ENVIRONMENTAL FACTORS CONTRIBUTING TO THE TRANSFER OF TRAINING AMONG THE INSTRUCTORS OF TECHNICAL EDUCATION IN NEPAL

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A Dissertation

Submitted to

School of Education

In Partial Fulfilment of the Requirements for Degree of Master of Philosophy in Education (Development Studies)

Kathmandu University

Dhulikhel, Nepal

October 2020

This dissertation entitled *Environmental Factors contributing to the Transfer of Training among the Instructors of Technical Education in Nepal* was presented by *Anup Bhurtel* on 02 October, 2020 and approved by

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DECLARATION

I hereby declare that this dissertation has not been submitted for candidature for any other degree.

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AN ABSTRACT OF THE DISSERTATION OF

Anup Bhurtel for the degree of *Master of Philosophy in Education* (Development Studies) presented on 02 October, 2020.

Title: *Environmental Factors contributing to the Transfer of Training among the Instructors of Technical Education in Nepal*

Abstract Approved

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Training as the planned intervention to enhance the knowledge, skills and attitude becomes meaningful only when the learning is transferred from training to the workplace. In this context, transfer of training is substantially affected by various work environmental factors. So, this study was conducted to explore the environmental factors that contribute to the transfer of training among the instructors of technical education in Nepal. It also investigated their perceived level of transfer, contribution of the explored factors on perceived training transfer and differences in perceived training transfer across various demographic characteristics of instructors.

Guided by post-positivism, this study adopted cross-sectional survey design. Delphi process was applied from the 13 carefully selected Delphi Experts that generated a scale of 40 statements of environmental factors. Similarly, from literature, a scale of seven items was developed to measure perceived training transfer. 251 respondents were selected as samples for survey from the population of 719 instructors who completed Instructional Skills related training from October 2018 to

December 2019. Using Exploratory Factor Analysis, out of 40, 29 statements were retained under six factors. They were named: i) Organizational Transfer Intervention, ii) External Monitoring and Evaluation, iii) Local School Governance, iv) Management Support, v) Social Support and vi) Workload. These factors represent both internal and external environmental forces.

The level of perceived training transfer was found to be high among the instructors. Meanwhile, Regression analyses showed that all six environmental factors, together and individually, have positive effect on perceived training transfer with large effect sizes and high statistical power. Using independent samples *t*-test and one-way ANOVA with Welch and Brown-Forsythe tests, it was found that perceived training transfer is higher in female respondents, in married respondents, in instructors from institutional schools/colleges and instructors having experience from five to 10 years in comparison to the new instructors. These differences were confirmed with low-medium effect size and high-medium level of statistical power. Altogether, the explored environmental factors and are represented by two major driving forces: i) Support and ii) Control.

This study has practical implications to educational institutions for role in promoting training transfer and to external evaluators in their roles ensuring transfer of learning in the classroom as well as to TVET policy makers to ensure transfer of training. Based on this study's findings, further studies can be expanded studying the explored factors using Confirmatory factor analysis to confirm a model, conduct longitudinal studies in similar contexts, explore trainee characteristics or training design-delivery related factors that affect training transfer, explore reasons for differences across demographic variables and such.

ACKNOWLEDGEMENTS

To my thesis supervisor Assoc. Prof. Prakash C. Bhattarai, PhD (Head of the Department): I am indebted to your scholarly support, motivation, insightful comments and feedback. I believe that if there is anything important one can give to the other, it is time and continuous support. Thank you for your time you managed to guide me academically, for correcting me and putting efforts in helping me complete this study.

To my father Mr. Mohan Prasad Bhurtel: I have always been grateful to you and I continue to be so even in my research for your continued support and encouragement. Moreover, I am whole-heartedly thankful to you for helping me with the English language and grammar editing of the research instrument and the research as a whole.

To my wife Ms. Menuka Sangroula: I am thankful to you for continuous pushing me to complete this research, for helping in household works so that I could concentrate on my research and of course, for your queries about my updates that always worked as an alarming bell.

To Mr. Sagar Mani Neupane: Researchers like us would surely be inspired to use quantitative approach if they have someone like you to show the right paths. Your guidance and suggestions not only helped me clear my doubts but also enhance the quality of my work.

To Mr. Nabaraj Simkhada, PhD: It was your very guest lecture on exploratory factor analysis that inspired me to delve into it and its application. I am grateful to you for your guidance in the analysis process that helped shape up my work and also for your positive energy exhibited through your relentless support.

To Mr. Suraj Paneru, PhD from University of Birmingham, United Kingdom: Your friendship indeed showed that distance is subjective. Thank you Suraj for staying in touch despite being thousands of miles apart, giving interests in my research, encouraging me and providing scholarly supports in my research.

To Assoc. Prof James Gaskin, PhD from Brigham Young University, United States of America: I am grateful to you for your support in the data analysis. Thank you for addressing my queries related to factor analysis and concerns of validity due to which I was able to proceed with more confidence.

To Mr. Ganesh Khatiwada: I am much obliged to you not just for all your administrative support to finalize this research, but also for your continuous reminder and making me alert about the consequences upon failure to complete the dissertation on time whenever we met near the reception or canteen. That really worked for me.

To the Delphi Experts: Your experiences and professional expertise helped me unearth the unexplored facts about my research and generate new knowledge that would hopefully be beneficial practically and academically. So, I am deeply thankful to you all for your time and contributions in the Delphi process.

To the team of TITI: Thank you for providing the data of respondents because of which this research was successfully completed. I am thankful for your kind cooperation and support during the data collection phase and other phase of research.

To Ms. Prativa Shrestha: Thank you for helping me out with preparation for the final defence. Moreover, your support and encouragement throughout this thesis made me believe that I can count on you and they built confidence in me to proceed further.

To Mr. Milan Shrestha: Thank you for addressing my queries and helping me with APA 7th edition formatting in this thesis. Your helpful nature has inspired me a lot.

To Mr. Anil Kumar Gupta: I am grateful to you for providing prompt guidance and support whenever needed. Thank you for being so helpful and supportive in the analysis of regression models.

To Mr. Raju Moktan: Thank you for every support and helping me in the refinement of the survey tool. Our journey of thesis writing commenced together and sharing about updates always worked as a source of motivation to me.

To Mr. Sandeep Yadav from Library: Not everything needs to be explicitly stated. Letting me continue with my work seeing occupied in writing even when the library hours were over did boost up my morale to speed up my work. Further, healthy research related talks with you were always helpful to me.

To family and friends: Sometimes, small talks amongst family members and friends motivate to carry on and be a reminder that I have still much work to do. Therefore, I am thankful to my family and friends for your encouragement and questions about my progress.

Anup Bhurtel, Degree Candidate

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CTEVT	Council for Technical Education and Vocational Training
DV	Dependent Variable
EFA	Exploratory Factor Analysis
IS	Instructional Skills
IV	Independent Variable
KSA	Knowledge, Skills and Attitude
LSG	Local School Governance
LTSI	Learning Transfer System Inventory
M&E	Monitoring and Evaluation
MoE	Ministry of Education
MoEST	Ministry of Education, Science and Technology
MS	Management Support
NLC	Nepal Law Commission
OTI	Organizational Transfer Intervention
PTT	Perceived Training Transfer
SPSS	Statistical Package for the Social Science
SS	Social Support
SSDP	School Sector Development Plan
SSRP	School Sector Reform Plan
STR	Student Teacher Ratio
TEVT	Technical Education and Vocational Training Policy
TITI	Training Institute for Technical Instruction

ToT	Training of Trainers
TVET	Technical Vocational Education and Training

CHAPTER I

INTRODUCTION

Training is linked with improvement of employee performance and ultimately the organizational results, but the meaningfulness of training is observed only when the learning is transferred from training to the workplace. However, training is not transferred as expected since it is affected by various factors including those of work environment. Still, little is known about the level of training transfer and environmental factors that contribute to the transfer of training among the instructors of technical education in Nepal. Also, knowledge on the effects of these factors on transfer of training and the differences in transfer across various demographic variables are shadowed and these have remained as the central concern of this research. In this chapter, the context of the study has been discussed focusing on training transfer. Addressing the statement of the problem in technical education of Nepal, the research purpose and research questions have been presented. This chapter discusses the rationale and significance of this study as well. With a study delimitation explained, this introductory chapter then concludes with the organization of the whole research.

Study Context

Effective training transfer has been posited to equip the workforce with enhanced productivity, quality of work, efficiency, teamwork, accuracy and ultimately competitive advantages in the market (Salas et al., 2006). Highly skilled and committed workforces are considered as the solutions to many organizational and environmental challenges. Training not just ensures employee competencies, but also helps in improving the level and practice of safety in the organization. In the absence

of such skilled, or trained workforce, organizations fall at the risk of a great loss. Training has thus been placed with utmost importance in organizations. Practitioners even refer organizational training as one of the strategic forces that work to raise competitiveness (Nikandrou et al., 2009). As the result of desired development in affective, cognitive and behavioural abilities of employees and organizational competency consecutively, a substantial portion of their payroll costs are thus spent in training and development (Knyphausen-Aufseb et al., 2009; Salas & Stagl, 2009). The fruitfulness of these investments in organizational training can, however, only be realized if the learning from the training can be transferred back on the job and the learning can be retained overtime. Rouiller and Goldstein (1993) had long before concluded that transfer of training holds as much importance as does the training itself. Therefore, training alone is of no or less value if one cannot apply what was learned in the training in the workplace (Holton et al., 1997).

Despite the prevalence of substantial investments in training, the transfer of training has remained a critical issue in an organization due to low level of transfer of learning from the training back to their job place. Some studies across time have revealed noticeably miserable transfer rate of below 20 percent (Baldwin & Ford, 1988; Burke & Baldwin, 1999; Knyphausen-Aufseb et al., 2008 as cited in Tonhauser & Buker, 2016) while other studies have confirmed comparatively higher transfer rate but also have revealed that the transfer of training declines over time (Saks, 2002; Saks & Belcourt, 2006). Much of the resources spent on training with the expectations of its transfer are often wasted. As the result, the investments made by the organizations fail to produce expected results inclining the concern of training transfer to its crux (Burke & Hutchins, 2007). The transfer does not occur as expected due to

the dependent attribute of training. There are several factors that affect training transfer depending upon the contexts.

Studies (Baldwin and Ford, 1988; Bates et al., 2000; Lim, 2000) have identified and confirmed that the transfer of training is affected by three broad constructs viz. trainee characteristics, training design and work environment. These constructs have been generalized and consolidated based on numerous studies across time (Blume et al., 2010; Grossman & Salas, 2011; Tonhauser & Buker, 2016). Among the three, work environment characterizes the organizational level factors which constitute various elements within the workplace of the trainees. There are several factors of work environment that either support or inhibit the transfer of training such as support from supervisor, peer support, opportunity to perform, follow-up and such (Ford et al., 2018; Grossman & Salas, 2011). These factors of work environment can be significant in a particular situation while they may be insignificant in another. The transfer of training is thus contextual and the extent to which the constructs (or factors) of 'work environment' affect the training differs across studies. The transfer of training and environmental factors of workplace affecting it are contextual in Nepal as well but only a little has been explored yet, especially in the sector of Technical Vocational Education and Training (TVET) instruction in Nepal.

Problem Statement

There have only been a handful of studies in Nepal that reveal the level of training transfer and the factors that affect the transfer. Thapa (2012) presents teacher training in Nepal failed in bringing out realization of teachers' job of planning and organizing which implies low level of performance change after the training. The author found out that lack of proper planning as well as preparation, limitations of

time factor, use of excess number of techniques that confuse the participants, lack of subject matter expertise and inadequate time for practice as the inhibiting reasons for low transfer. Singh's (2017) study in public enterprises illuminates positive effect of some elements such as motivation to transfer and perceived content validity while non-significant effect of self-efficacy. These studies, however, were confined to individual and training level only.

Subedi (2008) exhibits medium level of training transfer in the organizations of Nepal in civil and corporate sector. The study confirmed 56.89 percent transfer in which the transfer rate in corporate sector higher than that in civil sector. The author explored trainee related factors as the most influential factor of training transfer while some elements of workplace related factor and training design and delivery related factors as positively influential. Similarly, Subedi (2006), in his study in civil and corporate sector, showed that cultural factors and beliefs in Nepal might influence the transfer of training. He presented that in the perspectives of civil and corporate sectors, performance improvement need was of the greatest value for training. Yet, the study cannot be replicated in TVET or even education sector. Moreover, this study only covers limited factors of the environment and in the current research contexts, there are wider number of factors that have been substantiated across time (Blume et al., 2010; Tonhauser & Buker, 2016).

A review on School Sector Reform Plan (SSRP) of Ministry of Education[1] (MoE) – Government of Nepal from 2009 to 2016 was carried out which revealed some facts about trainings provided during the implementation of SSRP. For the teacher trainings given on content and methods, the learning methods were not

[1] Ministry of Education is now Ministry of Education, Science and Technology (MoEST)

transferred to the classroom (Poyck et al., 2016). The study, however, did not indicate the level of transfer and the causes thereof. Also, the results were not indicative of the transfer results of TVET instructors. Similarly, a relevant study by Koirala et al. (2016) carried out on the trainings of trainers (ToTs) in Nepal in TVET instruction explored satisfaction towards to the instruction related trainings received by TVET instructors, but did not explain the factors affecting it or level of transfer by those instructors. These discussions suggest an absolute dearth of research in TVET instruction which is also supported by Jayalath (2018) who found that one of the common issues faced in South Asian countries is related to lack of training of trainer or such trained teachers. So, there is much to explore on the level of training transfer among the TVET instructors engaged in technical education in Nepal. Further, there is a strong need for a comprehensive and updated research to identify the environmental factors at the workplace that actually contribute to the transfer of training in instruction in technical education. Hence, this research aims to bridge these research gaps.

Purpose of the Study

The main purpose of this study was to explore the environmental factors that contribute to the transfer of training among instructors of technical education in Nepal along with the extent to which these factors affect the transfer, their level of perceived training transfer, and whether or not the perceived training transfer differs across their demographic variables.

Research Questions

The research questions set, principally guided by the research purpose, have been set as follows:

1. Which environmental factors contribute to the transfer of training among the instructors of technical education in Nepal?
2. What is the level of perceived training transfer among the instructors of technical education in Nepal?
3. To what extent do the identified environmental factors contribute to the perceived transfer of training in instructors in Nepal?
4. Does the perceived training transfer differ across personal characteristics (Gender, Age Group, Ethnicity, Marital Status, Family Type and Family Size) and professional characteristics (Locale of the Institution, Type of institution, Type of Service, Experience in Instruction) of instructors?

Rationale of the Study

Instructors from public/constituent as well as institutional schools and colleges offering technical subjects across the country take instructional skills-based trainings with the purpose of enhancing their instructional or pedagogical skills required in their respective classrooms, laboratory or workshop (classroom hereafter). Yet, how much of learning has been transferred from the training to the work place has been underexplored. The trainings are conducted with the expectation that the learning from training will be transferred to the workplace as in ideal situation which does not show coherence with the past literature (Kontoghiorghes, 2004). This research thus gains its rationale as it aims to explore what level of transfer has occurred among the instructors of Nepal as perceived by them.

Though the work environment has been well acknowledged as an important construct (Baldwin & Ford, 1988), all of its factors may not affect the transfer in all the studies. For instance, Chiaburu and Marinova (2005) explored that supervisory support under work environment has significant effect on the training. On the

contrary, Bates et al. (2000) revealed weak value of the same factor in the transfer of training. Interestingly, Chiaburu & Tekleab (2005) confirmed non-significant relationship between supervisory support and transfer of training at all. There are inconsistencies in findings of environmental factors in relation to training transfer. As discussed in the problem statement, the effect of each variable is yet to be analysed in TVET instruction of Nepal and there can be unexplored environmental factors affecting training transfer that need to be explored alongside. Similarly, perceived training transfer may differ across various personal and professional characteristic features. The level of transfer may differ across the type of institution, service type, locale of the institution and such. This kind of knowledge would be a new landmark for training providers as well as for the respective employers. Hence, this research gains further justification as it intends to identify and/or explore those environmental factors that actually affect the training transfer in TVET instruction in Nepal, the extent to which these factors affect the transfer process as well as the difference in level of transfer across personal and professional characteristics of instructors.

Significance of the Study

This study holds its significance at different levels in which the first is at individual level. In the competitive professional fields, every individual seeks to upgrade themselves to cope with the pace of changes (Veillard, 2012). The results based on this study helps analyse the extent to which the transfer is made and the environmental factors that hinder in their transfer despite their positive attributes such as strong motivation. Secondly, the training providers would be benefitted. This study helps reveal the environmental factors that are instrumental to enhance quality in schools or colleges offering technical education. This can be a guide to the training providers to redesign the training programmes accordingly. The revealed level of

transfer can help draw their attention on how much have their efforts been materialized on ways to improving that extant training designs as explained by Kirkpatrick and Kirkpatrick (2006). United Nations Development Program (2016), in their review of Nepal's Technical Education and Vocational Training (TEVT) policy 2012, stresses that the policy reform should ensure involvement of industries and relevant partners at different levels including the training and curriculum design, delivery and assessment. In this regard, the findings of this study can also help the training providers to design work environment-based training and it helps even the stakeholders in the policy reform process.

Likewise, this study holds special importance to the actors of TVET sector. Council for Technical Education and Vocational Training (CTEVT) - a national autonomous apex body of TVET sector in Nepal under Ministry of Education Science and Technology Nepal (MoEST) and MoEST itself have major contributions and investments to human resource development. Besides, Non-Government Organizations (NGOs), International NGOs and different other organizations also invest in capacity building of technical and vocational instructors as per their projects. In most cases, substantial amount of funding is used on training programmes with the purpose of improving teachers' performance, and ultimately the performance of their institutions to strengthening TVET instruction in Nepal. Based on the findings of the level of perceived training transfer among the instructors, training sponsors can plan on how much and in which trainings to invest. Beside this, it also helps on making decisions in relation to various personal and professional characteristics such as school's locale or type and type of service and so forth as one of the findings of this study.

With the exploration of the environmental factors that work as the key players in contributing to the training transfer, major TVET actors can make necessary decisions so as to foster the level of training transfer. Previously unexplored environmental factors can draw attention of policy makers. Tannenbaum and Yukl (1992) argue that having the information of the factors that significantly affect the training transfer would help the experts and stakeholders analyse why and how the training works or does not work. So, to the policy makers, it serves as the basis for important decisions to make suitable strategies on how to make the trainings work in their actual job.

Delimitations

To make the research specific, a few delimitations have been set based on which the research has been completed. This study was carried out amongst the instructors of technical education in Nepal. In this respect, the scope of the study was delimited to the instructors teaching in technical education up to Bachelor's level only. So, this study has included instructors engaged in technical education programme of Pre-Diploma level (Former Technical School Leaving Certificate abbreviated as TSLC), Diploma level, technical education programmes in secondary and higher-secondary level conducted by community schools both under CTEVT and Nepal Government as well as Bachelor's level under different universities. It is important to note, in this study, that TVET instruction relates to instruction in technical education (used interchangeably) and instructors represent those instructors working as instructors, assistant instructors, coordinators or alike who have been teaching subjects related to technical education in Nepal after taking instructional skills related training.

In this research, environmental factors mean work environment and not the environment of training hall. This study was delimited to the work environmental factors and external environmental factors influencing workplace. Similarly, the study was delimited to training related to instructional skills (IS) that includes IS series and Training of Trainers.

Organization of the Dissertation

This dissertation is organized into seven chapters. Chapter I is all about the introduction of the entire study. In chapter II, the review of extant literature and a theoretical framework have been presented. Sequentially, chapter III incorporates research methodology explaining how the research has been carried out. In chapter IV, V and VI, the results of the quantitative analysis have been presented in which the data of demographic variables have been discussed in chapter IV. The explored factors have been presented and discussed in the same chapter. In chapter V, the level of perceived transfer, association of environmental factors with perceived training transfer and the effect of the factors (together and individually) in perceived training transfer have been assessed. Chapter VI discusses the perceived training transfer across different demographic characteristics of instructors. In chapter VII, key findings of the study have been presented. Based on these findings, discussions have been made on the grounds of extant literature and theory. Chapter VIII, which is the last chapter, includes summary, conclusions and practical and research implications. The dissertation ends with arranged references followed by Annexes.

CHAPTER II

LITERATURE REVIEW

This chapter initially explains the concept and scope of training. Then it discusses important studies on the transfer of training followed by an in-depth review of environmental factors that affect the transfer, both in global and local context. With the thematic literature review based on empirical researches, meta-analytic papers and other review papers, the effects of the components of work environment in the transfer process have been identified which is the highlight of this chapter. In the latter part of this chapter, relevant theoretical lens to perceived training transfer, review on relevant policies of Nepal as well as inconsistencies in the extant literature have been brought into limelight. The chapter then concludes with a theoretical framework.

Concept of Training: Commonalities among Differences in Understandings

Training, identified as a common intervention of filling the performance gap is widely acknowledged as one of the important functions of human resource management. Though different authors conceptualize training in different ways, there are some common features of training in their explanations. According to Salas et al. (2006), training is defined as acquisition of knowledge, skills and attitude (KSA) in a systematic way to improve employee performance. Here, the authors stress on systematic learning and gain of KSA for improvement of trainees' performance at work. Similarly, Chiaburu and Marinova (2005) define training as a planned intervention intended to improve the factors that determine employee performance. Even in this definition, training is explained as an activity of intervention in a planned way to improve employee's performance, and the key to this achievement is through

enhancement of KSA. On the other hand, as per the view of Smith et al. (2008), training is the prime way of standing out in the competition through the updating of employees' knowledge skills and attitude. They explain training as a way of bringing cognitive and behavioural changes that are permanent in nature and are reflected in action through updating of KSA of employees. Here, the focus is on long term change in trainees (employees) and their development through gain in KSA only. So, as common understanding among different definitions, it can be inferred that training is a systematically conducted activity or a set of activities to enhance KSA of individuals thereby bringing long term changes in them with the purpose of improving their performance and consecutively meeting the organizational goals.

Scope of Training: Expanding from Individual to National Level

While linking the strategies to develop competent human resources, the role of training has been extensively documented (Coultas et al., 2012; Salas & Stagl, 2009; Swanson, 1995). Dean et al. (1996) identify training as the strategy to solve the issues of human performance. Training facilitates acceleration in learning. It enhances the capacity of individuals through acquirement and improvement of their psychomotor skills and cognitive skills. It fosters the practices of creativity and innovation in small enterprises (Dessie & Ademe, 2017) and emphasizes their importance in businesses and works (Sarri et al., 2010). Further, Roffe (1999) cites various contributions of training in their review such as enhancement of leadership skills of managers (Senge, 1994), skills of proper communications and team building (Nonaka & Techeuchi, 1995) and even general management skills (Morgan, 1991). It is thus clear that training provides knowledge, helps learn positive attitude, and builds or enhances several hard and soft skills required to bring radical changes in their performances.

Training is thus primarily focused on individual improvement, but the scope of training expands beyond individual level.

Based on these positive performance changes, the organizational improvements are achieved. Armstrong (2014) justifies the need of training to meet organizational objectives explaining that employees are required to perform the specialized and complex jobs for which they should be equipped with different skills and make self-learning. The author adds that there are certain skills which cannot be acquired through self-learning and often, KSAs to be acquired are common to a whole cluster of employees. Training, thus, becomes the only appropriate strategy in such organizational contexts. Training in some instances has also been acknowledged for replacing traditional practices with modern ones and been envisioned to achieve continuous quality improvement and the goals of the total quality management (Kathiravan et al., 2006).

Training and development not just hold importance to individuals and the organizations, it is also taken as the macro strategy to fulfil human capital deficiencies. In recent years, training and training-related-interventions have been highlighted as the mechanism to overcome the stiff competition in the outside environment through performance improvement and acquirement of competencies (Park et al., 2016). In many cases, due to immediate requirement to meet market demands, trainings stand out as more viable option than relying on experiences and existing practices (Armstrong, 2014). Training has been one of the key sources of minimizing performance related human deficiencies, bringing out innovations, creativity, improving effectiveness and efficiency which eventually strengthens the capacity of the organization to meet organizational goals. In some instances, training

outperforms the competitors. In this regard, the scope of training widens from individual to national level.

