability is having a key impact on business industry and association, as well as society as a whole. Hence, readiness of the forthcoming workforce for the coming green economy is a challenging task for Technical Vocational Education and Training authorities in Pakistan. Hence, the objective of this research was to identify the perception of TVET professional in Pakistan. A sample of 30 TVET professional across Pakistan was randomly selected. The research identified that most of the TVET professional statement that their perception of green technology is relatively high, the use of green technology application is moderate. daily application of green technology in their lives is only moderate. Interestingly, in the open-ended section, TVET professionals were asked to state an example of a greening TVET, 35% of the respondents admitted that they do not know. Further, almost half of the respondents state that greening elements are included in different TVET programs curriculum.

Keywords: *TVET Professional, Green Technology, Greening TVET, Technology Acceptance Model*

Introduction

Changing skills demand at different level in industry due to green technology, TVET - Technical and Vocational Education and Training system has to develop greening TVET on priority basis. (Ramlee, 2019) discussed that with reducing natural

resources, the world is considering for viable alternatives in terms of generating renewable energy. Digital Pakistan" initiative is taken by the government that aimed to use green technology for country's social welfare, which further be enhance for achieving environmental sustainability over a time horizon (H.Ahmed et_al, 2020). United Nations report on Green Technological Transformation (Che In, F.; and Ahmad, A.Z., 2017) asserts that overall assessment on the countries' policy on the environment is critical.

To achieve green growth, it is important to ensure the low carbon green technologies (Stewart, 2011). To preserve eco-friendly quality, we need clean air, non-toxic water, renewable energy, stable climate, and green waste management. Forthcoming generation is imagining a better world for them and sustaining the mother earth must start with green responsiveness from the early age.

However, literature has shown that awareness of green practices and products among professionals and students are only moderate (Chin, C.; and Ng, Y.J., 2015). An online survey was conducted by (Susan K. Taylor, Heather Creec, 2012) in which 30 TVET administrator and teachers was the respondents. The 13% described themselves as having "no knowledge at all of the concept of education for sustainable development," and 50% said they had "heard of the concept, but have no detailed knowledge of it." Only 3% of respondents felt they knew the concept "very well". Thus, the objective of the research was to identify green technology perception among TVET professional in Pakistan.

Study background

In the context of epistemology of green skill, it is defined as the abilities to perform and solve problems in the green occupations. They include the mindset, knowledge, abilities, and attitudes that an individual possesses to live in, to work in, to develop and to support a sustainable and resource-efficiency environment (CEDEFOP, 2012).

The Rio Declaration and Kyoto Protocols are two protuberant declarations on the environment besides the Earth Charters. These world programs were designed to protect this planet from environmental harmful activities and to sustain balance development (Mustapha, R., & Nashir, I.M. 2019). The countries that signed in must show commitment to implement the declarations and protocols based on green paradigm. As such, green technology, green economy and green lifestyle are on the top priority list of the United Nations' agenda in order to sustain the mother earth and to reduce global warming.

Majumdar (2011) has proposed that a greening strategy by inserting green paradigm in Technical and Vocational Education and Training (TVET). TVET is a prime platform to provide technical workforce. He suggests "greening" TVET by introducing five components of institutional operations to extend sustainable development principles in TVET institutions. These five components are as follows:

- Green Culture
- Green Campus
- Green Curriculum
- Green Community
- Green Research and Technology

(R. Mustapha et_al, 2019) argued that in the green paradigm, issues relating to education and training should be viewed in the overall context of education for sustainable development. He suggests that the nurturing of green mindset is the upmost importance to spearhead green revolution. However, "green" education and training are constrained by several factors such as slow responsiveness of education and training institutions in creating futuristic curricula for green jobs. Therefore, improving green education and training in terms of intensifying green awareness, green knowledge and skills of the existing principal, trainers, instructor, and the future generation is critical.

Objective of the study

According to (Shoaib Sultan, M. Ajmal, and M. Farouq, 2016) that environmental awareness among teachers, school education, in Pakistan is very high. This is due to religion that also focuses on the importance of environmental education. Green skills are important especially for TVET professionals so that they could teach students about importance of green technologies and adopt best practices. In Pakistan, society actors may be preoccupied with the economic survival than to worry about environmental quality. It is often said that not-so-rich countries focus on the 'development' and

those of richer countries pay attention to the 'environment'. Hence, the ways to achieve 'sustainable development' remain ambiguous (Mustapha, R 2015).