Scope of Training in TVET

The wide scope of training as explained above also applies to TVET sector for instructors. The ultimate goal of the training is to improve organizational performance. In this case, organizational performance refers to better results of the students and consequently the production of skilled and competent graduates that can serve the self-employment and labour market and which then contributes to achieving quality in TVET (Inter-Agency Working Group on TVET Indicators, 2014). Trained teachers with their competence and motivation are the key to better teaching and learning. They are termed as agents of the change and knowledge society (Majumdar, 2011). However, many challenges are ahead to make the learning real and relevant to the learners especially in developing countries. First, in the situation where TVET employees and teachers are scarce in number (Siriwardene & Quresi, 2009), teacher training is not taken as compulsion meaning due to which many of them are untrained (Euler, 2018). Second, according to Euler, TVET teachers need not possess industrial or job market experiences. As they get enrolled in teaching profession straight from schools or universities and thus lack professional experiences; therefore, there is complex and increasing demand of high quality TVET professionals such as teachers and instructors (Rawkins, 2018).

Acknowledging the findings from extant literature, it is deemed necessary to integrate the claim of Machado and Cury (2009) in this chapter that training for TVET teachers is imperative to meet the objectives of education. In Asia and Pacific region, training of TVET teachers have remained in the national priority (Chinien et al., 2009). Thus, the scope of training in TVET instruction expands from enhancing

instructors' performance to improving education quality and improving competence of graduates.

Transfer of Training: The Key to Meaningfulness of Training

Amidst the acknowledgements on the role of training at various levels, the transfer of training becomes equally instrumental since without transfer, the essence of training intervention in itself becomes inconsequential. Therefore, as much as researches on significance of human capital (Bontis, 2001) and their development through training (Broad, 2005; Conger & Pearce, 2009) have been published, there have also been numerous studies conducted on the transfer of training and different factors affecting it (Blume et al., 2010; Cheng & Hampson, 2008; Grossman & Salas, 2011). Before discussing on the environmental factors affecting training transfer, this section explains the meaning of transfer of training.

Newstrom (1984 as cited in Baldwin & Ford, 1988) explains that training transfer is the extent to which trainees apply the knowledge, skills and attitude acquired from training back on their job. Baldwin and Ford (1988) put forward the notion of transfer of training as the generalization of learned behaviour which are knowledge, skills and attitude (KSA) and its maintenance on the job across time. They explain that training transfer is the condition when the learned behaviour of trainees is generalized in the workplace and maintained for a given time period in the workplace. Hence, these definitions help to generate an understanding that training transfer is the degree to which the learning from training is applied, generalized and maintained over time there. This concept of training transfer was also explained by Ford and Weissbein (1997) supporting the earlier definitions. Further to this, literatures have also given emphasis on 'intended' use of learned knowledge which should be back on the job only (Kirwan, 2009; Olsen, 1998). This explains that the

trainees must first apply the KSA from the training in their respective work context purposefully, generalize that learning as well as retain it over time that would then reflect on changed behaviour.

The above conceptual clarification of training transfer still prevails in the context of training and development but still different literatures have attempted to contribute to the clarification of its concept overtime. Salas et al. (2006) define transfer of training as the systematic gaining of KSA that collectively and consequently improves the employee performance within certain work environment. With this, it can be interpreted that training as a planned intervention should bring about improvement in behaviour for transfer to occur. Latterly, Park et al. (2016) stated training transfer to be a multiphasic process and claimed influential variables interact simultaneously rather than in a sequence. A review on training transfer also elucidates training transfer as a complex and often producing elusive result (Ford et al., 2018). Training transfer thus entails the process of intended application of acquired KSA back in the job along with the generalization and maintenance of learning for improved performance and is a complex phenomenon involving factors simultaneously influencing each other in a nexus.

In the discourse of transfer of training, early studies by Baldwin and Ford (1988) and Noe (1986) serve as a strong basis of practitioners and researchers for further investigations of transfer of training (Cheng & Hampson, 2008). Earlier work of Baldwin and Ford (1988) helps comprehend that three training inputs affects training outputs and ultimately conditions of transfer viz. generalization and maintenance which are trainee characteristics, training design and work environment. These three input dimensions have then been confirmed by Ford and Weisben (1997) and have then been substantiated and used in most of the research works (Bhatti &

Kaur, 2010; Burke & Hutchins, 2007; Tonhauser & Buker, 2016). Among the three, trainee characteristics falls under individual level; training design and delivery falls under learning field level and work environment falls under the organizational level (Tonhauser & Buker, 2016). The subsequent section delves into environmental factors among the three factors that contribute to the transfer of training.

Environmental Factors affecting Transfer of Training

Work environment represents the environment or the setting in which the employee works after taking the training. Burke and Hutchins (2008) explain that work environment is any influence(s) on training transfer which occurs externally beyond the training intervention. While in some studies, components of trainee characteristics (Nikandrou et al., 2009; Velada et al., 2007) and training design, typically training features and training relevance (Renta-Davids et al., 2014) have been identified as more dominant in the transfer process, Seyler et al. (1998) reveal work environmental variables as one of the most influential variables in causing deviance in expected training transfer. Rummler and Brache (1995 as cited in Burke & Hutchins, 2007) also argue that considerable amount of issues stem from work environment causes. Workplace environment thus illustrates a dispositional function in determining the extent to which motivation to learn occurs, training outcomes are achieved and learning from training gets transferred back to the job. To add to this, strategies employed in work environment were most frequently identified by professionals in supporting the transfer of training (Burke & Hutchins, 2008). Therefore, the environmental factors have remained the crux concern of this study and here, previously identified influential variables that come under the work environment are discussed.

Several factors within environment work independently or in conjunction with other factors that influence the transfer of training. In their second version of the validated instrument entitled ‘Learning Transfer System Inventory’ with 16 factors, Holton et al. (2000) identified various factors of work environment as well viz. Supervisor support, supervisor sanction, peer support, performance coaching, resistance to change and such which measure work environment. These factors have then been confirmed in revised LTSI (Bates et al., 2012). Yet, a few other factors measuring work environment can also be observed in other researches. Grossman and Salas (2011) explain that work environment essentially incorporates transfer climate, professional and social support from supervisors and peers, opportunity to practice, perform, or apply acquired knowledge and skills and follow ups. Similarly, Tonhauser and Buker (2016) explore commitment, organizational cultures such as quality driven culture, learning culture, variability in job assignments further the former authors’ discussions.

In the course of this discussion, Lim (2000) categorizes work environment under work system related factors and people related factors. The authors cited past studies to come up with availability of resources, change resistance climate, opportunity to use training and such factors come under work system-related factors and factors such as availability of supervisor, supervisor and peer support which are human-related and therefore are to appear under people related factors. This has been further acknowledged by Lim and Morris (2006). Tonhauser and Buker (2016) also explain two empirically studied transfer determinants under work environment viz. i) social support and ii) structural and organizational circumstances in the workplace.

Social factors in the workplace include influences from seniors, colleagues and juniors and even management of the organization (Baldwin & Ford, 1988; Noe &

Schmitt, 1986). It also constitutes the feedback from the social beings that surrounds or influences the behaviour of the trainee also. It is one of those constructs that has received much research attention (Kontoghiorghes, 2004; Simosi, 2012) and also that has demonstrated favourable results in most cases (Clarke, 2002). On the other hand, structural or system related factors include those factors which count under the organizational system. It has also been identified as work system factors in some literature (Lim & Johnson, 2002; Lim & Morris, 2006). Further, Lim and Morris highlight that these factors include opportunity for applying the learning, goal similarity in different organizational levels, pace of work, resources availability as well as climate. Similarly, focus of the system i.e. performance or people (Simosi, 2012), organizational learning culture (Martin, 2010), risk taking and quality-oriented culture (Kontoghiorges, 2004) have also been claimed to come under this sub-dimension. The environmental factors identified and confirmed to be influential in the training transfer in the extant literature are discussed below that come under social or structural factors.

Supervisor Support

Under the entire constructs of work environment, supervisory support was found to be one of the factors influencing training transfer (Blume et al., 2010). According to Holton et al. (2000), supervisor support is the degree to which seniors in the supervisory or managerial positions support and reinforce application of training back in the workplace. Hence, it can be ascertained that supervisors should provide reinforcement to the employee to perform as learned in the training. Similarly, Russ-Eft (2002) states that supervisor support involves activities such as working with subordinates to set goals to transfer the learning of the training on the job, assisting and reinforcing them in the process as well as modelling the training behaviours to

them. Supervisor support can be in the form of encouragements (Kontoghiorghes, 2001; Tannenbaum & Yukl, 1992), and sharing information, giving feedback and credits for performance, acknowledgments, provision of rewards and resources (Awoniyi et al., 2002). Connecting to these constituents, Enos et al. (2003) state supervisor's support includes verbal rewards and assistance. Literature suggests that supervisor support can be in many forms that can include monetary motivation as well as moral supports.

Supervisor's support has remained in the centre of attention in researches related to work environment, precisely social support. It has been shown to be influential in numerous studies as well (Baldwin & Ford, 1988; Holton, et al., 2000; Chauhan et al., 2017). Bhatti et al. (2013) conducted research on 503 employees of 11 Malaysian banks with 46 branches, selected through systematic random sampling and analysed the data through confirmatory factor analysis using Structural Equation Modelling. Their results showed that supervisor's support predicted training transfer through motivation to transfer. One of their stated hypotheses that transfer motivation mediates the relationship between supervisory support and training transfer was supported in their study. Similarly, in a survey using self-report questionnaire conducted on 149 employees of an organization in the power transmission industry in India, Chauhan et al. (2017) found that training design predicted training transfer in which the relationship was moderated by supervisor support. They further discussed that supervisor's support can counter even a poor transfer design. But on the opposite, their discouragement can also affect the transfer in spite of a strong training design. Similarly, Lim and Johnson (2002) revealed that supervisor's participation to discuss on acquired knowledge and skills, engagement or familiarization with the training and positive feedback to be the most significant factors than other factors at individual

level. Lim and Johnson also found that lack of encouraging mentors or negative feedback from supervisor inhibited trainees' transfer.

The role of supervisor support has also been assessed on the basis of time viz. pre, during and post-training phases (Ghosh et al., 2015). Tannenbaum and Yukl (1992) explain that the support can be given prior to training by setting training goals, giving preparation time and showing inspirations. During the training, supervisors can show interest, help find information and relate learning to their work and assignments. The support after the course completion holds an immense value. In post-training environment, supports can be in the form of reinforcing the application of learning, setting meaningful goals, modelling trained behaviours and asking for a report or to take an assessment. Similarly, lack of supervisor or discouragement (supervisor sanction) can inhibit training transfer. Based on the reviews, the authors also argued that support in the three phases increases their motivation to transfer though they could not claim that that motivation could lead to the actual transfer of training.

A case study approach using cross-sectional design as one of the five research designs (Bryman, 2016) was used by Lancaster et al. (2013) and they assessed the behaviours that would either inhibit or encourage transfer of training using NVivo software. 24 purposefully selected participants of a leadership course with voluntary participation were interviewed. The study revealed that supportive behaviours of supervisors were helpful to increase the transfer of training in which motivating, and setting goals before training, practical support during training and meetings conducted after trainings were much highlighted. The participants in their study also perceived culture, absence of encouragement and policies to constrain the transfer.

Ample researches have acknowledged the support of supervisors to be promisingly instrumental in the transfer process but the findings of a few other

studies, researchers have shown opposing results too. To begin with, a survey by Facteau et al. (1995) on 967 supervisory and managerial level employees of south-eastern state government of United States explored that though supervisory support had positive association with pre-training motivation, it had negative relationship with perceived training transfer. The authors used 10 item scale and a latent variable model for hypothesis testing which generated results that authors referred to as 'unexpected'. These results drew the attention of several authors in the past decades (Bhatti et al., 2013; Chiaburu & Marinova, 2005; Clarke, 2002). Similarly, analysis of 186 data by Chiaburu and Marinova (2005) which were collected from the individuals of USA who had attended a one-day corporate information program within three months showed that supervisor support was not related to both proximal or distal training outcomes. They found that the support of supervisor had no significant association with pre-training motivation and skill transfer.

There were other studies which did not find any evidence of supervisory encouragement to predict training transfer (Awoniyi et al., 2002; Van der Klink et al, 2001; Velada et al., 2007). Enos et al. (2003) drew a sample of 188 managers from a large subsidiary in New England who participated in the employer-funded training programmes on leadership to assess the association between perceived transfer climate and perceived transfer of learning. They used a single self-report questionnaire and presented transfer climate factors to be consisting of supervisor support, peer support and organizational support. The study confirmed that the role of perceptions of transfer climate which (for supervisor support, $r = 0.11$) has minimal, non-significant association to the extent to which they transferred the acquired skills to their work. More to this, their findings showed moderate negative relationships with informal learning. In another study, Van der Klink et al. (2001) carried out a

study in two banking sector employees (desk clerks) in: i) a German bank, and ii) a Dutch International banking organization. In their study settings, the supervisory support was insignificant. They rather concluded supervisory support activities as superficial based on the results derived from their study. With more researches producing more deviated results that suggest a need to reconfirm its role in training transfer in this study context in Nepal.

Feedback in Work Environment

This review identifies 'feedback' as independent factor within work environment which holds different meaning than the feedback provided during training (under training design and delivery). Even though the way supervisors give feedback has been declared to be what forms supervisor support, the dimension 'feedback' has a different sphere in itself. Feedback given in the work environment on their actual performance was also recognized to contribute to transfer climate (Holton et al., 2000). Feedback in the work environment has thus gained research attentions and is shown separately in a simplified model of transfer of training within the sub-dimension of social support (Velada et al., 2007). It can be assessed in terms of its i) helpfulness, ii) sign, iii) frequency and iv) source. Helpfulness indicates the extent to which feedback is helpful to the learner. Sign is mostly studied in dichotomous values viz. positive and negative in which positive feedback means performance is desirable and negative feedback means the behaviour is unfavourable. Frequency means the amount of feedback given and feedback given recurrently, and source refers to the party from where the feedback evolves. Credibility, expertise and trustworthiness in feedback giver also affect the perception of the feedback receiver (Becker & Klimoski, 1989; Kluger & Denisi, 1996).

Feedback can be given by supervisors, or peers (Van den Bossche et al., 2010) or management (Holton et al., 2000). Van den Bossche et al. (2010) conducted a study on 35 academic staff members in a faculty in the Netherlands with four hypotheses related to above discussed components. It showed that sources (number of people giving feedback) and perception of helpfulness of feedback were influential in the transfer of training. In contrast, there was a negative relation of frequency of feedback with training transfer. Using Learning Transfer System Inventory (LTSI) of Holton et al. (2000), Velada et al. (2007) completed a survey on 336 employees from nine grocery market companies in Portugal. Of them, 182 data were taken into consideration. Using factor analysis, the notion of feedback on performance at work environment was termed ‘performance feedback’. Through hierarchical regression, it was then confirmed that only performance feedback significantly contributed to the transfer of training among other independent variables such as transfer design, supervisor support and such. Feedback can be stated to form an important factor with social support.

Peer Support

The focus of most of the studies have remained on supervisory support or sanction with the aspect of support or social factors, yet many studies (Blume et al., 2000; Chiaburu et al. 2010; Colquitt et al., 2000) have confirmed notable roles of peer support in promoting the transfer of training. For instance, Colquitt et al. (2000) in their meta-analysis produced a corrected association with training transfer with a value of 0.84 which indicates that these two variables exert strong positive relation with each other. Chiaburu and Marinova (2005) also observed that peer support has strong correlation with the skills transfer. The authors used structural equation modelling for which they adopted two scale items on peer support from Noe and

Schmitt (1986) to explore that relation of peer support with skill transfer was even stronger than goal orientations and it contributed to the transfer of training more than pre-training self-efficacy.

Different empirical studies using different methods have confirmed significant role of peer support on training transfer. Chiaburu et al. (2010) carried out a longitudinal study on 111 employees from a large organization of Mid-Atlantic regions of United States and confirmed that social support predicted motivation to transfer. In their study, they explained that social support consisted of supervisor and peer support. Similarly, Martin (2010) evaluated differential effects of distal and proximal factors on training transfer in a comprehensive field study with 237 managers who had participated in one of the 12 training sessions. Martin measured the effect of peer support on training transfer and for that, a series of one-hour meetings with peers were scheduled four times in between week two to 12. These meetings provided the participants with the supports of different natures and were voluntary. Based on this study, trainees with high peer support comparatively showed higher improvements than those without such support and even alleviated the influence of negative transfer climate. Another noteworthy finding of Martin was the greater effect size of peer support than that of workplace climate.

There were not many empirical studies that contradicted with other studies. One study showed that there was a non-significant minimal relationship between perceived transfer climate and perceived transfer of learning (Enos et al., 2003). Similarly, with respect to behaviour modelling effects, Richey (1990) concluded that there is a stronger effect on learning from the supervisors than from the peers. Nevertheless, many other researchers exhibit the effect of peer support in the transfer of training (Kirwan & Birchall, 2006; Bhatti et al., 2014). Peer support has thus been

highly acknowledged which could be due to, as remarked by Salas and Stagl (2009), the fact that peers make more interactions than does the supervisor.

Management Support

Even though Salas et al. (2006) briefly discuss the leadership and management support comes under organizational culture, the support from the leaders or the other key position holders fits better in social factors. They acknowledge the effect of leadership support in training outcomes but still much is yet to explore on support of organizational head or leaders. To address the barriers of training transfer, Cromwell and Kolb (2004) coded management support as the second most responded category (after time factor). The authors put forward the responses such as difficulties caused by senior management and director not giving proper support and such. Bhatti et al. (2014) also emphasize on the role of top-level management in causing maximizing in training transfer. Contradictorily, Facteau et al.'s (1995) findings show the negative effect of management support on training motivation and insignificant effect in perceived training transfer. This expands the space of our knowledge that support should also viewed from the lens of higher management which goes beyond the grasp of the supervisors. This management can play authoritative roles, possibly at policy level which can be above the operational roles. Management support thus counts as a possibly important factor in this study.

Goal Setting

According to Russ-Eft (2002), goal setting can be listed as post-training intervention or even as pre-training intervention within training design. Goal setting here signifies the organizational goals either set by the supervisors, by employees, or together in a team. This factor differs from the individual goals or career commitment set by trainees. Taylor et al. (2005) emphasize that those trainees that receive

instruction to set goals together their supervisors being trained yield higher transfer rate and acknowledge goal setting as a suitable post-training strategy. In case the goals are set, literature suggests that the supervisor should explain the goals, the minimum desired standards and the organizational environment that might affect the transfer process (Burke & Hutchins, 2007). Their review exhibits positive association between goal setting and the transfer of training. In other literature, setting of goal has been paired up with supervisory support and peer support (Russ-Eft, 2002).

Goal setting theory posits that goals should be specific and challenging, but to a level that motivates them to perform better (Locke & Latham, 2002). In this context, a review conducted by Ordonez et al. (2009) indicates the need for careful inspection of the set goals. They argue that having too narrow goals, excessive number of goals and goals without proper deadline can decrease performance. The dark side of goal setting has been presented by Ordonez et al. as i) motivation to reach a goal may not necessarily ensure use of ethical ways to reach it, and ii) goal seekers might misrepresent their performance even when they are behind in achievement. So, it can be ascertained that the feedback or follow-up of supervisors can help minimize such effects.

Opportunity to Use learning

Opportunity to perform or apply learning has been given primary importance by a number of researchers studying relationships between work environment and the transfer of training, or between transfer climate and the transfer (Baldwin & Ford, 1988; Bhatti et al., 2013; Ghosh et al., 2015; Russ-Eft, 2002; Taylor et al., 2005). Ford et al. (1992) define the opportunity to perform as the degree to which the learners receive work experiences relevant to the work for which they have been trained. They studied opportunity to perform from three dimensions viz. breadth,

activity level and types of tasks. Breath denotes the number of activities the trainee gets to perform in the real workplace out of total trained activities or skills. Activity level denotes the number of times they can perform these activities while task's type means measuring how complicated and difficult the task types are. They conducted a survey on a sample of 180 individuals consisting of graduates from Air Force technical training programme using stratified random sampling. Their survey consisted of 34 tasks out of 99 taught in the training in which opportunity to perform was studied from three dimensions and found that opportunities to practice affect the transfer of training. Further, variations in the opportunities to practice in term of all: breadth, activity level and tasks type within the same job and tenure were measured because of differences in supervisory and workgroup factors.

In earlier studies, availability for resources such as physical and financial resources (Noe, 1986) and supporting physical conditions (Richey, 1990) were instrumental to boost the transfer process. Later Holton et al. (2000) encompassed resources availability under the factor 'opportunity to use learning' in LTSI which was also followed in Revised LTSI (Bates et al. 2012). Other studies were found to use variables such as opportunities to practice or opportunity to apply learning that also facilitated in the training transfer (Taylor et al., 2005; Burke & Hutchins, 2007; Kirwan & Birchall, 2006). Similarly, limitation on opportunities to apply learning was also found to lower the transfer (Lim & Johnson, 2002). The past literature commonly voice on relationship between opportunity to perform and training transfer.

Workload

Workload was among the primary concerns in the study of Awoniyi et al. (2002). In their study, the authors measured pressure of the workload in which they accounted for impractical expectations, lack of adequate time and distractions. The

results drawn from the sample of 293 from United States and Puerto Rico disclosed that the association between workload pressure and training transfer was positive based on which they discussed that if these factors are promoted, they will help increase the training transfer. Similarly, Cromwell and Kolb (2004) adopted both qualitative and quantitative approaches in their study to assess four elements of work environmental factors at three different points of time. To describe the barriers to training transfer, they coded a few categories based on the participants' responses in which 'time factor' accounted for as the most frequently recognized factor. The authors reported one of the voices that due to excessive workload, the trainees did not receive the time to apply learning from training. Though the study lacks further discussion, this information established an understanding that workload is somehow attached to the factor 'opportunity to perform'.

The term 'personal capacity for transfer' was used in another study by Holton et al. (1997). Holton et al. (2000) show that personal capacity for transfer includes workload of trainees as well. They define it as the degree to which the trainees back on the job can exhibit time, energy, and mental space to transfer the learning. This factor still continues to represent the workload along with trainees' capacity to apply learning in revised LTSI (Bates et al., 2012).

Organizational Culture and Climate

Organizational culture helps in modifying the post-training behaviour of the trainees. It explains the shared values, the way interactions occur and behavioural aspects are manifested within the organizational setting. It has been claimed to play a vital role in increasing the effectiveness of the training (Simosi, 2012). She distinguishes organizational culture into i) training transfer climate, and ii) learning culture. She also discusses Rouiller and Goldstein's (1993) work on transfer climate

in her study. With regard to learning culture, Martin (2010) explains that the attitude which organization has towards the training also shapes the behaviour after the training. Learning culture, according to Simosi (2012), gives emphasis on open flow of information and encouragement in the application of learning. What forms such culture may be manifested in encouragements by seniors, freedom to take decisions on ways of completion of tasks and such positively affects in training transfer (Awoniyi et al., 2002). However, at this point, the demarcation on if encouragements by supervisors should come under supervisory support or should it come under learning culture, becomes misty. Learning culture as one factor has also been shown in subsequent papers (Tonhauser & Buker, 2016).

Within the culture, Kontoghiorghes (2004) modelled and confirmed continuous learning environment, quality focused culture of organization and risk taking and innovation driven culture, team environment, awareness of link between job contributions and organizational objectives achievement. The author while testing the validity of new systematic model using a 109 item-Likert scale instrument illustrates a regression model to mark the association between high performance organizational culture and training transfer.

As far as organizational climate is concerned, Simosi (2012) explains that it can be humanistic or performance centred. The former climate engages employees' participation in decision making encourages active teamwork and empowers people while the latter stresses on the pursuit of higher standards. Both these cultures have substantial ability to affect training transfer. Here, an important note for reflection is that with the climate, Lim and Johnson (2002) illustrate organizational climate to resist changes as the least supportive factor in influencing transfer behaviour. On the other hand, the climate causing lateness in applying the learning back on the job can

cause substantial skill decay (Arthur et al., 1998). On the ground of measure of transfer climate (Rouiller, & Goldstein, 1993), Tracey et al. (1995) showed that training climate and continuous learning culture directly predicted post-training behaviours of the trainees.

Along with these massively discussed determinants, other underlying factors also show some relationship with the training transfer. For instance, organizational size and structure (Colquitt et al., 2000), rewards and recognitions and various situational factors such as accountability systems, the degree of perceived professional growth as essential in job performance, usefulness of investment and consumption of time (Clarke, 2002) and even punishments under their sub-dimension 'consequences' (Rouiller & Goldstein, 1993) have remained some of the highlights in training transfer study. Bates et al. (2012) use resistance to change, personal outcome positive and negative, motivation to transfer, performance outcome expectation and such in revised LTSI which resemble many of these factors somehow. Yet, lack of consistency in the findings of many of these factors still prevail even in recent studies.

Theoretical Lens of Relational and Contractarian Ethics in Training Transfer

The explored environmental factors affecting training transfer can be explained using either the theoretical lens of relational ethics or contractarian ethics. Firstly, ethics are concerned with the philosophy of morality meaning the belief system of what is right and wrong, or good or bad in judgements, rules, principles and theories (Vaughn, 2008). Doing ethics thus involves these practices with the belief that they are right or justified. It includes situational analysis, critical reasoning on the grounds of moral normal and judgements and which are applied irrespective of the situations and individuals. It thus follows the principles of universalism, reasoning,

impartiality and prevalence of moral norms. It therefore governs behaviours or activities of individuals, or entities such as organizations.

Relational ethic is expanded from the concept of ethics in which behaviour or actions are placed within the interpersonal relationship. It gives importance to maintaining and strengthening interpersonal relationships to achieve the objectives. Relational ethics explain that the course of actions that involve engagement, mutual respect, embodiment, and interdependent environment (Upasen, 2017). Since the focus of relational ethics is on fostering relationships, it can be studied under the ethics of care which emphasizes on personal relationships and moral virtues. Relational ethic is studied in this research from the lens of environmental elements. In extant literature, domains of environment such as supervisor, peer or management support, positive and constructive feedback from seniors or peers ensure the engagement of the instructors. The support domain from different stakeholders also explains that there is mutual respect and embodiment. Besides, the transfer of training essentially requires interdependent environment where the trainees get necessary input and resources from the work environment. Relational ethics, which is explained by non-coercion embodiments, explains the commitment to care about and interest to take part in relationship. Similarly, mutual respect includes deep respect for the values and beliefs of one another. Engagement in TVET requiring time and skills demands for connection with teachers through the climate of mutual trust and openness (Bergum & Dossetor, 2005 as cited in Moore et al., 2014).

Contractarian ethics, on the other hand, is derived from contractarianism from the perspective of morality. Social contract theory within which contractarianism is explained posits that the key to stability of ethics and system is a contract or a shared agreement (Moehler, 2013). According to contractarianism, when instructors are paid

salaries and other benefits of monetary and non-monetary kinds, they are expected to show high level of performance in the classrooms in return as they are in their contract. Contractarian ethics utilizes the idea of some sort of agreement or contract and explains where moral and political norms originate and the reasons of the moral obligations. It also explains the philosophy of the nature of moral righteousness, and addresses the political problem of distributive fairness (Kelly, 2012). As in relational ethics, contractarian ethic is also studied from the perspectives of environmental elements. Since rights of the instructors to certain facilities and opportunities also imply obligations, contractarian ethic just explains that this contract binds them to show quality in performance and this also involves transferring the learning from training back to the workplace. In this way, various supporting elements from the help sources foster the process of training transfer which is explained by relational ethics and in other cases, the moral obligations of instructors to show higher level of performance also help in the transfer of learning back on the classroom which is explained by contractarian ethics.

Training Transfer of TVET Instructors in Nepal: An Unexplored Sphere

Limited knowledge has been established in the context of training transfer in Nepal. The overall understanding of the training transfer is based on a handful of research works. A study by Subedi (2008) reveals medium level of training transfer in civil sectors and corporate sectors of Nepal but is it not referable for it was carried out in another setting. With regard to transfer in teachers' training, Khanal (2006) revealed that teachers hold positive perceptions towards teacher training and as a part of their professional development which is important to them. It also showed that the teachers shared common understanding that such trainings are about enhancing methods of teaching i.e. 'how to teach'. Similarly, Ghimire (2011) showed positive

perceptions towards pre-service training using content analysis technique. However, these studies do not reveal to what extent the training has been transferred and what environmental factors have supported or hindered in the transfer process. In a similar study, the transfer level was found to be average in a study conducted on the case of teaching speaking skills of teachers (Adhikari, 2017). While this seems more recent to connect with and conducted on teachers, it seriously lacks methodological rigor and only speaks of general education.

A relevant study was conducted on the trainings of trainers in Nepal (Koirala et al., 2016). The study assessed the trainees' perceptions and their satisfaction level towards the instruction related trainings provided by Training Institute for Technical Instruction (TITI). Using mixed methods approach, the study showed positive perceptions towards such trainings as a way to professionally grow oneself and establish professional linkages with other TVET instructors from the country. Similarly, it showed the satisfaction level 'above average'. The study only confirms the first level of training evaluation among the four levels (Kirkpatrick & Kirkpatrick, 2006). The application of learning back on the job and factors that influence in this process have still remained in shadow. Severe dearth of such research works therefore signifies the importance of my study.

Policy on Training Transfer wheeling in the Misty Road

In the context of the transfer of training in TVET instruction of Nepal, policies related to education and TVET are of much more relevance. Policies at different level acknowledge the role of TVET and emphasize on training to instructors but there seem to be a gap when it comes to addressing the transfer of training in instructors. This part of the review discusses on various applicable policies and argues on how and where they lag in addressing the transfer of training in the instructors.

In the constitution of Nepal, 2015, article 51 (h1) dictates that the state shall pursue policies relating to basic needs of citizens to prepare workforce with competence, competitiveness, ethics, and devotion to the national interest which the state aims at achieving through the means of employment and people oriented technical and vocational education (Nepal Law Commission [NLC], 2015). This clarifies that the skilled and competent workforce produced through quality and market-based education in technical and vocational sector is the principal requirement of the country. Article 51 (h2) of the constitution then highlights the need for improving and regulating the educational investments both in private and state-owned nature. The constitution has given the states the authority to regulate and improve the quality of educational institutions including quality of work environment and quality of instructions. Based on this constitution, National Education Policy, 2019 has been developed which has further emphasized on the need for quality TVET in Nepal.

Addressing the issue of access to technical education as one of the current challenges of education in Nepal, National Education Policy, 2019 of Nepal has set the objective number 8.4 to expand the opportunities of TVET ensuring equity and inclusion to prepare competent, skilled and capable workforce for national development. It has also set objective number 8.8 to ensure the occupational qualifications, capabilities, honesty, commitment and accountability of the human resources engaged in education system. To meet the set objectives, the policy has set different strategies, some of which include ensuring sustainable investments and involvement of stakeholders; making performance assessment and training for TVET instructor mandatory thereby connecting their experiences, occupational competencies, performance standard and such with their career growth (Ministry of Education, Science & Technology [MoEST], 2019). This shows the policy has well-

stressed on the quality of TVET, the capacity building of the instructors in TVET through sector through planned training and development interventions.

National education policy, 2019 of Nepal informs that there are 1305 institutions engaged in mainly technical education as well as vocational training programmes. A total of 871 schools and colleges are associated with CTEVT. Among them, 45 institutions are under CTEVT as the constituent or partner schools, 397 community schools with TVET programmes, 429 institutional schools and colleges affiliated to CTEVT. There are 434 community schools with secondary level technical education which are directly under MoEST, the Government of Nepal (MoEST, 2019). The policy also ascertains that all TVET instructors should be trained on teaching or instructional skills and there should be supportive environment to transfer the training in all these institutions.

Further narrowing down, it can be observed that Technical Education and Vocational Training Policy (TEVT), 2012 was aligned with the recent education policy (Ministry of Education [MoE], 2012). This policy has stated CTEVT as the authorized and apex body that carries out major functions of TVET in Nepal. The policy has also declared Training Institute for Technical Instruction (TITI) as the authorized body under CTEVT purposefully to provide trainings to instructors of TVET (Training Institute for Technical Instruction, 2019). TEVT policy, 2012 stresses on quality and appropriateness of the TVET curricula and their independent evaluation engaging stakeholders. Its working policies mention training of trainers as mandatory for all government and semi-government institutions and encouragement to private and non-government sectors to employ such trained employees. It also states about availing the opportunities of training and development for the instructors

thereby indicating acknowledgement towards instructional trainings as the prime need for their capacity enhancement.

The utmost importance of TVET and instructional training to TVET instructors positioned by these policies postulates visionary move towards ensuring the need of training to the instructors. However, these policy documents are still unclear on how to ensure the transfer of training. Policies emphasize on ensuring of trained teachers in classroom but not on whether the trained teachers are performing as per the learning from the training or not. TEVT policy briefly states about monitoring and evaluation of training providers but does not clarify assessment of instructors' performance with regards to the training they have participated in. Neither the policy has specified on attempts to assess or promote transfer of training, nor is TITI as the authorized training provider, has carried out such studies. This has then led to absence of clarity on how policy can play a role to ensure that the environmental factors support the transfer of training of instructors. So National Education Policy, 2019 and TEVT policy, 2012 of Nepal, regarding TVET, are indicative of leading towards an unclear and misty path.

Inconsistencies in Environmental Factors and their Contributions: Exploring the Gap

Scrutinizing the categories of work environment draws more attention as there seem to be inconsistencies in the extant literature about how and in which dimensions the factors fall. For instance, Rouiller and Goldstein's (1993) paper classifies transfer climate into: i) situational cues and ii) consequences. Situational cues consist of social cues in which influence processes are exhibited by supervisors, peers and subordinates. This study lays a foundation for the study of transfer climate and has constituted supervisor support within transfer climate. On the contrary, Nijman et al. (2006) explain work environment being composed of i) general work environment

(autonomy, budget ceilings, coordination among departments), ii) transfer climate (opportunities to use, resistance to change, personal outcomes) and iii) supervisor support. Transfer climate and social support from supervisors and peers have been illustrated as different factors of work environment. Similar observations were found in other studies (Burke & Hutchins, 2007; Grossman & Salas, 2011; Williams, 2008) where transfer climate, supervisory and peer support have been studied separately. Transfer climate gives an example of ambiguity on the clustering of factors within the dimension of work environment which was also pinpointed by Holton et al. (2000).

Personal capacity to transfer is one of the sixteen factors confirmed by Holton et al. (2000) in LTSI and by Bates et al. (2012) in revised LTSI. Holton et al. define it as the degree to which the trainee has required time, energy, and mental space in their professional life for making necessary changes to transfer the training back on the work. It entails workload but does not succeed in articulating whether this factor falls under trainee characteristics or work environment. While workload given by the school management is an environmental factor, personal capacity implies trainee's capability of performing. Meanwhile, in the context of Nepal where many educational institutions work under the affiliation of universities or CTEVT, workload of heavy curriculum goes beyond the institutional environment. Similarly, organizational culture and climate, as discussed above, also come with less clarity on its constituents. So, there is a clear line of contradiction as to which factors constitute work environment and which factors ought to be considered in a particular area of study.

Influences made by different factors also differ in different research contexts. The questions regarding the environmental factors that contribute to training transfer in the context of technical education within TVET instruction in Nepal remains unanswered. This calls for a dire need to explore these environmental factors that

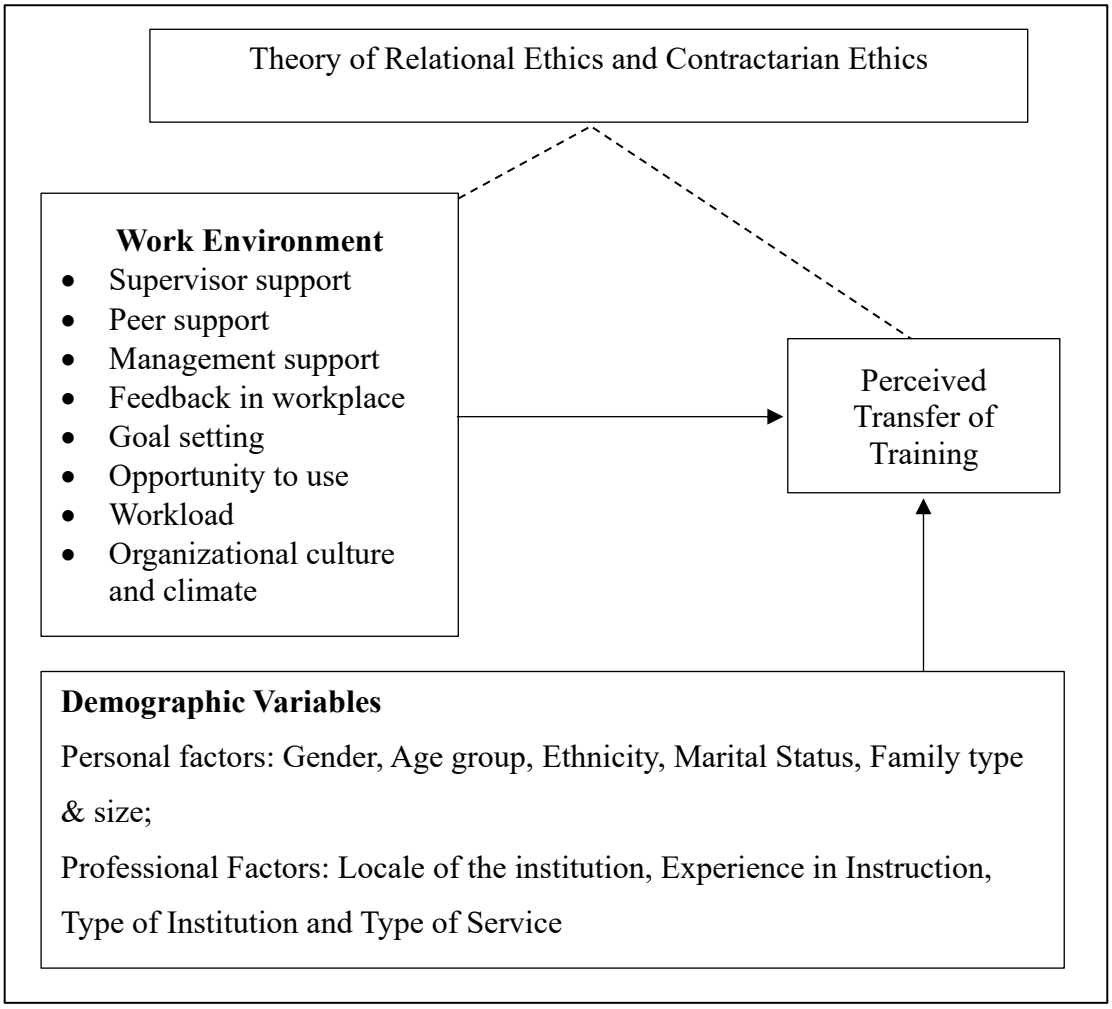
affect transfer of instruction related trainings of the instructors engaged in Technical education in Nepal.

Theoretical Framework

Based on the environmental factors that affect the perceived transfer of training, a theoretical framework has been framed. Also, the perceived transfer of training among the instructors also may differ across the demographic variables as shown below. The framework also explains the linkage of theory of relational and contractarian ethics in instructors in the transfer process.

Figure 1

Theoretical Framework



(idea adopted from Bates et al. 2012, Blume et al., 2010; Tonhauser & Buker, 2016)

In the figure above, various factors of the environment are listed as identified in the literature. Also, several personal and professional factors within demographics as shown above are presented in the framework across which the transfer level may differ. Their relations with perceived training transfer are indicated by arrows. Meanwhile, this process of effects of various environmental factors is explained from the theoretical lens of relational and contractarian ethics as shown by the dotted arrow. In this way, a theoretical framework has been developed in the context of instructors of technical education of Nepal.

Concluding the Chapter

Training, despite having its significance to employee and organizational development, is considered effective and meaningful only when it is transferred to the extent expected by the training. The transfer of training, which is explained as generalization and maintenance of learning from training to workplace is determined by several factors which have been clustered into trainee related factors, training design related factors and environmental factors. Numerous social and structural factors relating to work environment have been studied to affect transfer of training but it is essential to note that these factors are also contextual. Also, there are no linear connections between these factors and they exist in complex nexus rather than in sequence. TVET instruction in Nepal has its own characteristic features which may not be similar to other contexts. Environmental factors that are insignificant or even unexplored in other situations may be instrumental in the transfer of training in technical education in Nepal. Though related policies speak of prioritizing training to TVET instructors, they do not dictate on ways of ensuring the transfer of training and thus, there are much is to be explored at the level of training transfer in the current situation and the environmental factors that are affecting the transfer.

CHAPTER III

RESEARCH METHODS

This chapter outlines the 'how' part of the study meaning how the study has been carried out to produce the results. It covers the philosophy I adopted in my research and the methods by which I explored the factors contributing to training transfer in Technical education's instruction in Nepal and the results produced in the study. This chapter proceeds with the articulation of research paradigm which is guided by the philosophical assumptions and its elements. Then it discusses its research design focused on quantitative research approach. I have carried out this study in two different stages: i) Delphi method and ii) Survey method. This chapter has made discussions on what constitutes the population for the survey. Sequentially, I have presented the sample size and sampling technique with their rationale. Then the chapter explains the data collection tools and techniques, and procedure. It also depicts how the analysis of the collected data has been done that forms as another important part of this chapter. Maintaining reliability and validity followed by careful consideration on ethical issues then conclude this chapter.

Research Paradigm

Research paradigm, also known as worldview, refers to the set of basic beliefs that guide a researcher in his/her actions (Guba & Lincoln, 1990). It refers to the pattern of thought based on which the entire research is conducted. This study is guided by post-positivism, which as a research philosophy, seeks to explore objective reality. It challenges the notion of absolute truth of knowledge which was the foundation of positivist philosophy and adds that knowledge can be falsified (Creswell, 2012). The environmental factors have some level of influence on training

transfer and certain factors within environment affect the training transfer in the context of technical education in Nepal which is taken objectively. Moreover, the factors that have been previously identified as influential may or may not be influential in this study's context. Further, post-positivism assumes that causes determine the outcomes, and the knowledge is based on the careful observations and examinations of objective reality of the research world presented in the form of data or evidences. So, this philosophy requires developing and using numeric measures to test the hypothesis for the purpose of accepting or rejecting them objectively, or answering the research questions. I have discussed below the ontological, epistemological, methodological and axiological positions of this research paradigm.

Ontology is the study of being. Gray (2014) explains that it is the study of what nature an existing object or phenomenon holds and what forms the reality. This research has the ontological assumption that the nature of reality is objective and external to the researcher. Different factors may affect the transfer of the training in instructors. So, my ontological stance was on the basis of objective reality of the instructors. I viewed the knowledge of what contributes to training transfer in TVET instructions in Nepal objectively. Transfer of training may or may not occur back in the work place of the instructors and in case of occurrence, there is certain level of transfer such as low, medium or high. Also, environmental factors may have different extents to which they affect the transfer process. So, this study was guided by objectivism that this knowledge exists objectively. Bryman (2016) explains that along with ontology being concerned with the nature of being and the social entities, it also seeks to answer whether the truth is objective and external to the social actors or the trust is subjective and built up from the perspectives and actions of social entities. So

as the researcher, I carried out this study being outside of the research settings, not influencing the transfer process and took transfer process as the objective construct.

Epistemology is the study of knowledge acquisition. Neuman (2014) explains it as “an area of philosophy concerned with the creation of knowledge; focuses on how we know what we know or what are the most valid ways to reach truth” (p. 95). The author also claims that all the scientific research works rest by the above two areas of philosophy: ontology and epistemology. Similarly, as per Saunders et al. (2016), epistemology is the branch of philosophy which is concerned with how we acquire knowledge and how we justify the knowledge as acceptable. In this regard, this study has the epistemological assumption that environmental factors contributing to training transfer, level of perceived training transfer, effects of identified environmental factors on the transfer and differences of perceived training transfer across demographic variables can be acquired through empirical observations and numerical measurements. This was considered appropriate based on the philosophical foundation discussed earlier. To justify the knowledge as acceptable, I applied appropriate method viz. Delphi method followed by survey method based on the tool produced from Delphi and references of existing instruments. Ontology and epistemology form the guideline for determination of the research methodology.

Research methodology is a framework that defines the procedures to conduct a research and research method is the technique of carrying out well accepted scientific and systematic study (Singh, 2007). In this study, survey design was adopted as a suitable methodology that has guided the researcher to prepare a detailed account of the rationale and ways of using the method in a study (Flick, 2011). Since the research questions demand quantitative approach, cross-sectional survey was used to systematically study the sample representative of the population to collect the

description of its phenomena and attitudes at a point of time (Creswell, 2014). Thus, the research questions were answered through data collection and analysis of variables using applicable statistical tools under survey in this research.

Axiology is another important constituent of research philosophy. It is the philosophical study of value (Saunders et al., 2016) and it holds great importance in an empirical research. It is thus imperative that the researcher maintains the value of this study. Having post-positivism as the ontological stance, objectivity has been appraised. For this, as the researcher, I have remained independent from the data collected from my respondents. To make the results credible, I have separated self from the research settings in all the stages of research process and I have presented my identity as an academic researcher from Kathmandu University School of Education, Nepal and not as a training officer. For this, the research purpose has been clarified in the questionnaire. In this way, I worked with utmost effort to minimize my influence to the respondents and the research process.

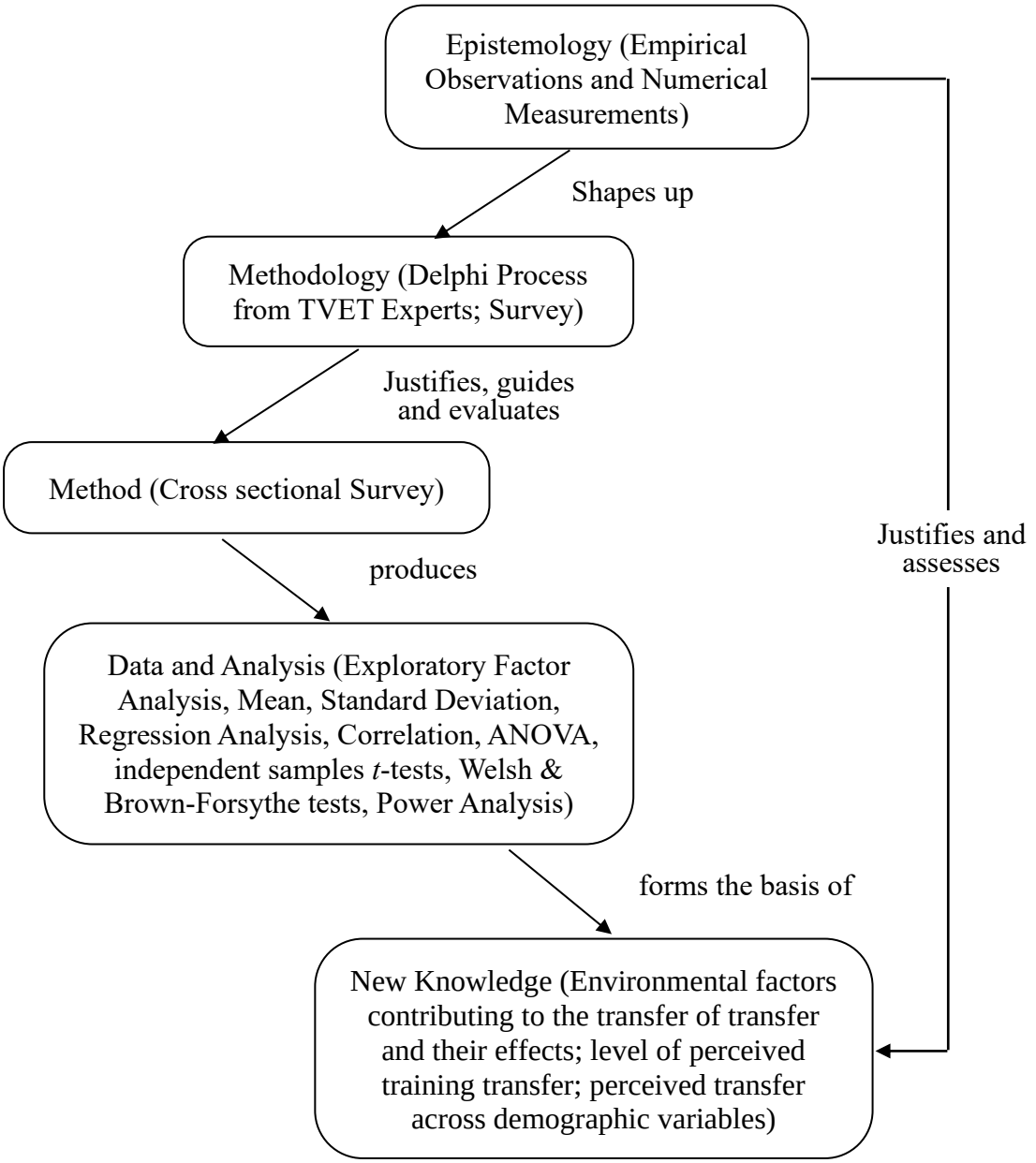
Research Design of the Study

Research design is a guide based on which a researcher proceeds with the research works and as explained by Bryman (2016), it offers a framework for the researcher for the purpose of collection and analysis of data. To address the research questions, survey research design is more appropriate which Creswell (2012) explains as a procedure in which quantitative researchers administer a survey to a sample, or a population to analyse the trends or test the research questions as per their research objectives. In particular, this study has been framed into cross-sectional survey design. It is one of the most popular designs and with survey designs, the notion of questionnaire and structured interviews are deeply embedded (Bryman, 2016). Online survey was conducted on the instructors who active in their profession during the time

of study to assess if they have been applying training in their workplace or not, and environmental factors affecting in the transfer process. Then the collected data have been analysed and results have been discussed using suitable statistical tools to generate new knowledge. The below figure depicts the design of this study referring to Carter and Little (2007) taking into consideration its research philosophy.