According to United Nations (UN, 2013), the world population will reach 9.6 billion people by 2050, from 7.2 billion today. Thus, if the current modes of consumption continue, the resources of 'two' planet earths may be required to sustain the population in 2050.

The main objective of the study is to find out the perception of green technology among TVET professional of Pakistan. In this study, participants are randomly selected from different Technical Education and Vocational Training Authorities (TEVTAs) of Pakistan. Furthermore, use of green technology applications in TVET institutions are also find and finally identified the percentage of green elements incorporated in TVET programs curriculum.

Research questions

The following are the research questions formulated for this study.

1. What is the perception of green technology among the TVET professionals (Administrator, Trainers)?

2. What are the green technology use by the TVET professional to achieve the sustainability and safe the environment?

3. Do TVET professional adopt the recycling practices at workplace environment – attitude   s on the environment and practice of recycling waste?

4. Do they have idea of Greening TVET and implementing its five pillars in institutional context?

5. What are the suggestions would you like to give to other people in Pakistan related to green technology?

Research methodology

The Technological Acceptance Model – 1989 (Singh, B.R.; and Singh, O., 2012) is used. This prototypical clarifies about users' awareness on usability of a technology. The prototypical contains elements such as (a) perceived usefulness (PU) and (b) perceived ease-of-use (PEOU). This model is an extension to the theory of reasoned action (TRA) by Ajzen and Fishbein. This philosophy accepts some forms of meanings to act.

The instrument for data collection consisted of a structured questionnaire. The instrument has four sections 'I', 'II', and 'III'. The section "I" sought information about the rationale, study objectives, research questions, direction in answering and method. The section "II" is required information on personal data of the respondent such as name, gender, age, reporting agency and address. The section "III" contains questions to be addressed by the respondent.

The research methodology used in this research was a multiple site with multiple cases. A sample of 30 TVET professional from a population of 54 TVET Principal, teachers etc from different public TVET authorities of Pakistan was selected

randomly. A questionnaires was built based on the research objectives and the conceptual framework. The 5-point Likert scale questionnaire (1=Strongly Disagree; 2=Disagree; 3=Uncertain 4=Agree; 5=Strongly Agree) was validated by a expert in the ground and also in a pilot test. Green perception and practice of prospective TVET professional were measured in this empirical research.

Results

Demographics variables

In this section, demographics variables are defined. The total number of respondesnts are *(n= 30)*.
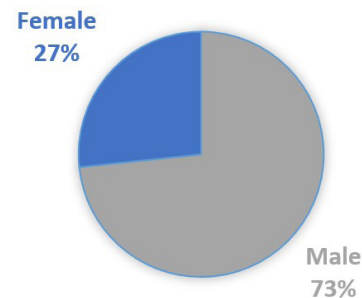

Figure 1: Demographic variables information

73% respondents are male and 27% are female respondents. In this research more male are selected from teaching side of TEVTAs in Pakistan. In terms of the age bracket, the majority of the respondents were between 31 – 40 years old.

Green technology perception

Reference to the perception of green technology (see Table 1), in general, the TVET professionals have positive

attitude toward green technology (M=4.46; SD=0.66). They strongly agreed that green technology was important (M=4.42; SD=0.68) and it could improve respondents value of life knowledge (M=4.43; SD=0.61). Respondents recognized that planting trees will help reduce greenhouse effect (M=4.53; SD=0.66) and it could inspire economic growing (M=4.33; SD=0.70).

perception in consuming green technology presented polarized responses as the means were attainment lower and the standard deviations were getting higher (see Table 2). The high standard deviations for utmost of the questions shows inconsistency of the responses.

The attitude of TVET professional is very important towards use and adaptation of

Table 1: Green technology perception

S.N.	Questions	Mean(M)	Std. Deviation (SD)
1	Importance of green technology	4.42	0.68
2	Trees plantation to reduce greenhouse effect	4.53	0.66
3	Green technology is beneficial for personal health	4.60	0.66
4	Economic growth will improve by adopting green technology	4.33	0.70
5	Awareness session to enhance knowledge of green technology	4.43	0.61
	Total Average:	4.46	0.66

Hypothetically, the respondents agreed that they have very high perception of green technology. Though, in practice, their

green technology in their lives. TVET professional attitudes on green technology and practices of waste recycling is illustrated in Table 3 and 4.