Figure 2

Research Design



(Modified from Carter & Little, 2007)

Figure 2 shows the design of this research which includes steps from epistemological position to the generation of new knowledge. It shows that preceding step influences the succeeding step and epistemological positions is influential in the process and in the final output as well. In a nutshell, it shows overall design based on which the research proceeded and ultimately the new knowledge was produced.

Instrument Construction Process using Delphi Method

Merely relying on the extant literatures to conduct factor analysis in order to confirm all the influencing environmental factors in the context of TVET instruction entails a greater risk on content validity. This is because of two important reasons: i) all the previously identified factors may not be replicable in this study's context and ii) there might be other potential factors that probably affect the transfer process in TVET instruction, yet might have remained in shadow due to insufficient empirical researches. In this context, Farrell and Scherer (1983) advocate Delphi as an appropriate method in the case of dearth of sufficient empirical data. Thus, I designed and conducted Delphi method to develop a comprehensive research instrument that ensures its content validity. This part of the chapter commences with the conceptual clarification of Delphi method followed by its application in my study.

Numerous papers have been published describing the Delphi method, its usefulness, design and process in research (Avella, 2016; Hsu & Sandford, 2007; Okoli & Pawlowski, 2004). According to Linstone and Turoff (2002), Delphi method is a method of structuring a communication process of a group of individuals who are experts in a particular field in order to make the process effective to allow to handle complex problems. Similarly, Keeney et al. (2011) state Delphi technique as process of facilitating group communication process to get consensus on the expert panel's ideas and opinions. So, Delphi, in brief, is a group consensus building method and can

be conceptualized as a method in which a researcher/research team carefully selects a panel of subject matter experts, collect their ideas, opinions and judgements on certain issues or field of research re-iteratively with the purpose of scrutinizing those ideas, opinions or arguments for setting goals, predicting occurrence of future events or exploring determinants of an event.

In Delphi, ideas from a panel of experts are collected using a questionnaire or interview guideline and are discussed, compiled and summarized by a researcher or researchers' team in the first round. Based on the results of the first round, another set of questionnaires is developed to again collect their ideas and judgements in second round which goes on in an iterative manner until a common consensus is concluded (Day & Bobeva, 2005; Keeney et al., 2011). To delve into the core concept of Delphi, it is important to grasp the knowledge about its characteristics.

Characteristics of Delphi

Four characteristics of Delphi are found to be highlighted viz. iteration, anonymity, controlled feedback and the statistical aggregation (Rowe & Wright, 1999; Story, Hurdley et al., 2001) while judgemental inputs of experts have also been coined as another key characteristic by other authors (McKenna, 1994; Stitt-Gohdes & Crews, 2004). These characteristics have been discussed below.

Delphi method is strongly characterized by its iterative process (Hsu et al., 2010; Linstone & Turoff, 2002). This characteristic also differentiates Delphi method from other group communication process. In Delphi method, ideas from panel of experts are collected through questionnaire/guideline, compiled and summarized in form of a questionnaire by researcher(s) in the first round. In another way, experts are given a pre-developed tool or list of factors so that they can prioritize the important ones among the available factors. Based on the results of first round, another

questionnaire is developed to again collect their ideas and judgements in second round which goes on in an iterative manner until a common, reliable consensus is concluded (Powell, 2002).

Connecting to the first principle briefed earlier, anonymity stands as the second proposed principle of Dalkey and Helmer (1963). They argue that Delphi groups with averaged individual ideas of expert's panel working anonymously are more productive than individual experts or conventional groups having face to face discussions in terms of accuracy. This claim has also been supported by Rowe and Wright (2001). So, to maintain anonymity, a virtual panel of experts is created and questionnaires are sent to them in paper form or electronically. The anonymity helps avoid the conflict of opinions among the experts or the dominance of one expert's ideas over the other which ultimately affects the outcome. Anonymity allows each expert to vote their judgements freely. During the rounds of Delphi, anonymity is maintained among the panel of experts, but not the researcher. Thus, some degree of anonymity is maintained in the entire process (Linstone & Turoff, 2002). Individuals are also given the opportunities to re-evaluate and even change their answers without fear of being commented or judged at by other panel members (Rowe & Wright, 1999).

Controlled feedback is Delphi technique's another key characteristic (Keeney et al., 2011). According to Story et al. (2001), when the result of a certain round is produced, controlled feedback is distributed back to the expert panel at the beginning of the next round. Hence, after each round, the facilitator provides feedback on previous round's feedback in the consolidated and analytical manner and the phenomenon continues until a consensus is achieved. Story et al. argue that feedback can be in the form of variances and medians, and even in the form of complicated

analysis. In each round, group members are communicated with other anonymous experts' opinions, usually in the form of simple statistical summary. Providing controlled feedback offers the panel of experts to adjust their estimates based on the overall responses and thus helps produce responses of higher quality. In the process of giving controlled feedback, Rowe and Wright (1999) argue that sometimes, additional information is also provided. This may include those arguments which are outside the criteria but they ensure the representation of every virtual panel member's voices.

As discussed above, feedback in each round till the final round is provided in the form of statistical summary such as mean and median. So, statistical aggregation is another characteristic of Delphi. Rowe & Wright (1999) explain that final judgement can be observed as an equal weighting of the members of the group in Delphi process. This reflects that process and the result both are confirmed by statistical aggregation.

Delphi is carried out by using judgemental inputs of the content experts. As Delphi is widely used in forecasting, Dalkey and Helmer (1963) proposed two principles in which the first one was the method being opinion based and the other is anonymity. The authors highlight two opposite ends of the input with one end being knowledge which is evidence based, and the other end being speculation which lacks evidence. So, the term opinion, according to them, blends the attributes of both and falls somewhere in between the two poles. Delphi uses judgemental forecasting from reliable sources viz. content experts rather than statistical techniques information generation.

Delphi is deemed appropriate in the areas where previous research is limited and there is a need to identify and prioritize an area of a concern, or to develop a concept, framework or a model (Okoli & Pawlowski, 2004). Yang et al. (2012) state

that Delphi is suitable in case where the causal model cannot be established or validated. Further, it has also been used to identify elements that would contribute to a model in a given context (Palo & Tahtinen, 2011). So, Delphi was considered essential in this study because the contributors of training transfer in extant literature are contradictory and evidences are limited in TVET instructions, especially in the study context of Nepal. Thus, guided by the key characteristics and principles of the Delphi technique, I applied this method in my study to prepare the instrument for actual survey among the instructors.

Executing Delphi Method

In this research, I used classical Delphi method using open ended questions in the first round referring to Keeney et al. (2011). I referred to the descriptions of Linstone and Turoff (1975 as cited in Stit-Gohdes & Crews, 2004) about its execution. There are four phases: i) Exploring subject matter and giving experts the opportunity to contribute information; ii) Exploring how expert panel view the topic; iii) Exploring disagreements, if any and their causes; and iv) Evaluating collected information. I also took note of Beech's (1999) work in which he listed 11 stages ranging from panel selection to distribution and use of findings. So, based on these thoroughly studied literatures, I formulated two three phases for data collection, substantiation and instrument finalization.

Phase One: Preparation Phase

This is the phase that consists of the planning and preparation needed before going into the actual Delphi rounds. I carried out four steps to complete the preparation phase.

The first step of the phase one was issue comprehension. I firstly articulated the issue and my objective of conducting Delphi method. The issue was the core of

my actions. The issue primarily germinated based on my past professional experience as the Trainer of TVET instruction. To comprehend the issue further, I conducted literature review, discussed both with my thesis supervisor and then consulted with subject experts who were not the part of Delphi process.

The second step was selection of panel of experts. It was one of the most crucial tasks since the quality of final result is determined by their capability (Day and Bobeva, 2005). Random selection of participants does not align with the principle of Delphi. So, I carefully listed the experts to form a virtual panel. Experts are those who possess wide breadth of knowledge and sufficient experience to exhibit deeper understanding of the issue. Reid (1988 as cited in Heras Saizarbitoria, 2006) highlights knowledge, competence and independence as the basis of expert selection. To this, Heras Saizarbitoria (2006) adds that they should have wide range of perspectives and ideas about the issue. In consideration to the above literature, I purposively selected those experts who had participated in, at least, one training event related to instructional skills and attempted to apply the learning back on their job as an experienced instructor. Relevant experts in this study were trained instructors, or those trainers who had previously worked as the instructors in technical school/s of Nepal. This criterion was also consistent with the explanations of Keeney et al. (2011) that experts should have more knowledge than most of the population. Hence, I prepared a list containing the names of the instructors and trainers with previous experience as instructors in the technical schools of Nepal.

I sought their availability and interest to make this contribution and invited them for participation as suggested by Powell (2003). Powell expresses that confirming the number of experts was another major task in panel finalization. To this, different authors advocate different figures. For instance, Okoli and Pawlowski

(2004) suggest use of 10 to 18 experts, Rowe and Wright (2001) suggest 5-20 experts while Stitt-Gohdes and Crews (2004) estimate 10-15 to be adequate. Adhering to these studies, I initially prepared a panel of 15 experts in which I reached the level of information saturation after taking the interview (first round) with 14 experts. The number reduced to 13 till the final round. Larger group, according to Reid (1988 cited in Heras Saizarbitoria, 2006), entails higher risks of premature withdrawals and selection of panel members with less than expected knowledge levels. To substantiate further, Czinkota and Ronkainen (1997) emphasize that the quality of panel-members matters more than its size. Hence, I carried on with 13 members till the final round. As per Powell's suggestion, heterogeneity was also maintained with respect to profession, gender and geographical representation. Among 13, seven were male and six were female. They were from four different provinces of the country with different levels of experiences (See Annex I). In technical education, Stitt-Gohdes and Crews (2004) suggest the use of secondary educators, technical college educators, college or university faculties to assure heterogeneity and this was well noted and adopted in this study.

The third step was appointment of the facilitator. Selection of facilitator or a team of facilitators should not be ignored since the quality of process affects the quality of output. A facilitator thus must be assigned before conducting the first round and he/she should be neutral, capable, and should hold sufficient knowledge (European Commission, 2006 as cited in Horan, 2010). Having adequate knowledge on the studied issues and relevant experience of this area, I carried out the role of a facilitator being guided by axiological values of observing the realities objectively. I maintained neutrality and carried out the process being out of the research areas without influencing the research world.

The fourth and last step of this phase was preparation of interview guideline. Before embarking on the implementation phase, I developed an interview guideline. The interview guideline addressed the broader theme identified through the review of literature. Rowe and Wright (2001) highlight the fact that little attention was given to the importance of using unstructured questions in the first round and critiqued that using structured questions might force the experts to answers the set of questions that they might perceive as incomplete or unbalanced. Hence, I planned to conduct unstructured interviews with basic interview guidelines and intensive probing technique. With this, I completed the preparation to go into the implementation phase of Delphi process.

Phase Two: Implementation Phase

Rowe and Wright (2001) pinpoint that no definitive number of rounds is justified as it depends upon how stable are the opinions that emerge from the experts over the rounds, how the consensus is achieved or when the researcher(s) decide(s) to halt the process. Yet, the authors claim that usually three rounds are adequate to reach a consensus. In this study as well, consensus was achieved after three rounds that proceeded in an iterative manner.

In this first round which Reynolds et al. (2008) term as the stage of generating ideas, I took in-depth interviews individually with 14 experts with an average of an hour's session. This was done to build up rapport, dig in the issue and show personal commitment which was also suggested by Mitchell (1991). Further, they were also given the opportunities to add up any valuable information related to the issue. In the interview, audio recording was taken with the consent from each participant. They were well informed that confidentiality would be strictly maintained. Intensive probing techniques were used to delve into the issue deeply. During the interview,

comfortable environment was provided where the participants were addressed as Content Experts and all the inputs from the experts were acknowledged and noted. The experts were duly thanked for their time and contribution of ideas and inputs and were also informed about the next round.

For analysis, no standard approach exists for data analysis produced in the process of Delphi. Yet, Keeney et al. (2011) suggest the use of content analysis for open-ended questions. So, I carried out the content analysis task taking the reference of Burnard's (1991) framework; and generated items by analysing the meaningful information provided by the experts that would further contribute to the research. Keeney et al. also remarked that using qualitative approach with open-ended questions would generate a huge number of items which was also the case in my study. There were chances and risks that the experts might give not their time and even quit. To address this issue, I firstly removed duplicate items, the items giving similar meaning and the items which were not related to issues other than the transfer particularly. I also clustered similar statements into areas or themes. With this, two major dimensions were generated i) Internal Work Environment with 56 items and 13 themes and ii) External Environment with 51 items and 17 themes summing up to 107 items and 30 themes.

These items were then developed into questionnaire using 5-point Likert Scale ranging from 'Strongly Disagree' to 'Strongly Agree' referring to Keeney et al. (2011). Firstly, this scale allowed other experts to opine disagreements at some points where they feel that the statement is not valid in other contexts. This helped cream off only those statements that were generalizable. Secondly, it allowed removal of the statements with some level of disagreements so that number of items could be

reduced. In this questionnaire, respondents were also given spaces to make comments subjectively on any statement as well as on the whole process.

Round two began with the distribution of the questionnaire electronically via google forms[2]. The questionnaire contained purpose, guideline, request for timely submission and assurance of confidentiality. Experts were verbally informed by telephone of the questionnaire sent to them. They were requested to submit the questionnaire within 10 days. Two gentle reminders were sent, the first reminder after five days and the last after eight days. It was deemed necessary because though there have been studies with much more item numbers such as 134 statements (Whitehead, 2008), or 170 statements (Beattie et al., 2004), I still considered 107 as a huge number which poses challenge to maintain response rate. Therefore, with continued praise for their efforts, I carried out the second round within a week's time so as to maintain their enthusiasm as suggested by Keeney et al. As the result, all 14 experts responded to the questionnaire. To measure the reliability, Cronbach Alpha test was conducted. The test scored 0.78 for internal work environment and 0.93 for external environment. Item analysis showed no statement was needed to be removed.

I then sent some selected items to some respondents whose responses were not consistent with those of the majority. For this, I took median score into accounts. For instance, if an expert's score was one while the median score was four, I resent them with this information asking if they wanted to review their previous response along with a room for subjective explanations. This was conducted on the grounds of the principle of 'controlled feedback'. A few respondents revised their score while one

[2] An online data collection software offered by 'google'

expert maintained previous response with a convincing explanation. With this, I collected revised responses ready for the next round.

Round three turned out to be the last round in my Delphi process as I obtained consent on most of the items from the experts in the round two. Referring to Sumison (1988 as cited in Keeney et al., 2011), I only selected the items which received consent of less than 70 percent and sent back to them. They were well informed that the Delphi process was about to be complete. This strategy was deemed necessary since respondents might have felt mentally exhausted answering over a hundred items. Yet, only 13 out of 14 experts completed this final round. So, the response rate was 92.86 percent in the overall process. A few items which still scored less than 70 percent group consensus were discarded and their subjective comments were also taken into considerations. At the end of the round three, there were 38 items under the dimension of internal work environment and 35 items under external environment totalling to 73 items. Thus, in this (last) round of second stage, I consolidated all the items from the round three that met the group consensus and listed 73 items for further refinement. I concluded this last round with sincere acknowledgement to each expert for their contributions.

Phase Three: Instrument Construction Phase

A total of 73 items was the final product that gained common group consensus of the experts through Delphi process. Then taking the reference of 48-items revised Learning Transfer System Inventory (Bates et al., 2012; Chatterjee et al., 2018) – a globally accepted generalizable instrument to measure training transfer, I further refined the instrument following rounds of discussion with my thesis supervisor without compromising with the key contents of round three. Carrying out rigorous revisions and refinement, I developed a total of 40 items/statements for environment

under in which 22 items were under the dimension internal work environment and have been named as we01, we02 and so on. Similarly, 18 items were under external environment and have been named as ee01, ee02 and so on (See Annex II). Thus, with these series of phases and steps within, I constructed a 40-itemed scale to measure environmental factors that contribute to the transfer of training among the instructors of technical education in Nepal.

Comprehensive Research Instrument Development Process

The role of Delphi was vivid in the construction of scale to measure environmental factors but there still stands a few issues. For instance, classical Delphi used in this study incorporates both qualitative and quantitative approaches to which Day and Bobeva (2005) suggest that Delphi gives a post-positivist position with the blend of the characteristics of interpretivism. So, epistemological stance is often ignored (Keeney et al., 2011). Though this study proceeds seeking objective realities after open round one, the authors argue that Delphi has no universal guidelines and that despite some key characteristics, it is open to interpretation. For instance, the advocated number of panel member differ (Rowe & Wright, 1999), and there is scarcity of supporting evidences to confirm the relationship between outcome quality, reliability and validity with the size of panel which therefore creates issues of bias and generalizability. On the other hand, the factors generated based on the opinions of researcher identified experts without going to the research field may also entail risks of generalizability. Hence, to address these critics paired up with employing Delphi, I further carried on finalizing the research instrument in order to proceed for survey.

To develop a comprehensive research instrument, I firstly developed the frame of a questionnaire in which I included demographic variables in the first part. In the second part, I incorporated the final product of Delphi viz. 40 items measuring

environmental factors. To measure perceived transfer of training, I referred to published literature (Caires, 2013; Chauhan et al., 2017; Govaerts, 2017) and developed seven items that measure generalization and maintenance of the learning. In this seven-item instrument, four items measured generalization and three items measured maintenance of the learning. This scale measured the level of training transfer as perceived by the instructors only due to which it was termed perceived training transfer.

The second part of the instrument used 6-point Likert Scale which was commonly used to measure opinions, beliefs and attitude. The 6-point ranged from 'Strongly Disagree' to 'Strongly Agree' with no option of neutrality (DeVellis, 2017). The instrument was translated into Nepali language at first and then back translated into English to assure that the items hold similar meaning to what was originally developed (Chauhan et al., 2017). With this, I consolidated the scale containing 47 items for second part of the questionnaire to conduct piloting on the studied population. Among them, there were five reverse statements in internal environment and four in external environment, totalling to nine reverse statements (See Annex II). The items generalizable to the population has been explored through survey using exploratory factor analysis which are explained in the subsequent chapter.

Study Population

In social science research, population denotes total group of people we want to generalize to (Muijs, 2004). As per Guthrie (2010), population is the universe of a research. In this regard, the universe of my research were those employees (currently instructing or teaching) who have taken instructional skills related training from Training Institute for Technical Instruction (TITI) under CTEVT (Training Institute for Technical Instruction, 2019), Nepal and are currently engaged in technical

education related subjects in technical schools and colleges in Nepal. This target population can be instructors, assistant instructors those working under other designations such as coordinators or trade heads but with teaching or instruction as their key job responsibilities. The selection of training provider as TITI has been based on the TEVT policy, 2012 (discussed in chapter II). In this study, I have taken into consideration the training participants from October 2018 to December 2019 comprising altogether 719 participants from 39 training events of Training of Trainers (ToT), Occupational ToT and Instructional Skills (IS-1) and IS-2 which are the part of Basic General Instructional Skill's training programmes of TITI, and specific Instructional Skills trainings for the instructors. The training durations ranged from seven to 15 working days and these trainings are not similar to teacher training of long duration such as one year.

The information of training participants was acquired from the Management Information System of TITI. Hence, this study's population is characterized by the nature and time of training taken and current occupational engagement in instruction of technical education and that includes respondents from all seven provinces of Nepal. As Creswell (2012) highlights that collecting numeric data from a large number of respondents using research instrument/s is a must to generalize the finding, I am confident that this population is large enough to generalize to.

The time frame of the training has been taken with reference to past studies. The literature usually extends between time period of three months to one year after training (Bhatti et al., 2013; Chauhan et al., 2017; Lancaster et al., 2013). Lancaster et al. claim that the time frame from three months to 12 months prior to study allows to attempt the transfer of training. Further, Velada et al. (2007) conducted study on 185 Portuguese teachers on pedagogy and the use of new technology after nine months of

training completion. They argued that training of such nature requires time to apply the learned knowledge and skills and to generalize and maintain them. Studies on teacher's professional development (includes training programme) are found to commonly extend from six months to two years (Timperley et al., 2007). So, with reference to these literatures, time frame of three to fifteen months was deemed appropriate and thus selected.

Study Sample and Sampling Procedure

To address the difficulty of acquiring data from the entire population within specified time period, this study was conducted on sample size rather than the population which is a small subset drawn from the total population, and is representative of the entire population (Creswell, 2014; Conrad & Serlin, 2006). The sample size has been obtained through sampling which is the technique of collecting the true size of sample (Guthrie, 2010). Hence, to draw the sample size, popularly adopted sample size determination formula of Cochran (1977) was selected.

In the study, population proportion was represented by the *p* value which was 50 percent or 0.5 as suggested by Krejcie and Morgan (1970) since this would provide maximum sample size. So, half of the population was assumed to rate statements in positive direction while the other half would rate in the negative directions ($q = p-1 = 0.5$). Significance level was determined at 95 percent ($\alpha = 0.05$); confidence level is shown by z score which is a constant value needed for equation = 1.96 (Cochran, 1977). Bartlett, Kotrlik and Higgins (2001) also state z-score of 1.96 for sample size above 120. Acceptable margin of error or standard error at 95 percent confidence level (e) equals 5 percent i.e. 0.05. The population of the study was 719. To calculate the sample size without considering the finite population correction factor, below formula is used (Cochran, 1963 as cited in Israel, 2009).

$$n_0 = \frac{z^2 pq}{e^2}$$

Using this formula, the sample size of 385 was obtained. Israel (2009) states that sample size can be reduced for small population. In this respect, Bartlett et al. (2001) explain that if sample size exceeds 5 percent of the population, Cochran's corrected formula should be used. Since the sample size of 385 is greater than 5 percent of the population, Cochran's corrected formula was applied which is:

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

where,

n_0 = sample size without considering the finite population correction factor

n = sample size using the finite population correction factor

N = Total population

Using Cochran's (1977) corrected formula, the sample size obtained was 251. To select 251 respondents from the pool of population, I used probability sampling which ensures equal chance of selection of each respondent and that the sample selected is unbiased (Muijs, 2004). Under probability sampling, I used simple random sampling using a lottery system. With this scientific technique of sampling, the findings based on the selected sample have been generalized to the whole population which is also advocated by Neuman (2014).

Data Collection Procedure

Bryman (2016) explains data collection as the process of gathering data from the sample in order to answer research questions. Before going for survey for data collection, I conducted piloting as the trial version of the survey. The piloting was carried out on 25 samples. This size was suggested by Browne (1995) and Whitehead et al. (2015) with small standardised effect size (0.2). Also, this size was found be used in some studies (Marti, 2006; Othman, 2014). Piloting allowed me to assess the

ease of understanding of wordings, ease of administration, format acceptability along with the key purpose of assessing reliability and validity (Hertzog, 2008). After confirming that the tool was reliable (discussed later in this chapter), I approached sample of the population from the list of the training participants of the selected time frame.