Table 2: Green Technology Usage

S.No	Questions	Mean(M)	Standard Deviation (SD)
6	I use green technology to create healthy environment	3.22	0.69
7	I use organic material to reduce usage of chemical in my daily life	3.05	1.10
8	I stop buying spray that contains CFC because CFC is harmful to the ozone layer.	3.10	0.99
9	I bought stuff that can be recycled or made from recycled materials.	3.53	0.86
10	I practice recycling in my home and workplace	3.97	1.05
Total Average:		3.37	0.93

Table 3: Environment

S.No	Questions	Mean(M)	Standard Deviation (SD)
11	I understand the green technology helps us to decrease global warming.	4.35	0.79
12	I develop a plan of green technology to be used in my future workplace	3.99	0.71
13	I plant seeds and trees in my workplace to protect the environment	4.30	0.74
14	I attend environmental movement to use green technology	3.53	0.72
Total Average:		4.04	0.74

As mentioned earlier, environment and recycle waste categories depict high average that reflect the positive attitudes of the TVET professionals towards saving the environment and recycling the wastes. In table 3 prove that respondents agreed that green technology will decrease the global warming *(M=4.35; 0.79)* and they planned to develop a green technology plan in future workplace *(M 3.99; 0.71)*. The idea of planted trees was strongly agreed by the respondents *(M 4.30; 0.74)* and lastly, attend the environmental movement *(M 3.53; 0.72)*.

Table 4 on recycling waste, the respondents claim that they used recycled papers *(M=3.99; SD=0.98)* and throw toxic materials properly *(M=3.80; SD=0.78)*. Further, TVET professional strongly agreed that they certainly not throw rubbish to the drains *(M=4.20; SD=0.62)* and used water carefully so that the water was not wasted *(M=4.40; SD=0.69)*.

At the end, the open-ended questions about greening TVET and suggestion for additional ideas to enhance the perception of

Table 4: Recycling Waste

S.No	Questions	Mean(M)	Standard Deviation (SD)
23	TVET professional practice recycled papers	3.99	0.98
24	TVET professional appropriately throw away toxic chemicals	3.80	0.78
25	TVET professional do not throw garbage into drain	4.20	0.62
26	I use water minimally in order not to waste this precious resource	4.40	0.69
Total Average:		4.09	0.76

green technology among TVET professional in Pakistan. Surprisingly, 80% provided greening TVET examples in institutional context such as replace of tube light to saver and one-fourth (25%) said that they are using renewable energy sources such as solar panel, using hybrid car, hydroponic. Others provide popular instances of environmentally friendly policies such as reusing, planting trees, use paper bags (other than plastics) but these are not essentially characterized as green technology. The respondents suggested methods to promote greater perception of green technology at their future workplace. The most unique idea was to conduct green skills competition among TVET professional.

Conclusion and Recommendations

In a nutshell, the sample comprised of TVET professional from different TVET authorities in Pakistan, mostly aged between 31 to 40 years old. In this study, there is no noteworthy differences were identified concerning their perceptions on green technology through demographic variables. The results provoke that continued use of green technology substantial decreases the usage of chemical in my daily life, whereas the demand of renewable energies is increasing in Pakistan. Respondents strongly agreed that green technology was essential and it could improve their quality of life. In the literature, it has been identified that 'development' and 'environment' could be two opposite sides of a currency. If a TEVT authority focus on development, it may cost the environment. If a country put high emphasis on development, it may 'sacrifice' the environment. Hence, United Nations document (2) advised that development and environment as two contraries, therefore it is more suitable to see them as complimentary and mutually supportive obligations. It is possible if the world decides to squeeze low-carbon, resource-efficient and to adopt green economic model.

Regarding, the practicing the green technology, the respondents provided polarized replies. Hence, it is important to nurture greening pillars for TVET professionals. Respondents consider that green technology will decrease global warming, if respondents decide to use green technology in their future workplace. Respondents planted trees but not very often join the environmental movements. Based on the findings of the research, we could conclude that green standards and thinking must be inculcate among TVET professional through Greening TVET concept. The five pillars of greening TVET must be put in workplace environment. The TEVTAs should also play pro-active role in adopting and implementing Greening TVET in their institutions.

Acknowledgement

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