I collected the data using survey method which Singh (2007) defines as "research approach designed to collect systematically descriptions of existing phenomena in order to describe or explain what is going on" (p. 409). To collect the data, I adopted online survey using google forms considering the geographically dispersed population and their heterogeneity. The sample contained respondents from technical institutes situated in various remote places of Nepal as well. Yet on a positive note, all the respondents being educators, had access to internet and knowledge of it. So, the link of online form was sent to them. To make the data collection procedure effective, a brief purpose was explained to them over the phone call and they were notified about the online form sent in their email. To those without active email, the link was sent to them via other means such as alternative email address or social media as per their convenience. Approach through phone was deemed necessary considering the poor research culture of Nepal and it drastically increased the response rate as well.

In this way, I collected the data of one point (cross-sectional) using self-administered questionnaire to obtain quantifiable data and test the research questions referring to Bryman (2016). Around one month's time frame was allocated for data collection following the survey's field procedures and time schedules for distribution as stressed by Singh (2007). One gentle reminder was sent as the part of the follow-up that helped achieve healthy response rate.

Data Analysis

Data analysis was imperative to generating meaning out of the collected data. For conducting data analysis in survey, De Vaus (2002) highlights four factors to consider which affects the analysis, and they are: i) the variable numbers, ii) level of measurement of variables, iii) descriptive and/or inferential analysis, and iv) ethical responsibilities. This study uses different statistical tools inclusive of descriptive as well as inferential statistics based on the research questions. The data was categorized and coded to input in Statistical Package for Social Sciences or SPSS® (SPSS hereafter) as an appropriate software for data analysis (Field, 2017).

For the first research question, Delphi method has been used first to prepare the research instrument applicable in the context of TVET instruction in Nepal. Then exploratory factor analysis (EFA) was conducted on the surveyed instrument taking into accounts all the important assumptions. EFA was used to explore Delphi driven variables that best describes the environmental factors that contribute to training transfer among the instructors of technical education in Nepal. To answer the second research question, descriptive statistical tools viz. central tendency (mean score) and dispersion measure (standard deviation) were used. These tools were appropriate to measure the level of perceived training transfer.

For the third research question, correlation and primarily Regression Analysis was used meeting necessary assumptions. The purpose of Regression analysis is to measure the effect of independent variable(s) on dependent variable. Since the effects of environmental factors were measured on perceived training transfer, multiple regression was used as an appropriate tool. Lastly, to address the fourth research question, Independent samples *t*-test and one-way ANOVA were used. Independent samples *t*-test was appropriate tool assess if perceived training transfer differs across

demographic variables with two sub-groups such as gender, marital status, engagement in either public or institutional schools/colleges and such. Meanwhile, ANOVA was an appropriate tool in case the demographic variables have more than two sub-groups such as ethnicity, age group, years in experience and such. Along with ANOVA, Welch test & Brown-Forsythe tests were also used when the assumptions of homogeneity were not met. The list of research questions and the intended research tool/s to find out the answers are tabulated below.

Table 1

Research Questions and Analytical Tools

S.N.	Research Questions	Research Tool/s
1.	Which environmental factors contribute to the transfer of training among the instructors of technical education in Nepal?	Delphi Technique; Exploratory Factor Analysis
2.	What is the level of perceived training transfer among the instructors of technical education in Nepal?	Descriptive Tools: Mean, Standard Deviation, Percentage
3.	To what extent do the identified environmental factors contribute to the perceived transfer of training in instructors in Nepal?	Regression Analysis & Correlation
4.	Does the perceived training transfer differ across personal characteristics (Gender, Age Group, Ethnicity, Marital Status, Family Type and Family Size) and professional characteristics (Locale of the Institution, Type of institution, Type of Service, Experience in Instruction) of instructors?	Independent samples *t*-test, one-way ANOVA, Welch test & Brown-Forsythe test

This study used various statistical tools ranging from simple descriptive tools to the tools for multivariate analysis. For analysis, SPSS version 21 was primarily used and Microsoft Excel 2016 was used to facilitate data analysis.

Validity and Reliability

Enrichment of quality of data indicates high quality answers to research questions (Teddlie & Tashakkori, 2009) because of which it becomes essential to ensure that the research instrument is both reliable and valid. Therefore, in this research, both validity and reliability have been assured. Reliability and validity are used as synonyms but statistically are drastically different (Singh, 2007). How the validity and reliability have been maintained is discussed below.

Validity

Validity simply refers to how well an assessment tool measures what it is intended to measure and it reflects as the extent of having evidence points to the intended interpretation (Creswell, 2012). This research has strictly conducted validity tests and focused on content, construct and criterion validity as applicable.

Content validity is the extent to which the items within a construct correspond to that construct or summated scale (Hair et al., 2014). Muijs (2004) simplifies content validity explaining that it refers to degree to which the contents of the manifest variables or statements of the questionnaire is right to measure the construct or factor which is latent. So, ensuring content validity requires assessment of whether or not the items are complete and correct to measure the latent concept. In this study, content validity was ensured both qualitatively (such as taking expert opinion) and empirically by assessing unidimensionality and convergent validity (Hair et al., 2014). Firstly, content validity was assured as Delphi process was carried out on TVET experts that resulted in the development of a new instrument with sufficient number

of statements that were contextual in TVET instruction in Nepal. Keeney et al. (2011) also support that Delphi ensures content validity because of the set of rules it holds and for its systematic process. In addition, extant literatures (Bates et al., 2012; Tracey & Tews, 2005) were also referred to in order to substantiate the instrument for pilot testing. Regarding assuring content validity empirically, unidimensionality was assured as all the cross-loading of factors were removed in EFA. Further, assurance of convergent validity has been discussed below. In this way, content validity in this study was ensured.

Another important form of validity is construct validity which ensures how well a test or tool measures the construct that it was designed to measure (Bryman, 2016). According to Strauss and Smith (2009), it is the degree to which a measure examines the construct it is intended to measure. It is necessary since it overarches both content and criterion validity making it the key validity and is used in validation of a measure as well as theory. To measure construct validation, it is essential to conceptualize 'construct' which is an unobservable or latent concept that can be explained conceptually but cannot be directly measured (Hair et al., 2014). It possesses systemic and observational meanings (Kaplan, 1964 as cited in Peter, 1981). The former explains that the construct should be theory based while the latter explains that construct should be capable of being put into use if it possesses explanatory power. Construct validity is explained by convergent validity and discriminant validity. Convergent validity assesses if the magnitude of inter-correlations within a construct is substantial and that construct is not contaminated with items from other constructs. In contrast, discriminant validity assesses if the inter-correlations among the different constructs measuring different concepts are not too high (Kline, 2016).

In this study, correlation coefficient was taken as the indicator to assess construct validity (Carlson & Herdman, 2010). The authors review literature in which convergent validities ranged from correlation of 0.2 to 0.82. The factors (or constructs as described above) were identified with sufficient factor loading above 0.45 for each item with most items above 0.5 which was needed to ensure that the factors were not contaminated with items from other factors (Peter, 1981). Similarly, the value of 0.45 explained discriminant validity because there was no cross-loading meaning all the items were loaded on only one of the six factors particularly. No items were observed in multiple constructs (See chapter IV). In addition, the correlation coefficients among the factors were less than 0.7 (See chapter V). This explained the role of theory that one construct measures one theme of concept and so it is outlined as different from other constructs (Peter, 1981).

Similarly, criterion validity was assessed by comparing scores of a construct of one study with scores in other studies with the similar construct in which a researcher has confidence (Neuman, 2014). Referring to the author, only concurrent validity was assessed since predictive validity was not applicable. Concurrent validity, for those factors identified in this research which were studied in other settings, was ensured by comparing their results with those of extant literature (Bhatti et al., 2013; Blume et al., 2010; Chen et al., 2007; Chiaburu et al., 2010; Cromwell & Kolb, 2004). Comparisons of the studies' results were similar, though not same, with this study.

This study also ensured validity in terms of internal and external validity referring to Saunders et al. (2016). Internal validity in this study was assured as causal relationships among the variables were established with statistical significance (Refer to Chapter V). Similarly, by ensuring that the findings of this research can be

generalized to other educational institutions running TVET programmes across the country, external validity too was satisfied.

Reliability

According to Bryman (2016), reliability is the consistency of a measure of a construct. Referring to the author, I used Cronbach Alpha test in order to check internal reliability. Kline (2016) as well advocates the use of Cronbach Alpha which is newer method to split-half reliability. In this concern, literatures indicate that in the test score that ranges from 0 to 1, the Cronbach's Alpha's value of 0.7 or above ensures that the items on the scale measure the same thing (Kline, 2016; Saunders et al., 2016). In piloting, the Cronbach Alpha test in this instrument score ranged from 0.834 to 0.899 in all the three studied constructs viz. internal work environment, external environment and perceived transfer of training. The Cronbach Alpha score is shown in the table below.

Table 2

Cronbach's Alpha Test

Dimensions	Items	Cronbach's alpha coefficient
Internal Work Environment	22	0.899
External Environment	18	0.834
Perceived Transfer of Training	7	0.878

Table 2 shows Cronbach's alpha coefficient of three major dimensions to measure their reliability. Cronbach's alpha coefficient shows values above 0.80 for all three dimensions indicating high reliability in their items. It helped ensure that the measures piloted were clear to the respondents. With this, as the researcher, the study

confirmed that the developed instrument measured the same thing each time it is used (Singh, 2007).

Ethical Considerations

One of the issues in survey is that some respondents may take it as an offence due to the content of the instrument. Others may exhibit lack of confidence in providing correct data. Dooley (2007) therefore highlights the necessity to predict such issues and prepare to address them. In this regard, this study had adhered to the code of ethics by exhibiting social, professional and scientific responsibility, respect for respondent's rights and dignity and maintaining integrity which was also suggested by Guthrie (2010). So, four Cs (Communication, Consent, Confidentiality and Courtesy) that immensely mattered in research ethics were strictly maintained in the study.

The questionnaire distributed to the respondents informed them of the purpose of the research and made the request for voluntary participation. So, in the data collection process, I fully respected their rights to decline the request to take part in the research. Hence, in this research, all the respondents made voluntary participation and had their consent in submitting their answers. The questionnaire also informed the respondents of confidentiality of their data. No identifying information was revealed at any point (Delphi, Piloting and Survey). In this way, I maintained confidentiality throughout the research and even after that. Besides, the survey was carried out with utmost courtesy with a polite and respectful act, meaning that they were respected for their participation and their views without any interventions from researcher. (For questionnaire maintaining research ethics, See Annex II). Since data were also collected using Delphi method in which the first round was carried out with unstructured interview, I fully ensured that the Delphi experts experienced

comfortable environment during the interview. Also, their point of views and opinions were also taken into consideration acknowledging their expertise and experiences. With this, two more Cs (Comfort and Consideration) of research ethics were also maintained.

Concluding the Chapter

This chapter commenced with the study's philosophical foundation which was guided by post-positivism. It showed that the study adopted cross sectional survey design as the key means of data collection. However, this chapter presented two methods for data collection in which the first phase was Delphi process conducted on 13 TVET experts from different parts of Nepal. This process led to the development of research instrument contextual in Nepalese TVET instruction which consisted of 40 items under two broad dimensions: i) internal work environment and ii) external environment. Out of 719 trainees, the survey was conducted on a sample of 251 respondents (instructors) derived from known sample size determination formula and simple random sampling technique from all across the country on the basis of instructional skills related training participation. It described about how the data was analysed using relevant tools and software. The chapter presented the ways with which validity was ensured. It also discussed on piloting that was carried out for reliability assessment which scored comfortably high. The chapter then concluded with the ethical matters of research that it has addressed.

CHAPTER IV

DEMOGRAPHIC VARIABLES AND ENVIRONMENTAL FACTORS THAT CONTRIBUTE TO THE TRANSFER OF TRAINING IN INSTRUCTORS

This chapter presents the results of the study conducted in the study sample. This chapter has two parts. In the first part, demographic variables of respondents or instructors (used interchangeably) are presented which includes both professional and personal information. In the second part, the environmental factors are explained that have been explored in this research using Exploratory Factor Analysis (EFA). The second part commences with safety checks for conducting EFA. It then illustrates the names of the six factors explored with necessary explanations of their statements. It also reveals the internal consistency among the factors with necessary explanations. The chapter then concludes with the discussions on descriptive statistics of these factors.

Demographic Characteristics of Instructors

This part presents the demographic variables of the instructors. Demographic characteristics have been grouped into their personal characteristics and their professional characteristics. To begin with, their personal characteristics have been discussed.

Respondents' Personal Characteristics

Within demographic characters, the personal characters of instructors are first discussed. In respondent's personal characteristics, their gender, age group, marital status, family type, family size and ethnic background have been discussed. The data of these characteristics are shown in Table 3 below.

Table 3

Respondents' Gender, Age group, Marital status and Family Type

Category	Frequency	Percent
Gender		
Male	140	55.8
Female	111	44.2
Age Group		
15 years to 25 years	34	13.5
25 years to 35 years	181	72.1
35 years to 45 years	29	11.6
45 years to 60 years	7	2.8
Marital Status		
Single	95	37.8
Married	156	62.2
Family Type		
Nuclear	130	51.8
Joint	121	48.2
Total	251	100.0

Table 3 shows frequency and categories of gender, age group, marital status, family type, family size and ethnicity of the instructors. Observing the data of gender, the number of male respondents was slightly higher than that of female. With respect to age group, it was found that most of the respondents i.e. 72.1 percent belonged to the age group of 25-35 years. 13.5 percent respondents were of the age group 15 to 25 years which is the second highest figure. This helps predict that young graduates are interested and coming up into TVET instructional field. Regarding their family type, slightly more than half that is 51.8 percent of the families were nuclear. However, it can be observed that still quite many families (48.2 percent) belonged to joint families which is a common cultural aspect of Nepal.

Family size of the respondents was also assessed in this study in which there were three categories: large, medium and small. Among the three categorizes, most of the respondents belonged to medium sized family with an account of 57 percent (See Annex III). Slightly above 30 percent respondents have small family size. Though the account for large-sized family was only 12.4 percent, the share of large-sized family was also noteworthy. Similarly, upon assessing the ethnicity of the respondents, it was found that 68.1 percent, which is the highest figure, belonged to Brahmin/Chettri while the second highest ethnic background observed was only 10 percent that belonged to Madhesi (Annex III). Data related to the Brahmin and Chettri ethnic background aligns with Nepal's National Population and Housing Census 2011 (Central Bureau of Statistics, 2012).

Respondents' Professional Characteristics

This part of the demographic variables discusses the professional characteristics of the instructors. It incorporates location of their institutes, their designations, service type, experience in the profession of instruction, level(s) in which they are teaching, educational qualifications and the training(s) they had attended in the research period (October 2018 to December 2019). All the respondents were from technical schools or colleges, and a few general schools or colleges with technical education programmes. Data of these institutions are given in table 4.

Table 4

Institutional Information

Category	Frequency	Percent
Province-wise Institutional Location		
Province 1	29	11.6
Province 2	14	5.6
Bagmati Province (3)	55	21.9

Category	Frequency	Percent
Gandaki Province (4)	37	14.7
Province 5	77	30.7
Karnali Province (6)	9	3.6
Sudurpaschim Province (7)	30	12.0
Locale		
Urban	150	59.8
Semi Urban	69	27.5
Rural	32	12.7
Type of Institution		
Public/Constituent	133	53.0
Institutional	118	47.0
Total	251	100.0

In the table 4 given above, it can be observed that respondents were from all across the country. The highest number of respondents was from the institutions located in the Province 5 which is 30.7 percent followed by the Bagmati province (province 3) which is 21.9 percent. The number of respondents from the institutions of other provinces were relatively lower but the number of respondents from the institutions located in the Province 2 and the Karnali province (Province 6) were the least.

While observing the locality, the above table shows that 59.8 percent, which represents more than half of the institutions, were located in urban areas while 40.2 percent were in the semi-urban and 12.7 percent institutions were from rural parts of the country. This reveals that still several institutions were running far from urban areas. Regarding the institution's type, slightly more than half that is 53 percent of the institutions of government ownership as they were related to CTEVT such as constituent/partnership schools or public institutions. However, it can be stated that

there is a balanced representation from both the types of institutions are almost balanced.

Under professional characteristics, designation, type of service and working experiences of the respondents have also been discussed. The designations were categorized into six positions all the way from Teaching Aid to Campus chief. The service type was divided into permanent and contract and the years of experience were studied under four categories which are presented in the table below.

Table 5

Respondents' Designation, Type of Service and Years of Experience in Instruction

Category	Frequency	Percent
Designation		
Instructor	188	74.9
Assistant Instructor	33	13.1
Teaching Aid	10	4.0
Lecturer/Assistant Lecturer	5	2.0
Coordinator/Head of Department	6	2.4
Vice Principal/Principal/Chief	9	3.6
Type of Service		
Permanent	57	22.7
Contract	194	77.3
Years of Experience in Instruction		
Less than 1 year	26	10.4
1 year to 5 years	160	63.7
5 years to 10 years	54	21.5
10 years to 20 years	11	4.4
Total	251	100.0

Table 5 shows designation, type of service and experiences of the instructors. It reveals that that most of the respondents were instructors which accounts to 74.9 percent distantly followed by assistant instructors which was 13.1 percent. These two

positions, together as instructors and assistant instructors, accounted for 88 percent while the number of teachers working in other positions was trivial. With respect to the service type, 77.3 percent was found to be working on contract basis which indicates that majority of the respondents were instructors working without job security. Regarding their work experiences in instruction, 63.7 percent had the work experience of one to five years and 21.5 percent had the experience in between five and 10 years. It helps analyse that the respondents were fairly experienced in their field. Besides, 10.4 percent of them had less than one year of experience which indicates that these respondents were fresh in TVET instruction. There were no instructors with above 20 years of experience who had taken the IS related training during the study period.

Among other professional characteristics, instructors were found to be engaged at teaching more than one level or programme. Most of the respondents were engaged in teaching in Diploma and nearly half of them were engaged in pre-Diploma level. The study also reveals that 7.6 percent respondents were teaching at Bachelor's level in different universities but only 1.6 percent were engaged in teaching in level 9 to 12 of schools of Nepal Government (See Annex IV). The respondents were found to be academically sound since more than three-fourth of them were the Bachelors' degree graduates and above (See Annex V). Regarding their training(s), nearly three forth i.e. 72.9 percent of the respondents had taken Training of Trainers (ToT) which is inclusive of General ToT, ToT for Effective Instruction, Occupational ToT and ToT for Basic Provinces. Only 15.9 percent had participated in training of Instructional Skills (IS) series which are designed for constituent schools of CTVET or public schools. It can be observed that 11.2 percent respondents had completed both ToT and Instructional Skills training (See Annex V).

Exploration of Environmental Factors that contribute to the Transfer of Training

One of the key objectives of this study was to explore the factors within the construct of environment that contribute to the training transfer among the instructors of technical education in Nepal. There were forty statements extracted from Delphi process in which two broad dimensions were explored: i) internal work environment whose item names start with 'we' and ii) external environment whose items start with 'ee'. These items were used in the instrument for survey (See Annex II). After data collection procedure through survey, data was entered into SPSS. Finally, and most importantly, Exploratory Factor analysis (EFA) was conducted to explore the factors of environment that contribute to training transfer. According to Cohen et al. (2018), EFA is used "to explore previously unknown groupings of variables, to seek underlying patterns, clustering and groups" (p. 818). Moreover, EFA is considered commendable if the purpose of the study is to 'explore' the nature of scale and inter-item relationships rather than to test the hypotheses or confirm certain ideas (Osborne & Fitzpatrick, 2012). Therefore, EFA was considered appropriate tool for analysis to meet this study's research purpose. In this study, the term *factor* and *construct* have been used interchangeably (Hair et al., 2014). Before conducting EFA – a multivariate analysis, important assumptions were assessed and met.

Safety Checks for Factor Analysis: Part I

A few important assumptions have been suggested before and while conducting factor analysis (Cohen et al, 2018). The points given below form the first part of the safety checks and they are discussed hereunder.

1. Factor analysis requires the data to be continuous. This assumption was easily met since 6-point Likert scale data was used.

2. Large sample size of 100 or larger is preferred (Hair et al., 2014). Further, Comrey and Lee (1992) explain that sample size of 300 is considered as ‘Good’ and ‘200’ as fair in factor analysis as the rule of thumb. So, the sample size of 251 was acceptable for this study.
3. The minimum ratio of sample size to number of variables should be 5:1 (Hair et al., 2014; Cohen et al., 2018). In my study, the ratio was near to 8:1 after deleting certain items on the grounds of correlation coefficient (discussed later in Part 2).
4. Variable selection has also been stressed by Cohen et al. (2018) suggesting to careful selection of only relevant variables. In this study, I have listed the relevant items generated from Delphi process following parsimonious reviews and revisions.
5. There should not be missing value in factor analysis (Field, 2017). This was not an issue since my study did not have any missing value.
6. Respondent’s engagement also matters. So, I removed a few data with straight highest or lowest values in a row marked as the outliers (Cohen et al., 2018). Also, to improve respondent’s engagement, I used nine negative statements and conducted reverse scoring (DeVellis, 2016).
7. The data must pass the normality test (Kline, 2016). The data distribution was normal which is explained below. To test the normality of the data, I carried out Shapiro-Wilk as well as Kolmogorov-Smirnov test (Hair et al., 2014) on two broad dimensions.

Table 6

Tests of Normality through Kolmogorov-Smirnov test and Shapiro-Wilk test

Dimensions	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Internal Work environment	.110	251	.000	.962	251	.000
External Environment	.053	251	.079	.988	251	.031

a. Lilliefors Significance Correction

Table 6 shows the tests of normality using Shapiro-Wilk and Kolmogorov-Smirnov tests. Based on the table above, the significance value of External Environment was below 0.05 ($p < .05$) in Shapiro-Wilk test, but above 0.05 ($p > .05$) in Kolmogorov-Smirnov test. Referring to Kolmogorov-Smirnov test, it can be ascertained that there is a normal distribution in External Environment (Cohen et al, 2018). In internal work environment, the value was statistically significant in both tests but it can be observed that the statistic values of the variables were near to 1 in Shapiro-Wilk test that can be considered as normal distribution. Yet, I also tested Kurtosis and Skewness which are important and common ways to test the normality (Cohen et al, 2018; Kline, 2016; Tabachnick & Fiddel, 2013).

Table 7

Test of Normality using Kurtosis and Skewness

	N	Skewness		Kurtosis	
Dimensions	Statistic	Statistic	Std. Error	Statistic	Std. Error
Internal Work Environment	251	-.622	.154	-.065	.306
External Environment	251	-.299	.154	-.365	.306

Table 7 given above shows that the Skewness and Kurtosis values of internal work environment were -0.622 and -0.065 respectively. Similarly, the Skewness and Kurtosis of external environment were only -0.299 and -0.365. All these values were below or close to ±0.5 only. According to George and Mallery (2016), for both Kurtosis and Skewness, the value between ±2.0 is acceptable while that between ±1.0 is highly preferred. In this perspective, the data of both these broad dimensions were normal. With these assumptions met, I stepped up for further safety checks.

Safety Checks for Factor Analysis: Part II

The second part of safety checks was conducted while running factor analysis in SPSS. These checks, explained below, were suggested by Cohen et al. (2018), Field (2017) and Kline (2016).

1. Correlations between variables should not be very high, precisely it should not be >0.8. In this study, the correlations were safely below this value. Meanwhile, items with correlations with most of the other items below 0.3 should also be considered excluding. Based on this suggestion, I removed eight items which had value of inter-item correlations lower than 0.3. So, the number of items was revised from 40 to 32 items for Varimax rotation.
2. Kaiser-Mayer-Olkin (KMO), the measure of sample adequacy, should yield a minimum measure of 0.6. In this study, KMO was 0.916 (See Annex VI).
3. Eigen value of greater than one should be retained. In this study, six factors were retained with Eigen value of greater than one.
4. Communalities of average extraction must be greater than 0.5. In my study, the communalities of average extraction of all items scored 0.61 (See Annex VII).

5. The minimum retention of items loading should be 0.30. The items loading in Varimax Rotation was 0.45. This value was strictly applied for two reasons: i) the sample size was not large; ii) cross-loadings disappeared when this value run.

After satisfying all the assumptions of the factor analysis, a total of 29 items were retained under six dimensions, also known as factors (used interchangeably). These factors, their nomenclature and items under each of them are discussed in the section below.

Naming the Environmental Factors that contribute to the Transfer of Training

Nomenclature of factors in EFA is an important, yet a challenging task. Cohen et al. (2018) disclose that the name given to the common factor should incorporate all the issues of its listed items. So, after substantive interpretation based on the factor loadings (Hair et al., 2014) with the assistance of a TVET expert and reference of past literature, six factors were named. The names in sequence from factor one to six were: i) Organizational Transfer Intervention, ii) External Monitoring and Evaluation (M&E), iii) Local School Governance, iv) Management Support, v) Social Support, and vi) Workload. Only factors with minimum three items (or statements) have been taken into considerations. Items have been clustered by EFA on the grounds of correlational values they possess with other items.

Factor One: Organizational Transfer Intervention

Organizational Transfer Intervention is the first factor in which six items were clustered by EFA. The factor loading values range from .563 to .764 which are above the minimum factor loading value of 0.45. The rotation component matrix of this factor is given in the table 8.

Table 8

Rotated Component Matrix: Factor One

Item Code	Items	Component 1	2	3	4	5	6
we10	My organization provides me adequate resources/materials needed to apply the training.	.719					
we11	My organization makes the required resources available timely to apply the training.	.764					
we12	The resources that my organization provides the instructors during the course of training transfer are of standard quality.	.711					
we14	The management regularly collects the information of whether I am performing as per the training or not.	.619					
we15	The management monitors about the usage of resources availed to facilitate the training transfer.	.683					
we16	The management team takes the feedback from the students about the changes observed in me after the training.	.563					

The above table shows rotated component matrix of the first factor with six items. It has been named as Organizational Transfer Intervention since it includes items related to support and intervention activities to ensure training transfer. The factor includes items related to providing resources – adequately, in time and of quality as well as monitoring on the use of these resources. Two remaining items are about management's concern on the transfer of training. The statements, in overall,

are directed towards the measures and concerns of the organization towards training transfer can occur in the organization. So, it was named Organizational Transfer Intervention.

This factor is related to previously used Factor 'Opportunity to use' in Revised LTSI (Bates et al., 2012) in which three items related to availability of resources and opportunity to apply learning were grouped. However, 'organizational transfer intervention' goes beyond this scope since providing resources is simply not adequate to ensure that the instructors will transfer the training. So, organization first provides them with resources and opportunities to apply the training. Second, it ensures that training is being transferred through assessment of use of availed resource and on whether training is being transferred.

The statements concerning the intervention on whether training is applied or not, and gathering feedback from students are theoretically guided. Hartley and Broadfoot (1988) signify that it is the head-teachers who perform assessment works which ultimately helps improve teaching of teachers. Role of Principals for monitoring was also advocated by Willms (2000). Therefore, regular assessment on whether or not the training is being transferred and the resources are being utilized helps foster the transfer process. Conducting evaluation of instructors' performance from students' side and gathering their perspectives in school performance have also been given utmost importance (Ginns et al., 2007). Also, the role of students has been confirmed to influence teaching styles and methods (Lekena & Bayaga, 2012). In this regard, collecting feedback from student confirms influence on the training transfer process. This factor makes a strong sense because after providing resources, it is better to apply intervention strategy first to ensure training transfer rather to wait until their performance appraisal to take curative actions.

Factor Two: External Monitoring and Evaluation

The second factor is External Monitoring and Evaluation (external M&E hereafter) that is a completely new factor. This factor also consists of seven items representing external environment with the factor loading ranging from .576 to .75 which are shown in table 9.

Table 9

Rotated Component Matrix: Factor Two

Item Code	Items	Component					
		1	2	3	4	5	6
ee10	CTEVT ensures that instructors evaluate the theoretical knowledge of students as they have learned in the training.		.710				
ee11	CTEVT ensures that instructors evaluate the skills of students as they have learned in the training.		.717				
ee13	Other external bodies conduct monitoring on whether instructors teach as per the training or not.		.750				
ee14	Respective bodies regularly monitor whether the instructors are using the training or not.		.576				
ee15	Monitoring and evaluation of whether the instructors are using the training or not are conducted in detailed manner.		.627				
ee16	Monitoring and evaluation of whether the instructors are using training or not are conducted with integrity.		.674				
ee17	Respective bodies encourage the instructors if they transfer the training.		.633				

Table 9 shows the rotated component matrix of factor two which has been named as External M&E. All the seven items listed in this factor are new in this field of study because so far, only variables within the internal work environment have been assessed and discussed. This factor represents external environment which is beyond the control of the organizational work environment. It includes items related to monitoring and evaluation from external bodies. Monitoring of a programme is a continuous systematic review of certain programme. It is the assessment carried out periodically to basically assess the progress of the programme, explore the problems and offer remedial actions (European Commission, 2002). On the other hand, programme evaluation is the objective assessment of the results of certain programme, and activities with it. Stufflebeam (2000) defines evaluation of programme as a study which is designed and implemented to assess merit and worth of some programme, activity or project.

M&E is widely being studied and acknowledged in improving teaching quality (Hallinger et al., 2014; Phelps, 2014; Supovitz & Taylor, 2005). The role of M&E has expanded to the performance of school as a whole. So, External M&E may drive the instructors to give better performance which means it makes influence on training transfer. Conducting M&E simply may not bring about changes if it is not carried out with integrity. Stufflebeam (2000) explains pseudo-evaluation as one of the evaluations which is a threat to real M&E practices. Hence, this validates statements of conducting M&E with integrity and in a detailed manner.

Willms (2000) through his study findings suggests the need for state and district monitoring systems in order to encourage learning outcome-oriented teaching strategies and hold teachers, students and guardians accountable for the school results. In the context of Nepal, Education Policy 2019, in one of its objectives, has stated

about ensuring competence, honesty, commitment and accountability of the teachers (MoEST, 2019) and that is done through M&E. In TVET, along with knowledge, skills are also assessed by respective universities or regulatory bodies. Since the use of training is ultimately linked to the performance of the students who are expected to enter the world of work with skill and competency, M&E by these external bodies also affect the extent to which the instructors transfer the training back in their organizations. In this way, this factor 'External M&E', highlighted as the impetus to improve education quality, was explored as a new factor.

Factor Three: Local School Governance

The third factor is named Local School Governance. It consists of four items with factor loading ranging from .537 to .62. In this factor, items we05 and we06 represent internal environment while items ee03 and ee04 represent external environment. The rotated component matrix of factor analysis is given in the table 10.

Table 10

Rotated Component Matrix: Factor Three

Item		Component					
Code	Items	1	2	3	4	5	6
we05	The management of my organization involves me in developing plans for the application of knowledge and skills.			.537			
we06	In the course of transferring the training, my organization encourages instructors to learn from other organizations.			.607			
ee03	Local stakeholders show concern towards the teaching style of instructors after training.			.538			
ee04	Guardians are aware about whether instructors teach with competence or not.			.620			

In the table 10, rotated component matrix of third factor is shown with four items clustered by EFA. It has been named ‘Local School Governance’ as its items fit within the core essence of this term. According to Hanberger et al. (2016), local school governance explains the governance which functions at a local level and quasi-market in which actors of local school govern and make influence on schooling and education such as school policy, education, school’s climate, safety and such. For this, the efforts of actors and institutions are required such as state, local level education committees, school management committees, parents, pressure groups and even teachers themselves to govern and foster school education and bring about changes to policy and climate of school. To explain quasi-market from the definition, the authors cite Lubienski (2009) who elaborates that this means public regulations, assessment of programmes and school activities of donor agencies, accreditation process, and competition of shareholders/owners of different schools as well as choices of guardians. Local school governance as the action or manner to govern the school has the role in either fostering or inhibiting the transfer of training.

The first statement in this factor is related to involving teachers in organizations in planning to facilitate training transfer. Necessary changes in teachers that include use of training in the classroom is subject to some key facets of learning such as adaptive planning, initiative taking and ability to restructure (McDonald, 2011). Further, Fullan (1992 as cited in McDonald, 2011) explains that learning in teachers occurs in the environment that supports their self-initiated ideas and supportive participation from others. This statement explains the effort of school management to initiate good governance and stimulate the commitment of teachers in transferring and improving teaching-learning process. Regarding the second statement, Trust et al. (2016) explored that professional learning networks support

cognitive growth of teachers, drive them to modify their teaching practices and even encourage to improve teaching methods. Encouraging teachers to learn from other organizations (schools and colleges) also shows the effort of school management to improve teaching process of the respective organization which also aligns with the above concept of school level governance.

Local level government, civil societies, donor agencies and other local actors are prime local stakeholders and their concern on how the teachers are teaching also pushes them to apply learning from the training. The role of quasi-market, explained above, also has some implications in this regard. In local government model, local government governs education and the institutions (Hanberger et al., 2016). They apply national education policy and even implement local school policies. This discussion can be connected to Article 56 in the constitution of Nepal which has clarified that the power has been transferred to local level government (Nepal Law Commission, 2015). Assuring the quality of education of educational institutions falls under the accountability of the respective local level government. Besides that, there are non-government organizations that are also working to support and uplift the education system. Therefore, the concern of local stakeholders is just as valid as that of the school itself.

Stakeholders' participation has been recognized as a key role in improving school performance (Botha, 2007). In addition, their participation is also stated as a way to take part in school level governance. The author elucidates parents as one of the stakeholders. Regarding parents' involvement, studies have confirmed positive role of parental involvement in academic success and school's effectiveness (Wilder, 2014; Willms & Somers, 2001). Connecting to the factor, Hanberger et al. (2016) cite Musset (2012) to throw light on market-oriented school governance in which parents

would shift their children's school for better education. The authors therefore underscore the role of parents to evaluate the schools that include evaluation of teacher's teaching methods and style. School level governance influences school's education and thereby influences the extent to which instructors transfer the training.

Factor Four: Management Support

The fourth factor explored was Management Support. This factor has five items with factor loading ranging from .463 to .735. In this factor, three out five are reverse statements namely item we03, we04 and we20. The rotated component matrix of factor analysis is given in the table 11 below.

Table 11

Rotated Component Matrix: Factor Four

Item Code	Items	Component 1	2	3	4	5	6
we03	My organization sends free and available employees to training more than those who actually need it.				.735		
we04	The decision-making process on purchase of necessary resources to facilitate training transfer is a hassle.				.589		
we18	I can openly discuss on the issues about the application of training in my organization.				.560		
we19	The management of my organization is positive about providing necessary support to facilitate the training transfer.				.491		
we20	The management is more concerned on the course completion rather than on whether the training is being transferred or not.				.463		

Table 11 shows rotated matrix component of the fourth factor with five items generated by EFA. It has been named 'Management Support' explored in this study is

distinct from supervisor support which has also been discussed separately in past studies (Facteau et al., 1995; Switzer et al., 2005). Borrowing the conceptual understanding of managerial support given by Tracey and Tews (2005), this study presents management support as the extent to which the senior members of organization holding crucial leadership positions encourage the employees to take part in training and support in the transfer of training. Managerial support has been found to be positively related with personal capacity to transfer (Kirwan & Birchall, 2006) as well as with pre-training motivation (Switzer et al., 2005). While supervisory support has remained salient in numerous studies (Al-Eisa., 2009; Chauhan et al., 2017; Park et al., 2016), the role of members of senior level management is seen to be more pertinent than that of supervisors in this study.

The first statement of this factor reflects on the encouragement of management to participate in training. To elaborate managerial support, Tracey and Tews (2005) highlight that managers/supervisors compare needs for personal and professional development of their subordinates with opportunities to attend the available training. Hence, the first statement of this factor well aligns with this explanation. In addition, Al-Eisa et al. (2009) also suggest that managers should assign the employees for training on the basis of need assessment to avoid wastage of resources. Regarding second statement of this factor, it is in the hands of key position holders to approve or deny the majors decisions in the organization. So, the decision to make expenses on resources also reflect the extent to which management is supportive in facilitating transfer of training. The role of leadership in schools is instrumental in student achievement and teacher performance (Dimmock & Tan, 2013; Louis & Lee, 2016). In this study, management's role (role of leaders) seems to be more dominant than that of supervisors. The third and the fourth statement are self-explanatory

corresponding to the above definition of management support. The fifth statement – a negative statement aligns with Tracey and Tews' (2005) work in which the authors explain that the core expectation of management is primarily the high-level performance. In this manner, management support has been explored as one of the key environmental factors in contributing to training transfer in instructors.

Factor Five: Social Support

The fifth factor is Social Support with four items manifested from the lens of knowledge sharing culture mostly with peers, support from colleagues and from family members. The factor loading of these four items range from .488 to .724. Item number we07, we08 and we09 resemble internal environment while item ee18 resembles external environment. The rotated component matrix of factor analysis of Social Support is given in the table 12 below.

Table 12

Rotated Component Matrix: Factor Five

Item		Component					
Code	Items	1	2	3	4	5	6
we07	In my organization, there is the culture of discussing learned knowledge and skills after returning from the training.					.558	
we08	My colleagues encourage me to apply training at the workplace.					.714	
we09	My peers praise me if they notice any positive changes in me after taking the training.					.724	
ee18	I get support from my family to prepare for class to apply my knowledge and skills.					.488	

The above table shows rotated component matrix of fifth factor with four items clustered by EFA. It has been named social support as it represents the support from the elements social circle. In the past studies, social support represented support from colleagues, supervisors, subordinates (Blume et al, 2016; Tonhauser & Buker, 2016) and even top management support (Facteau et al., 1995). These literatures were confined to manifest the supports from the members inside the organization they worked in. This study explores the support from the family members which is beyond the conventionally studied work environment. Role of peer support in training transfer has already been discussed in literature review and the first three statements are related to the support from peers and other co-workers; and they also correspond to the previously used scales (Bates et al., 2012; Tracey et al, 1995).

Family support is a newly explored variable in the studies of training transfer and it has a theoretical back-up to be included in Social Support. Both peer support and family/friends support are accepted as important sources of Social Support (Kassis et al., 2019). Similarly, Lambert et al. (2016) explain social support is composed of administrative support along with supervisory support, co-worker support and support from family/friends. They categorize social support, support from colleagues, seniors and management as intra-organizational and support from family and friends as an extra-organizational support system. Similarly, Ray and Miller (1994) state that peer and supervisor support fall under workplace sources of support and family/friends support falls under home sources of support. Peers and family/friends were found as a common source of social support for teachers more than Principals to share about their workload stress (Ferguson et al., 2017). With regard to the roles of family support, work-family-conflict has predicted burnout in teachers (Cinamon et al., 2007) while family support is shown to reduce workload

stress (Ferguson et al., 2017), reduce turnover intention (Zhou et al., 2020) and increase their self-efficacy (Korte & Simonsen, 2018). Workload is negatively related to training transfer whereas self-efficacy is positively related to it. Thus, it is validated that family support helps gain self-efficacy and also supports in training transfer.

Factor Six: Workload

The sixth or the last factor explored in this study is Workload. It contains statements related to instructor's workload on the basis of student-teacher ratio (STR) and curriculum. The factor loading of these three items range from .619 to .732. Item we21 and item we22 represent internal environment. On the other hand, ee05 represents external environment and is a reverse statement. The table below shows the rotated component matrix of sixth factor.

Table 13

Rotated Component Matrix: Factor Six

Item		Component					
Code	Items	1	2	3	4	5	6
we21	I get adequate time to apply the knowledge and skills learned in the training back to my work.						.619
we22	There is adequate number of instructors in comparison to the number of students to apply the training.						.671
ee05	With regard to the transfer of training, the course is too long to be covered in limited time.						.732

The table 13 above shows the rotated component matrix of the sixth factor generated by EFA. It has three items and has been named Workload. This factor corresponds to the factor 'personal capacity to transfer' (Bates, et al., 2012) to some

extent which is related to the workload of the instructors. In this factor, the second statement relates to STR which has been categorized as one of the indicators of TVET quality (Inter-Agency Working Group on TVET Indicators, 2014). Large class sizes are difficult to manage for teachers and they impel teachers to focus more on integrated reading and writing rather than proper instructions (Wilson, 2006). Meanwhile, low number of students per teacher, which is related to class size as well, is shown to be associated with better teaching and learning (Koc & Celik, 2015) and individual attention to students (Wilson, 2006). This indicates that STR may influence the extent to which instructors would apply the learning from the training to their teaching. In case of higher number of students per instructor, instructors are required to dedicate more time for each student and thus it increases their workload. So, workload, in this perspective, is influential in contributing to training transfer.

Curriculum, in terms of the vastness of the course contents, is also another important source of workload for instructors. Curriculum is much more than the apprehension and management of teaching-learning processes at micro level. In addition to the former understanding, curriculum is the comprehensive construct of contents along with clear purposes of TVET education which is framework settings at meta-level (Dittrich, 2009). Teaching the contents of the given course to meet its objective using appropriate teaching methods is the core job responsibility of an instructor. Regular works of instructors are classified as teaching in class, preparation as per the curriculum, counselling the students, management of class/workshops, coordination with guardians, maintaining professionalism and administrative supports to school operations (Kim et al., 2005 as cited in Kim, 2019).

With increased curriculum load, the workload of instructors also increases. Administrative tasks are confirmed to take away time and effort from key

instructional activities (Kim, 2019); further work intensification as a whole reduces quality of services the teachers provide which include quality of teaching (Dibbon, 2004). Instruction related trainings are designed to improve and enhance quality of teaching or instruction. In this regard, the load of curriculum is influential on training transfer among the instructors. In the context of TVET of Nepal, curricula are designed and developed by CTEVT as per the Technical and Vocational Education and Training Policy, 2012 (MoE, 2012) or respective universities. These curricula are followed by the institutions that run TVET courses and so amending the curricula or reducing the contents specified in curricula are beyond the control of these institutions i.e. internal organizational environment (work environment). On a different note, CTEVT has set the class sizes of 40 or even 48 in technical education programmes for technical schools and colleges (CTEVT, 2016) and these institutions are not found to reduce the size of students in the classrooms, either due to the national need of providing education for all, or to earn more revenues out of more students. The higher number of students means greater load to instructor. Thus, another finding of this study is that workload is determined by forces inside and outside the work environment and is a contributor of training transfer among the instructors of technical education in Nepal.

Internal Consistency and Descriptive information of Environmental Factors

Along with the descriptions of each of the factor explored using EFA, the table 14 given below gives information of the internal consistency, average scores and the standard deviations of these factors.

Table 14

Cronbach's Alpha and Descriptive Statistics of Environmental Factors

SN	Factors	No. of items	Cronbach's Alpha	Mean	SD
1.	Organizational Transfer Interventions	6	0.90	4.04	1.00
2.	External Monitoring and Evaluation	7	0.85	3.63	0.92
3.	Local School Governance	4	0.71	3.91	0.96
4.	Management Support	5	0.77	4.03	0.90
5.	Social Support	4	0.70	4.72	0.71
6.	Workload	3	0.61	3.41	0.92

SD = Standard Deviation

The 14 shows the internal consistency among the scale items of the explored factors using Cronbach's Alpha test. It also reveals the mean scores and standard deviations of the six factors. The Cronbach's Alpha score ranges from 0.61 to 0.90. Among the six factors, five factors are on or above the cut-off point 0.70. Factor one: organizational transfer intervention shows excellent reliability with the score of 0.90, and factor two: external monitoring and evaluation shows high reliability with the score of 0.85. It is also important to note that Cronbach's Alpha score is highly dependent on average inter-item correlation and moreover, the number of items that constitutes a factor (Hinton et al., 2014; Kline, 2016). Further, Kline explains that even if inter-item correlations are low and the item numbers are substantially high, the Cronbach's Alpha score rises. This shows that factors with less item number bears the possibility of lower Cronbach's Alpha score which was the case with the sixth factor viz. workload but the value of 0.61 can be used in exploratory research (Hair et al., 2014). Referring to Hinton et al. (2014), this factor holds moderate reliability. A few other studies related to transfer of training also have been found to study variables

similar to the Cronbach's Alpha values (Chiaburu & Marinova, 2005; Hinrichs, 2014).

The Mean values range from 3.41 for workload which is the lowest to 4.72 for social support which is the highest. Standard deviation ranges from 0.71 to 1.00. Although the deviation values are not negligible, they are not alarmingly high. This shows that average respondents have experienced higher workload. Similarly, another low mean value is of external monitoring and evaluation. This also shows that there is low level of monitoring and evaluation from external bodies. In the table given above, it can be observed that social support was higher than other factors. To extend the discussion, the levels of these factors have been presented in the table below.

Explored Internal and External Environmental Factors and their Level

In this study, six major environmental explored factors were explored which have shown to contribute in the transfer of training among the instructors of technical education in Nepal. These six factors are representative of both internal work environment and external work environment. The factors: Organizational Transfer Intervention and Management Support represent internal work environment. External M&E represent external environment where as three other factors: Local School Governance, Social Support and Workload are representative of both internal and external environment.

To measure the level of these factors, six-point Likert scale was divided into three levels: Low, Medium and High. De Vaus (2002) explains that using such levels is preferable than imposing unrealistic definition from elsewhere. The author suggests generating three levels by dividing each category by three. In this study that uses 6-point scale, each level is divided at 1.66. So, the value from 1 to 2.66 was ranked as

low, 2.67 to 4.33 as medium and 4.34 to 6 as high level. With this, additional discussions were made on the level of environmental factors.

Table 15

Level of Environmental Factors

Environmental Factors	Level	Frequency	Percent
Organizational Transfer Intervention	*Low*	27	10.8
	Medium	94	37.5
	High	130	51.8
External M&E	*Low*	41	16.3
	Medium	144	57.4
	High	66	26.3
Local School Governance	*Low*	34	13.5
	Medium	126	50.2
	High	91	36.3
Management Support	*Low*	22	8.8
	Medium	119	47.4
	High	110	43.8
Social Support	*Low*	5	2.0
	Medium	60	23.9
	High	186	74.1
Workload	*Low*	46	18.3
	Medium	158	62.9
	High	47	18.7
Total (N)		251	100.0

The above table reveals the level of all six environmental factors with their frequencies and percentages. As discussed above, social support yielded maximum percentage of high level out of all factors (74.1 percent) followed by organizational transfer (51.8 percent). This shows that most of the respondents experienced high organizational transfer intervention and social support. In contrast, percentage of high score was least in the factor workload (18.7 percent) followed by the external M&E with 26.3 percent. It can be inferred that workload was higher in the instructors. Also,

occurrence of external M&E was low. So, this data has consistency with the previous discussions. Overall, the levels ranged from middle to high.

Concluding the Chapter

This chapter, divided into two parts, explains the demographic variables of the respondents in the first part within which personal and professional attributes were discussed. Among the respondents, there were slightly more male than female and more married respondents than single ones. Most of the respondents were of the age group of 25 to 35 years and from medium sized family. Maximum respondents were Hindu and were Brahmin/Chhetri. The number of respondents, employed in teaching in Diploma level in institutions located in urban areas was higher and they were mostly working in the post of instructors and on contract basis. With regard to academic qualification, majority of them had passed at least Bachelor's degree with experience of one to five years and had taken ToT training. In the second part, which was the most crucial part of the whole study, six environmental factors were named: Organizational Transfer Intervention, External M&E, Local School Governance, Management Support, Social Support and Workload. All these factors had theoretical support. Among them, the scores of social support and organizational support were high while the scores of workload and external M&E were lower.

CHAPTER V

LEVEL OF PERCEIVED TRAINING TRANSFER AND EFFECT OF ENVIRONMENTAL FACTORS ON PERCEIVED TRAINING TRANSFER

This chapter identifies the level of perceived transfer of training among the instructors engaged in technical education in Nepal and the contribution of six environmental factors: Organizational Transfer Intervention, External M&E, Local School Governance, Management Support, Social Support and Workload combined on perceived training transfer. The chapter commences with statistical procedure used for these analyses. Prior to the analyses, necessary assumptions have been discussed and met. The association between these factors and perceived training transfer was identified before this examination. Also, this chapter assesses the effect of each environmental factor on perceived training transfer was assessed. In analysis, their effect sizes and statistical power were also measured.

Statistical Procedure for Analysis

Both descriptive and inferential statistics have been used in this chapter to address the second and third research questions. For second research question, descriptive statistical tools have been used to assess the level of perceived transfer of training such as mean score and standard deviation. The levels were categorized as: Low, Medium and High which was explained in Chapter IV. To address the third research question regarding the effects of environmental factors on perceived training transfer together, inferential statistical tool that is multiple regression analysis was used after meeting necessary assumptions. In addition, the effect of each environmental factor was also assessed using simple linear regression and Pearson Correlation test was also run to have a glimpse on the associations among all the

variables. All six environmental factors are independent variables (IVs) and perceived training transfer is the dependent variable (DV) in this chapter.

This chapter was not limited to statistical significance only. To each result produced by regression analyses, their effect size and statistical power were measured using a statistical software named G* power (Faul et al., 2007). Effect size refers to the estimation of the extent to which the phenomenon researched in sample occurs in the population (Hair et al., 2014). It functions in two dimensions viz. measures of difference and measures of association. It quantifies difference between groups which significance level fails to explain due to which researches emphasize on the use of effect size along with statistical significance. (Cohen et al., 2018). Similarly, power refers to the likelihood of rejecting the null hypothesis when it is not true. It is the function of significance level (α) which is 0.05 in this study, sample size which is 251 respondents and the effect size (Hair et al., 2014). So, effect size and statistical powers have also been presented and discussed.

Level of Perceived Transfer of Training

The level of perceived transfer of training among the instructors engaged in technical education was measured using the seven-item scale (See Chapter III). This level is shown below using average and frequency table. The average value of perceived training transfer was moderately high (M = 4.86, SD = 0.51) considering the use of 6-point Likert scale (See Annex VIII). Further to assess the level of the perceived training transfer, the levels were marked as low, medium and high. The results are presented in the table 16 below.

Table 16

Level of Perceived Training Transfer

Level of Transfer	Frequency	Percent
Medium Level of Transfer	35	13.9
High Level of Transfer	216	86.1
Total	*251*	*100.0*

Table 16 reveals the level of perceived training transfer among the instructors of technical education in Nepal. It shows two different levels of training transfer out of three as perceived by instructors. There was no respondent who did not transfer on a low level. Only around 14 percent of respondents perceived to have medium level of transfer while a massive 86.1 percent showed to perceive high level of transfer of training. This shows that the overall level of perceived training transfer was 'high' referring to De Vaus (2002).

Relationship between Environmental Factors and Perceived Transfer of Training

In examining the relationship between six environmental factors: Organizational Transfer Intervention, External Monitoring and Evaluation, Local School Governance, Management Support, Social Support and Workload and perceived training transfer, Multiple Regression and Simple Linear Regression were used respectively. Also, Correlation coefficients were analysed to measure their associations. Before beginning the analyses, assumptions have been checked so as to ensure eligibility to conduct these parametric tests.

Assumptions for Regression Analysis

This section begins with the discussions on the assumptions that have to be met before conducting regression analysis, especially multiple regression. First,

conducting multiple regression requires larger sample with minimum sample size: ≥50 + (8×number of independent variables) according to Cohen et al. (2018). With six factors as independent variables, the minimum sample size required was 50 + 8×6 = 98. The sample size of this study was 251. So, this assumption was easily met.

Simple random sampling and Scale data in both independent and dependent variables are required and these assumptions were met as discussed in earlier chapters. As one of the requirements, major outliers were also removed prior to analysis. To see if the outliers had an excessive influence on the results, Cook's distance was tested as suggested by Cohen et al. (2018). Cook's distance is shown in the table 17 below.

Table 17

Residuals Statistics[a]

Residuals Statistic	Minimum	Maximum	Mean	Std. Deviation	N
Cook's Distance	.000	.065	.005	.009	251

a. Dependent Variable: Perceived Training Transfer

Table 17 shows the values of Cook's distance which ranges from .000 to .065 with standard deviation of .009. Cohen et al. (2018) state that Cook's distance should not exceed 1. In the table above, the maximum Cook's distance, which is 0.065, is markedly below the ceiling value of 1. Thus, it confirms that there is no problem with the data. Having discussed this, the normality of data was then assessed using as shown in the table 18 below.

Table 18

Skewness and Kurtosis of Independent and Dependent Variables

	Skewness		Kurtosis	
Variables	Statistic	Std. Error	Statistic	Std. Error
Organizational Transfer Intervention	-.688	.154	-.420	.306
External Monitoring and Evaluation	-.265	.154	-.743	.306
Local School Governance	-.616	.154	-.205	.306
Management Support	-.448	.154	-.264	.306
Social Support	-.962	.154	1.507	.306
Workload	-.114	.154	-.552	.306
Perceived Training Transfer	-.688	.154	-.420	.306

The table 18 above shows the skewness and kurtosis value of all the environmental factors (IVs) and perceived training transfer (DV). The values of Skewness ranged from -0.114 to -0.962 and those of Kurtosis ranged from -.205 to 1.507. The standard error for skewness was 0.154 and that of kurtosis was 0.306. Referring to George and Mallery (2016), all the values fall within the acceptable range of ±2.0. So, the data was claimed as normally distributed. Histogram was also observed that resembles fairly bell-shaped curve to support normal distribution of data (See Annex IX).

Regression analysis also demands on another important assumption of linearity. Regarding this assumption, Field (2017) explains that there should be a linear relationship (correlations) between dependent variable and independent variable(s). Linearity can be observed through a straight line from the average values of outcome variables with respect to the increase in predictor variables. The author describes that dependent variables should have linear relation with any independent variables (IVs) and in case of multiple regression, and the collective influence of IVs

is best described by summing up all their effects. To assess linearity, observation of Probability-Probability (P-P) Plot of Regression Standardized Residual has been suggested (Cohen et al., 2018; Field, 2017). The figure 3 given below helps assess linearity normality as well as homoscedasticity.

Figure 3

Normal P-P Plot of Regression Standardized Residual

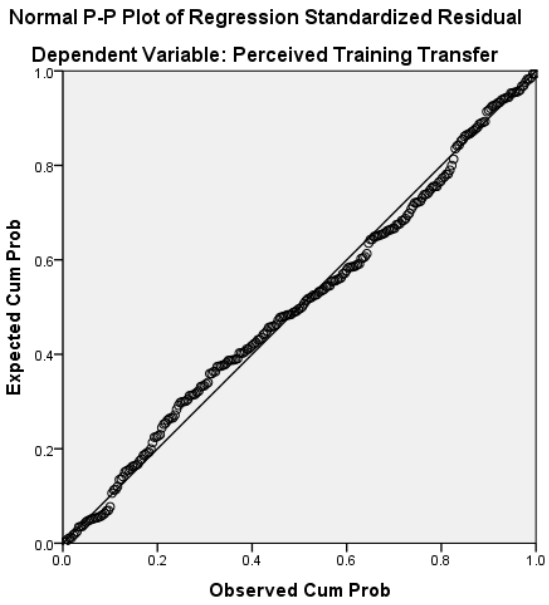


Figure 3 shows P-P plot of the residual to assess the linearity of data. In the figure, it can be observed that the points are evenly distributed around the hypothetical line. The mean values of dependent variable are closely around or overlapping it along with the increase in independent variables. So, it supports the assumption of linearity of data in this study.

Homoscedasticity or constant variance is another assumption. Homoscedasticity means that the variance which is observed around the regression line is similar for all the independent variables around the regression line (X) (Stockemer, 2019). To begin with, the above P-P plot also supported homoscedasticity (Cohen et al, 2018). Also, homoscedasticity was examined by

checking that the points are distributed consistently around the hypothetical line shown in the Scatter Plot (figure 4) below.

Figure 4

Scatterplot

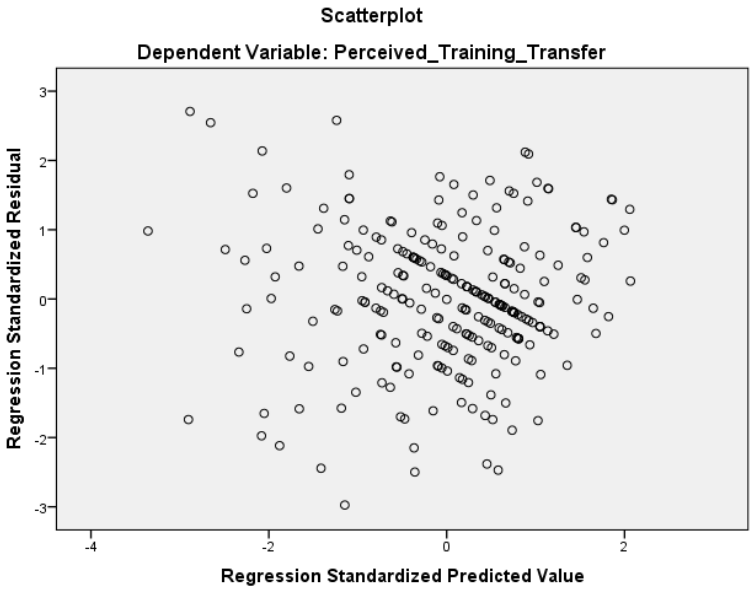


Figure 4 shows the scatterplot of Perceived Training Transfer in which Y-axis is Regression Standardized Residual and X-axis is Regression Standard Predicted Value. Based on the figure above, regression standardized predicted values (Perceived Transfer of Training) are clustered around an area. If observed closely, regression standardized predicted values are slightly more clustered on the right side. However, the distribution of its values is nearly consistent along with the increase in Regression Standardized Residual. The values, on the whole, have moderately uniform distribution.

More to this, Breusch-Pagan-Godfrey and Koenker tests were carried out for confirmation. For outcome variable, I used the Unstandardized Residual values since this was to test that the residual values would not increase with the increase in Independent Variables. I then transformed these unstandardized residual values into

absolute values (making all values positive) and kept all six environmental factors (IVs) unchanged. The suggestion of using variance stabilizing transformation was obtained from Hair et al. (2014). The obtained result has been presented in the table below.

Table 19

Homoscedasticity tests

Tests	LM	Sig
Breusch-Pagan-Godfrey Test	12.928	.044
Koenker Test	11.063	.086

Table 19 shows two different tests: Breusch-Pagan-Godfrey Test and Koenker Test to assess homoscedasticity. Here, Breusch-Pagan-Godfrey test shows significant result but Koenker test shows insignificant result ($p > .05$). Referring to Koenker test, which overcomes some drawbacks of the former test and carefully examines the test of homoscedasticity (Koenker, 1981), it was assured that with increasing values of independent variables, the residuals do not change drastically. Hence, through graphical means and statistical tests, the assumption of homoscedasticity was also met.

The assumption of autocorrelation should also be met which means that there should be no expected autocorrelation between residuals for any cases (Verma & Abdel-Salam, 2019). Autocorrelation occurs when the residuals of two observations are correlated within a given regression model (Field, 2017). Presence of autocorrelation or violation or independent errors signifies that model standard errors are invalid for which the residuals of two observations should be independent to get the data without autocorrelation. So, this assumption was tested using Durbin-Watson test. Field (2017) explains that in a conservative rule of thumb, the value should

between one and three and the value of ‘2’ signifies that the residuals have perfect independence (completely uncorrelated). In this study, the value of Durbin-Watson test was 2.018 (See Table 22). This value was much close to the desired value of 2 indicating the absence of autocorrelation.

In multiple regression analysis having multiple predictor (independent) variables, there should be no multicollinearity (Cohen et al. 2018; Field, 2017). Tabachnick and Fiddel (2013) stress that multicollinearity entails the risks of getting regression coefficient non-significant due to greater standard errors caused by strong correlations. According to Field (2017), to identify multicollinearity, the researchers can scan the correlation matrix for independent (exogenous) variables which is shown in the table 21 of correlation matrix in the next section which are well below the borderline ($r < .9$). Moreover, he first suggests computing variance inflation factor (VIF) that shows whether or not one independent variable has a strong linear relationship with the other dependent variables. Second, he suggests computing the tolerate statistics which is reciprocal to VIF i.e. 1/VIF. He explains that VIF should be substantially below 10 and tolerance level should not be below 0.2. VIF and tolerance statistical values are shown in the table 20 below.

Table 20

VIF and Tolerance Statistics of Independent Variables

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Organizational Transfer Intervention	.357	2.799
External Monitoring and Evaluation	.518	1.931
Local School Governance	.549	1.823
Management Support	.506	1.975
Social Support	.607	1.646
Workload	.799	1.252

Table 20 presents the values of VIF and tolerance level to assess multicollinearity. It shows that the lowest Tolerance statistics was 0.357. So, all the values were comfortably above the minimum tolerance value of 0.2 as described by Field. Similarly, the highest VIF score was just 2.799 and the remaining VIF scores were below two. Hence it can be claimed that there is absence of multicollinearity between the exogenous variables, indicating fulfilment of another desired assumption.

To carry out Pearson correlation test, some assumptions are required to be met which are the use of scale data, assumptions of linearity, removal of major outliers and normality of data distribution (Field, 2017). Singh (2007) stresses that the size of sample should exceed 100. All these assumptions were duly satisfied and discussed above. With this, I have presented the correlations and regressions analyses in the subsequent section.

Correlation between Environmental Factors and Perceived Training Transfer

The association among six explored environmental factors: Organizational Transfer Intervention, External Monitoring and Evaluation, Local School Governance, Management Support, Social Support and Workload and perceived training transfer was measure prior to Regression analysis. To draw their associations, Pearson Correlation Coefficient also known as Pearson's *r* coefficient tool was used in reference to Muijs (2004). The associations among these variables are shown in the table 21.

Table 21

Correlations of Perceived Training Transfer and Environmental Factors

SN	Variables	1	2	3	4	5	6	7
1.	Perceived Training Transfer	-						
2.	Organizational Transfer Interventions	.428**	-					
3.	External Monitoring and Evaluation	.464**	.662**	-				
4.	Local School Governance	.383**	.591**	.534**	-			
5.	Management Support	.372**	.674**	.470**	.517**	-		
6.	Social Support	.522**	.547**	.498**	.537**	.463**	-	
7.	Workload	.251**	.403**	.291**	.335**	.396**	.303**	-

**. Correlation is significant at the 0.01 level (2-tailed)

Table 21 shows the correlation coefficient of six environmental factors and perceived training transfer among each other. Muijs (2004) explains three important aspects to analyse correlation data: direction, magnitude and significance. The table shows only positive values implying that all the factors are positively related with perceived training transfer and with each other. Regarding the magnitude, Saunders et al. (2016) explain the relationship of values of 0 to 0.2 as trivial or none, 0.2 to 0.35 as weak, 0.35 to 0.6 as moderate, 0.6 to 0.8 as strong and 0.8 to below 1 as very strong and the same applies to negative values of these ranges. So, the correlation coefficient in this study ranged from low to strong level. Regarding significance, all the coefficients are statistically significant at 99 percent ($p < .01$) which indicates that all the above correlation coefficients resemble the population. Thus, association of perceived training transfer with organizational transfer intervention ($r = .428$, $p < .01$), with external monitoring and evaluation ($r = .464$, $p < .01$), with local school governance ($r = .383$, $p < .01$), management support ($r = .372$, $p < .01$) and social support ($r = .522$, $p < .01$) were moderate. Meanwhile, workload was weakly correlated ($r = .251$, $p < .01$) with perceived training transfer. Among these factors,

'social support' had relatively higher correlation coefficient than other factors. Thus, the associations of most of factors were moderate with the perceived training transfer.

Effects of Environmental Factors on Perceived Transfer of Training

This section shows the contribution of six environmental factors (predictor variables) collectively on perceived training transfer (outcome variable) using multiple regression in which three key measures viz. the Adjusted R square, the ANOVA significance level; the Beta (β) value is assessed (Cohen et al., 2018). There are six predictor variables in this study with their abbreviations, and they are: i) Organizational Transfer Interventions (OTI), ii) External Monitoring and Evaluation (External M&E), iii) Local School Governance (LSG), iv) Management Support (MS), v) Social Support (SS) and vi) Workload. The tables (22 to 24) given below form the bases for discussions.

Table 22

Model Summary of Multiple Regression[b]

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.579[a]	.336	.319	.41635	2.018

a. Predictors: (Constant), Workload, External M&E, SS, MS, LSG, OTI

b. Dependent Variable: Perceived Training Transfer

In the table 22 above, a summary of multiple regression is shown. Here, the value of R square is shown which explains the coefficient of determination (Hair et al., 2014). It is a measure of proximity of data to the fitted regression line and thus it informs the extent to which independent variable explains the variance in the dependent variable. The value of R square was 0.336. The same table also presents the data of Adjusted R square. According to Hair et al. (2014), Adjusted R square means modified measure of the coefficient of determination which considers the

number of independent variables in the regression equation as well as study's sample size. From the table, it can be observed that its value was 0.319 which is smaller than 0.336 as it is estimated on the fact that the study is being conducted on sample rather than population. Adjusted R square is advocated due to its accuracy (Cohen et al., 2018). So, Adjusted R square's value of 0.319 explains that 31.9 percent of the variance in dependent variable (Perceived Training Transfer) was explained by six predictor variables together. Muijs (2004) states a general rule of thumb for adjusted R square in which less than 0.1 means poor fit; 0.11 to 0.3 means modest fit; 0.31 to 0.5 means moderate fit; and greater than 0.5 means strong fit. Based on this rule of thumb, the regression model falls in 'moderate fit' category. As much as identifying the category is important, it is equally essential for a researcher to assess statistical significance of the model as shown below.

Table 23

ANOVA[a]

Model	Sum of Squares	*Df*	Mean Square	F	Sig.
Regression	21.375	6	3.562	20.551	.000[b]
Residual	42.298	244	.173		
Total	63.672	250			

a. Dependent Variable: Perceived Training Transfer

b. Predictors: (Constant), Workload, External M&E, SS, MS, LSG, OTI

In table 23, the ANOVA significance level is observed as suggested by Cohen et al. (2018). It shows significant value at above 99 percent ($p < .01$) meaning the effect of environmental factors on perceived training transfer did not exist simply by chance. In other words, this model is a statistically significant predictor of the outcome and makes an accurate prediction of the results in the population.

The effect size of this model was calculated using a standardized measure called Cohen's f^2 which is derived as: $R^2/ 1\text{-}R^2$ (Selya et al., 2012). The calculated

effect size (Cohen's f^2) was 0.51. The same score was obtained when G* Power software was run. Cohen et al. (2018) offer a guideline to estimate effect size for Multiple Regression using R^2 in which the score 0.02 is small, 0.13 is medium and 0.26 is large. In this respect, the effect size of this model was huge. Then statistical power was computed considering this effect size, sample size of 251 respondents, margin of error (α) at 0.05 denoting 5 percent chance of Type I error, and six predictors. The computed statistical power was equivalent to 1. According to Cohen (1988), the desired power level is 0.8 and above. Similarly, Cohen et al. (2018) explain that value closer to one entail greater statistical power. Power is inversely proportional to type II error, also known as β and as per Singh (2007), type II error is the error that occurs when the null hypothesis is not true but the researchers accept it as true. So, the power of value equivalent to 1 explains nearly 100 percent chance of addressing Type II error i.e. rejecting false null hypothesis. The influence of each factor was also assessed in relation to their coefficient and significance level within the multiple regression model as shown below.

Table 24

Coefficients of Six Environmental Factors on Perceived Training Transfer[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.944	.187		15.758	.000
Organizational Transfer Interventions	.006	.044	.013	.147	.884
External Monitoring and Evaluation	.125	.040	.228	3.151	.002
Local School Governance	.009	.037	.016	.232	.817
Management Support	.040	.041	.071	.963	.336
Social Support	.247	.048	.348	5.192	.000
Workload	.022	.032	.041	.695	.488

a. Dependent Variable: Perceived Training Transfer

Table 24 shows six models of regression of six environmental factors with unstandardized and standardized coefficients and significance level which helps find out the independent variables (IVs) that makes the most contributions to predicting the outcome and whether or not the contributions are statistically significant. All six environmental factors were placed as the IVs in the regression model. In this table, I have taken two key points of information into considerations for analysis. First is the Beta value (β) under 'Unstandardized coefficients' column. According to the table above, Social Support is the highest contributor for it has the highest Beta value which is 0.247 that explains the outcome when other variables are controlled. Second key point of information was the level of significance. Only the two key contributing environmental factors: Social Support and External M&E were statistically significant at above 99.9 percent ($p < .001$) while the remaining four were insignificant ($p > .05$).

Effect of Individual Environmental Factor on Perceived Training Transfer

The effect of each environmental factor (IV) on Perceived Training Transfer (DV) has been assessed using Linear Regression Model. This section commences with the analysis of Adjusted R square in the model summary.

Table 25

Model Summary of six Environmental Factors on Perceived Training Transfer[a]

Predictor Variables[b]	R	R Square	Adjusted R Square	Std. Error of the Estimate
Organizational Transfer Intervention	.428	.183	.180	.45704
External Monitoring and Evaluation	.464	.215	.212	.44798
Local School Governance	.383	.146	.143	.46722
Management Support	.372	.139	.135	.46934
Social Support	.522	.273	.270	.43125
Workload	.251	.063	.059	.48951

a. Dependent Variable for six models: Perceived Training Transfer

b. (Constant)

In table 25, model summary of six environmental factors: Organizational Transfer Interventions (OTI), External M&E, Local School Governance (LSG), Management Support (MS), Social Support (SS) and Workload is shown. The dependent variable for all the models is Perceived Training Transfer (PTT). As explained above, the value of Adjusted R square corresponding to respective environmental factor was taken into consideration for analysis.

While assessing the Organizational Transfer Intervention (OTI) on Perceived Training Transfer (PTT), the Adjusted R square was 0.180 which explains that OTI accounts for 18 percent of the variance in PTT. Likewise, the Adjusted R square of 0.212 in External M&E explains that 21.2 percent of the variance in PTT. Similarly, Adjusted R square is 0.143 for LSG meaning it accounts for 14.3 percent of the variance in PTT. Management Support has Adjusted R square's value of 0.135 meaning it accounts for 13.5 variance in the PTT. Similarly, Adjusted R square's value of 0.270 in Social Support illuminates that it accounts for 27 percent of the variance in PTT which is the highest among all the IVs. These analyses confirm that all these five factors modestly affect the perceived training transfer. Lastly, the Adjusted R square value of only .059 indicates that Workload accounts for only 5.9 percent variance in PTT. Hence, workload has a weak effect on PTT.

It is also important to note the ANOVA significance level since the value of Adjusted R square can only hold meaning if it shows statistical significance. In this regard, the effect of all the factors was highly significant at above 99 percent ($p < .01$) (see Annex X). Therefore, it was confirmed that the effect of each environmental factor on perceived training transfer did not occur just by chance. Another important examination in regression analysis is the examination of coefficient. The coefficients of each environmental factor are shown in the Table 26.

Table 26

Coefficients of Six Environmental Factors on Perceived Training Transfer[a]

	Unstandardized Coefficients		Standardized Coefficients	Sig.
Factor	B	Std. Error	Beta	
OTI	.216	.029	.428	.000
External M&E	.254	.031	.464	.000
LSG	.201	.031	.383	.000
Management Support	.209	.033	.372	.000
Social Support	.371	.038	.522	.000
Workload	.138	.034	.251	.000

a. Dependent Variable: Perceived Training Transfer. OTI = Organizational Transfer Intervention, External M&E = External Monitoring and Evaluation, LSG = Local School Governance

In Table 26, coefficients of six models and their respective level of significance are shown. Six models are shown for six IVs i.e. six environmental factors with Perceived Training Transfer (DV) is common to all models. As explained by Muijs (2004), the simple regression equation is as follows:

$Y = a + bX$

where,

Y = Dependent (outcome) Variable

a = intercept or the (Constant Value), or the value of Y when X = 0

b = the slope, or the value that Y will change by if X changes by 1 unit

X = Independent (predictor) variable.

In all the environmental factors, b coefficients under ‘unstandardized coefficients’ column have been taken into accounts bearing in mind the fact that all the independent variables and dependent variable use the same point scale. In regression, ‘b coefficient’ denotes the value that Perceived Training Transfer will change if one environmental factor (e.g. Organizational Transfer Intervention)

changes by 1 unit. According to Hair et al. (2014), the constant has unimportant role in the prediction process and does not offer any basis for interpretation and so was not taken into consideration. All the six linear regression models are statistically significant at 99. 9 percent ($p < .001$). The analysis of each environmental factor is individually done below.

In the course of assessing Organizational Transfer Intervention (OTI) on Perceived Training Transfer (PTT), the 'b coefficient' obtained was 0.216. This indicates unit change of 0.216 in PTT with the change on 1 unit in OTI. In other words, a 100 percent change in Organizational Transfer Intervention brings 21.6 percent change in Perceived Training Transfer (Cohen et al., 2018; Muijs, 2004). The effect size (Cohen's f^2) of this model was 0.22. This was a large effect size. The statistical power was equivalent to 1 which almost fully ensured the removal of Type II error. Similarly, when the contribution of External Monitoring and Evaluation (External M&E) was tested on PTT, 'b coefficient' obtained was 0.254 indicating unit change of 0.254 in PTT with the change on 1 unit in External M&E. Further, the effect size (Cohen's f^2) was 0.27 which is even a larger effect size and the statistical power was equivalents to 1 ensuring absence of Type II error. Regarding effect of LSG on PTT, the 'b coefficient' was 0.201 which explains a unit change of 0.201 in PTT with the change on 1 unit in LSG. The effect size (Cohen's f^2) was 0.17 (above medium) and the computed statistical power was above 0.9999 meaning less than 0.0001 percent of chance for Type II error in this model.

The 'b coefficient' was 0.201 when Management Support (MS)'s effect was tested on Perceived Training Transfer (PTT). It means a unit change of 0.201 in PTT with the change on 1 unit in Management Support. The effect size of 0.16 was drawn by using Cohen's f^2. Again, this size was above medium score and statistical power

was 0.9999. Likewise, in Social Support, the value of ‘b coefficient’ was 0.371. This indicates unit change of 0.371 in PTT with the change on 1 unit in Social Support. The effect size (Cohen’s f^2) was 0.38. This is a huge effect size. So, the computed statistical power was equivalent to 1 which is the most optimum level showing that the chances of accepting false null hypothesis were almost nil. Finally, while assessing the effect of Workload on Perceived Training Transfer (PTT), the value of ‘b coefficient’ obtained was 0.138 explaining unit change of 0.138 in PTT with the change on 1 unit in workload. The effect size (Cohen’s f^2) was 0.07. Accordingly, the computation of statistical power resulted in the value of 0.9835 percent which was adequate in building confidence in addressing Type II error.

In overall, each environmental factor has contribution on perceived training transfer among the instructors of technical education in Nepal with statistical significance and sufficient statistical power. More to this, the study found that social support contributes the most in perceived training transfer among all the environmental factors followed by External M&E.

Concluding the Chapter

The chapter, that is concluded here, commenced with the examination of the level of perceived training transfer. Using descriptive statistical tools, it was identified that there was ‘high level’ of perceived transfer among the instructors. Then, the contribution of environmental factors was analysed on perceived training transfer. Before conducting regression analyses to measure the effects, necessary assumptions were satisfied which were adequate sample size, continuous data in independent and dependent variables, absence of major outliers, normality in data distribution, linearity and homoscedasticity, absence of autocorrelation and absence of multicollinearity. Correlation analysis showed positive and statistically significant association among

six environmental factors and perceived training transfer. Multiple regression analysis identified that the six environmental factors together moderately and positively contributed in perceived training transfer among instructors with statistical significance. Both effect size and statistical power were high in this model. Besides that, simple linear regression analysis, conducted for each of the six factors, found that all the factors statistically significantly affected the perceived training transfer to a modest extent except workload (weak contribution). Among them, social support had the highest contribution. The effect size for all the six factors ranged from above medium to large and statistical power was high and near to 100 percent that provided ample confidence in addressing Type II error.

CHAPTER VI

PERCEIVED TRAINING TRANSFER ACROSS DEMOGRAPHIC CHARACTERS

This chapter examines whether or not the perceived training transfer differs across the demographic characteristics of the respondents viz. instructors. In this chapter, personal characteristics of the instructors namely: gender, ethnicity, age group, marital status, family type and family size were examined. Similarly, professional characteristics namely: locale of the institution, type of institution, type of service and experience in TVET instruction were assessed. This chapter commences with the statistical procedure to analyse the data. This chapter then ends with the examination of perceived training transfer in relation to the above-mentioned characteristics.

Statistical Procedure for Analysis

To examine environmental factors and perceived training transfer across the demographic variables, I adopted inferential statistics using acceptable margin of error denoted by Alpha level of 5 percent ($\alpha = .05$). Using parametric tests, I computed independent samples *t*-tests or one-way Univariate Analysis of Variance (ANOVA) at the significance level of 0.05 to confirm the statistical significance by meeting necessary assumptions to run these tests. To examine whether or not perceived training transfer differs across demographic variables with two sub-groups such as gender or marital status, I used independent samples *t*-tests. Similarly, for variables with more than two sub groups such as age group, ethnicity, I used one-way ANOVA test (ANOVA test hereafter). Along with ANOVA (*F*-test), I also used Welch and Brown-Forsythe tests as per necessity.

Differences in Perceived Training Transfer across Demographic Characteristics

Differences in perceived training transfer were examined across demographic characteristics including both personal and professional characteristics. Within personal attributes, gender, age group, ethnicity, marital status, family type and family size were assessed. Similarly, within professional attributes, locale of the institution, type of institution, type of service and experience in TVET instruction were assessed. Before computing *t*-tests (for attributes with two groups) and ANOVA (for attributes with more than two groups), necessary assumptions should be met.

According to Hanneman et al. (2013), the four major safety checks for ANOVA are: i) data of outcome variable should be interval or ratio; ii) sample should be generated randomly and independent from one another; iii) data of outcome variable should be normally distributed and iv) there should be homogeneity in variance in each group (also called homoscedasticity). Satisfying the assumptions for ANOVA does the job for *t*-test as well. The first three assumptions have been met and discussed in chapter IV and V. To ensure equality in variance in each group, Levene's test for equal variance was conducted as shown in the table below.

Table 27

Levene's Equal Variance Test Result for Gender, Age Group, Ethnicity, Marital Status, Family Type & Family Size across Perceived Training Transfer

Attributes	Levene Statistic	*Df*	Sig.
Gender	6.667	1, 249	.010
Age Group	3.067	3, 247	.029
Ethnicity	1.606	6, 244	.146
Marital Status	6.675	1, 249	.010
Family Type	.002	1, 249	.963
Family Size	1.794	2, 248	.168

Table 27 shows Levene's Equal variance test on six personal attributes within the demographic variables: gender, age group, ethnicity, marital status, family type and family size. The test is carried out to assess the homogeneity of variance. In the above table, out of six tests, three tests: perceived training transfer across ethnicity, family type and family size satisfied the assumption of homogeneity of variances ($p > .05$). On the contrary, the tests for age group, gender and marital status did not satisfy the assumption of homogeneity of variance. The adjustments for violence of homogeneity have been discussed later in this chapter.

Table 28

Levene's Equal Variance Test Result for Locale of the Institution, Type of Institution, Type of Service and Experience in TVET Instruction across Perceived Training Transfer

Attributes	Levene Statistic	*Df*	Sig.
Locale of the Institution	1.066	2, 248	.346
Type of Institution	.002	1, 249	.962
Type of Service	.014	1, 249	.907
Experience in TVET Instruction	1.068	3, 247	.363

Table 28 shows Levene's equal variance test on four professional attributes within the demographic variables: locale of the institution, type of institution, type of service and experience in TVET instruction. The table reveals that homogeneity of variances was satisfied in all the above cases ($p > .05$). So, no any adjustments or treatments were required. Perceived training transfer across locale of the institution and experience in TVET instruction were assessed using one-way ANOVA and that across institution type and type of service were assessed using independent sample *t*-tests assuming equality of variance.

Adjustments for Violation of Homogeneity of Variances

Adjustments of violation of homogeneity of variances have been made for both ANOVA and independent sample *t*-tests. In ANOVA, it is essential to ensure homogeneity of variances and also similar group sizes. It is because if group sizes are unequal, they can lead to bigger consequences when homogeneity of variances is violated due to which similarity in group size is preferred (Field, 2017). So, in case of violation of homogeneity of variances and/or unequal group sizes within the independent variable in ANOVA tests, Brown–Forsythe and Welch tests are preferred because these tests are more robust than ANOVA (Cohen et al., 2018; Field, 2017). In a variable, it is likely that unequal group sizes result in bigger variance among large groups and in such case, *F* is conservative. Hence, this issue is addressed in Brown–Forsythe test by weighing the group variance by the inverse of their sample sizes. Similarly, Welsh's *F* makes adjustment to ANOVA value as well as the residual degrees of freedom to address issues that come along when the assumption of homogeneity of variance is violated (Field, 2017). These adjustments control the Type I error rate and thus these tests have been run as per the necessity.

Ensuring homogeneity of variances is equally important in independent samples t-test. Regarding this, the Levene's test offers two rows: i) row showing 'equal variances assumed', ii) row showing 'equal variances not assumed' which is determined by Significance level in Levene's test. If homogeneity of variance is satisfied in Levene's test ($p > .05$), first row of data (Equal variances assumed) should be followed. If homogeneity of variance is not achieved ($p < .05$), second row of data (Equal variances not assumed) should be referred to (Cohen et al, 2018). Thus, I have followed respective rows of data in accordance with the significance level illustrated

in Levene's test. Thus, after satisfying these assumptions and making adjustments where needed, the following hypotheses have been set.

$H_0$1: There was no statistical difference in the distribution of perceived training transfer across the gender of the respondents.

$H_0$2: There was no statistical difference in the distribution of perceived training transfer across their age group.

$H_0$3: There was no statistical difference in the distribution of perceived training transfer across the categories of ethnicity.

$H_0$4: There was no statistical difference in the distribution of perceived training transfer across their marital status.

$H_0$5: There was no statistical difference in the distribution of perceived training transfer across their family type.

$H_0$6: There was no statistical difference in the distribution of perceived training transfer across their family size.

$H_0$7: The distribution of perceived training transfer was the same across the locale of the institution.

$H_0$8: The distribution of perceived training transfer was the same across the years of experience of the instructors in TVET instruction.

$H_0$9: The distribution of perceived training transfer was the same across the type of the institution in which the instructors are engaged.

$H_0$10: The distribution of perceived training transfer was the same across the type of the service of instructors.

Gender and Perceived Training Transfer

Perceived training transfer may differ across the gender of the respondents. In this study, gender was categorized into male and female respondents. Null hypothesis

($H_0$1) was tested with independent samples *t*-test was run not assuming equal variances. Below table provides descriptive and *t*-test statistics.

Table 29

Perceived Training Transfer across Gender

Gender	N	Mean	SD	*t* value[a]	'p' value Sig. (2-tailed)
Male	140	4.79	0.54	-2.352	.019
Female	111	4.94	0.44		

a. Equal variances not assumed

Table 29 shows the independent samples *t*-test of perceived training transfer across gender. It explains that the mean score of male respondents (M = 4.79, SD = .54) was statistically significantly lower (t = -2.352, two-tailed $p < .05$) than that of female respondents (M = 4.94, SD = .44). So, *t*-test result rejects the null hypothesis $H_0$1 which means female instructors perceive higher training transfer than male instructors in the population and this result is not by chance.

More to this, the standardized effect size (Cohen's d) was calculated which was 0.31. For t-tests using Cohen's d, Cohen et al. (2018) categorize the effect size of 0.20 as small, 0.50 as medium and 0.80 as large. Referring to this rule of thumb, this value can be termed as small. Besides, the power of the test considering the given sample size, effect size and alpha score, the statistical power was 0.77. A rule of thumb given by Hinton et al. (2014) is that 0.2 is taken as low power, 0.5 as medium power and 0.8 as high power. So, 0.77 here explains nearly high level. With this, there was less than 25 percent chance of making type II error.

Age Group and Perceived Training Transfer

Perceived training transfer may differ in relation to the age group of the instructors. In this study, age group was divided into four categories: 15 years to 25

years; 25 years to 35 years; 35 years to 45 years; and 45 years to 60 years. To assess perceived training transfer across age group, ANOVA test was run.

Table 30

Perceived Training Transfer across Age Group of Instructors

Age Group	N	Mean	SD	*F*	Sig.
15 years to 25 years	34	4.82	0.44	1.064	.365
25 years to 35 years	181	4.87	0.53		
35 years to 45 years	29	4.94	0.32		
45 years to 60 years	7	4.57	0.65		

Table 30 shows the one-way analysis of variance (ANOVA) test of perceived training transfer across four categories of age group: 15 years to 25 years, 25 to 35 years, 35 to 45 years and 45 years to 60 years. Referring to the table above, the ANOVA test explored that there was no statistically significant difference among the categories of age group ($F = 1.064$, $p > .05$). However, this result cannot be inferred because of the violation of the assumption of homogeneity of variance. Therefore, below table is presented for further analysis with Welch and Brown-Forsythe tests.

Table 31

Welch & Brown-Forsythe Tests on Perceived Training Transfer across Age Group

Robust Tests of Equality of Means	Statistic[a]	*Df*	Sig.
Welch	1.008	3, 24.507	.406
Brown-Forsythe	1.087	3, 19.146	.379

a. Asymptotically F distributed.

Table 31 shows Welch & Brown-Forsythe tests which were run further to ANOVA due to violation of homogeneity of variance. As given in the table, even Brown-Forsythe & Welch tests did now show significance level ($p > .05$). Based on

these test results, null hypothesis $H_0$2 was retained confirming that the distribution of perceived training transfer was the same across four categories of age group.

Ethnicity and Perceived Training Transfer

Perceived training transfer may differ across ethnicity of the respondents. In this study, ethnicity was divided into five categories: Brahmin/Chhetri, Newar, Janajati, Madhesi and Other. To test the null hypothesis $H_0$3, one-way ANOVA was run which is shown below.

Table 32

Perceived Training Transfer across Ethnicity of Instructors

Ethnicity	N	Mean	SD	*F*	Sig.
Brahmin/Chhetri	171	4.83	0.55		
Newar	15	4.83	0.44		
Janajati	23	4.90	0.37	.834	.505
Madhesi	25	4.99	0.47		
Other	17	4.96	0.30		

Table 32 depicts the descriptive and ANOVA statistics of perceived training transfer across five categories of ethnicity. Analysis of Variance found that there was no statistical difference in perceived training transfer among five categories of ethnicity ($F = .834$, $p > .05$). More to this, Brown-Forsythe and Welch tests were run on the grounds that the distribution of group size was unequal.

Table 33

Welch & Brown-Forsythe Tests on Perceived Training Transfer across Ethnicity

Robust Tests of Equality of Means	Statistic[a]	*df*	Sig.
Welch	1.087	4, 46.298	.374
Brown-Forsythe	1.260	6, 90.123	.292

a. Asymptotically F distributed.

Table 33 shows Brown-Forsythe and Welch tests further to ANOVA. Based on the table, the results show drastic reduction in the level of significance, yet the level was still higher ($p > .05$). So, the null hypothesis $H_0 3$ was retained and it was confirmed that the distribution of perceived training transfer was the same across the categories of ethnicity.

Marital Status and Perceived Training Transfer

Using independent samples *t*-test, perceived training transfer was measured in relation to the marital status of the respondents to test Null hypothesis $H_0 4$ which is shown in the table below. As the assumption of homogeneity of variance was not met, equal variance was assumed in *t*-test.

Table 34

Perceived Training Transfer across Marital Status

Marital status	N	Mean	SD	*t* value[a]	'p' value Sig. (2- tailed)
Single	95	4.77	0.57	-2.128	.035
Married	156	4.91	0.45		

a. Equal variances not assumed

Table 34 shows independent samples *t*-test of perceived training transfer across two categories of marital status not assuming equal variance. The table shows that perceived training transfer in married instructors ($M = 4.91$, $SD = .45$) was statistically significantly greater ($t = -2.128$, two-tailed $p < .05$) than in single instructors ($M = 4.77$, $SD = .57$). So, null hypothesis was rejected with which it can be inferred that married instructors perceive to transfer the training more than single instructors and this difference is representative of the population. The standardized effect size (Cohen's *d*) was calculated which was 0.27 which was small referring to Cohen et al. (2018). Besides, the statistical power was 0.67 which, as per the rule of

thumb given by Hinton et al. (2014), is above medium signifying less than 40 percent chance of making type II error.

Family Type and Perceived Training Transfer

This study assessed whether or not perceived training transfer differed across the two categories of family type: 'nuclear' and 'joint'. So, null hypothesis $H_0$5 was tested using independent samples *t*-test which is shown in the table below.

Table 35

Perceived Training Transfer across Family type

Family Type	N	Mean	SD	*t* value[a]	'p' value Sig. (2-tailed)
Nuclear	130	4.89	0.49	.855	.393
Joint	121	4.83	0.52		

a. Equal variances assumed

Table 35 shows independent samples *t*-test of perceived training transfer across two categories of family type. The table reveals that perceived training transfer of respondents having nuclear family (M = 4.89, SD = .49) did not statistically significantly differ (t = .855, two-tailed p > .05) from that of respondents having joint family (M = 4.83, SD = .52). Therefore, null hypothesis $H_0$5 was retained meaning perceived training transfer is the same across the family type.

Family Size and Perceived Training Transfer

Family size may or may not be related to differences in perceived training transfer. Family size, in this study, was categorized into 'small', 'medium' and 'large' size. To test null hypothesis $H_0$6, ANOVA was run which is shown in Table 36.

Table 36

Perceived Training Transfer across Family size

Family Size	N	Mean	SD	*F*	Sig.
Small	77	4.91	0.54		
Medium	143	4.86	0.46	1.213	.299
Large	31	4.75	0.62		

Table 36 displays descriptive statistics and ANOVA statistics of perceived training transfer in instructors across three categories of the size of their families. Referring to the Table 36, the results produced by analysis of variance showed that there was no statistical difference among three categorized of family size ($F = 1.213$, $p > .05$). Brown-Forsythe and Welch tests were run subsequently to address the heterogeneity of variance and overcome inequality in group sizes as shown in table 37 below.

Table 37

Welch & Brown-Forsythe Tests on Perceived Training Transfer across Family Size

Robust Tests of Equality of Means	Statistic[a]	*Df*	Sig.
Welch	.886	2, 73.23	.417
Brown-Forsythe	.981	2, 89.39	.379

a. Asymptotically F distributed.

Welch & Brown-Forsythe tests can be observed in Table 37 further to ANOVA test. It highlights consistency with the previous result since Welch test ($F_{2, 89.39} = .886$, $p > .05$) and Brown-Forsythe test ($F_{2, 73.23} = .981$, $p > .05$) were not statistically significant. So, it was confirmed that there existed no difference in the distribution of perceived training transfer across the three categories of family size.

Locale of the Institution and Perceived Training Transfer

Among the profession related variables, perceived training transfer was assessed across the locale of the institution in which instructors were employed. The locale was categorized into urban, semi-urban and rural areas. So, one-way ANOVA was run to test the null hypothesis $H_0 7$ which is shown in table 38.

Table 38

Perceived Training Transfer across Locale of the Institution

Locale of the Institution	N	Mean	SD	*F*	Sig.
Urban	150	4.86	0.48		
Semi-Urban	69	4.89	0.56	.316	.729
Rural	32	4.81	0.48		

The table 38 above exhibits descriptive and ANOVA statistics of perceived training transfer across three categories of locale of the institution which were urban, semi-urban and rural. ANOVA explored that there was no statistical difference among urban, semi-urban and rural areas ($F = .316$, $p > .05$). Further, Welch and Brown-Forsythe tests were run citing the fact that there were unequal group sizes.

Table 39

Welch & Brown-Forsythe Tests on Perceived Training Transfer across Locale

Robust Tests of Equality of Means	Statistic[a]	*df*	Sig.
Welch	.30	2, 78.96	.741
Brown-Forsythe	.31	2, 127.81	.735

a. Asymptotically F distributed.

Table 39 shows Welch & Brown-Forsythe tests further to ANOVA test on perceived training transfer across locale of the institutions. Referring to Table 39, Welch test ($F_{2, 78.96} = .30$, $p > .05$) and Brown-Forsythe test ($F_{2, 127.81} = .31$, $p > .05$)

commonly produced statistically insignificant results. Therefore, this study retained the null hypothesis $H_0$7 and confirmed that there was no difference in the distribution of perceived training transfer across the three categories of locale.

Experience of Instructors and Perceived Training Transfer

Perceived training transfer in instructors may differ on the grounds of years of experiences in instruction. To assess if or not there was statistically significant difference in perceived training transfer across years of experience, null hypothesis $H_0$8 was set.

Table 40

Perceived Training Transfer across Experience of Instructors

Experience	N	Mean	SD	*F*	Sig.
Less than 1 year	26	4.65	0.49	2.568	.055
1 year to 5 years	160	4.85	0.53		
5 years to 10 years	54	4.98	0.40		
10 years to 20 years	11	4.82	0.60		

Table 40 shows descriptive and ANOVA statistics of perceived training transfer across four categories of experience of instructors. From the table above, it can be observed that the mean score of instructors with less than one year of experience was lowest (M = 4.65, SD = .49) and that of instructors having five to 10 years of experience was the highest (M = 4.98, SD = .40). Analysis of variance found that there were no statistically significant differences in perceived training transfer across categories of experience (F = 2.568, p > .05) but since the group sizes were highly unequal, this result was not dependable and thus, Welch and Brown-Forsythe tests were run to overcome this issue as presented in the table 41 below.

Table 41

Welch & Brown-Forsythe Tests of Perceived Training Transfer across Experience

Robust Tests of Equality of Means	Statistic[a]	*df*	Sig.
Welch	3.088	3, 36.65	.039
Brown-Forsythe	2.471	3, 43.52	.074

Welch & Brown-Forsythe tests further to ANOVA test as shown in Table 41. It shows two different results. Brown-Forsythe test ($F_{3, 43.52} = 2.471$, $p > .05$) shows that the results were statistically insignificant. In contrast, Welch test ($F_{3, 36.65} = 3.088$, $p < .05$) shows statistical significance. Glantz et al. (2016) recommend using Welsh test in most cases since it is more powerful than Brown-Forsythe test. So, referring to this literature, Welsh test was adopted based on which null hypothesis $H_0$8 was rejected. So perceived training transfer was different across the categories of experience. The effect size of ANOVA (Eta squared or η^2) was 0.03 which according to Cohen et al. (2018), was of lower-medium level. Also, the observed statistical power obtained from SPSS was 0.63 that was of upper-medium level.

Having believed that perceived training transfer differs across categories of experience, Post Hoc test was proceeded adopting Tukey's honest significant difference (HSD) test to identify which group(s) statistically significantly differed from one another. The test is shown in table overleaf.

Table 42

Post Hoc Test with Multiple Comparisons [ab]

(I) Experience of respondent in instruction	(J) Experience of respondent in instruction	MD (I-J)	Sig.
Less than 1 year	*1 year to 5 years*	-.20	.232
	5 years to 10 years	-.33*	.033

(I) Experience of respondent in instruction	(J) Experience of respondent in instruction	MD (I-J)	Sig.
	10 years to 20 years	-.16	.798
	Less than 1 year	.20	.232
1 year to 5 years	*5 years to 10 years*	-.13	.372
	10 years to 20 years	.04	.996
	Less than 1 year	.33*	.033
5 years to 10 years	*1 year to 5 years*	.13	.372
	10 years to 20 years	.16	.757
	Less than 1 year	.16	.798
10 years to 20 years	*1 year to 5 years*	-.04	.996
	5 years to 10 years	-.16	.757

*. The mean difference is significant at the 0.05 level. MD = Mean Difference

a. Dependent Variable: Perceived Training Transfer, b. Tukey HSD

In the table 42 above, Tukey test was conducted with multiple comparisons among the experiences to assess the categories in which differences are statistically significant. From the table, it can be observed that perceived training transfer differed only between the category ‘less than one year’ and ‘five to 10 years’ of experience (MD = -.33, $p < .05$). Remaining comparisons were insignificant ($p > .05$). So, instructors having five to 10 years of experience in instructors statistically significantly perceived higher training transfer than fresh instructors with less than one year of experience in instruction and this result was representative of the population and not by chance.

Type of Institution and Perceived Training Transfer

Type of institution in which instructors work also may hold the capacity to affect the extent to which its instructors perceive training transfer. To assess perceived training transfer in relation to institutional type, null hypothesis $H_0$9 was set. The

analysis was done using independent samples *t*-test assuming equal variance presented in the table 43 given below.

Table 43

Perceived Training Transfer across Institution type

Type of Institution	N	Mean	SD	*t* value[a]	'p' value Sig. (2-tailed)
Public/Constituent	133	4.80	0.49	-2.095	.037
Institutional	118	4.93	0.52		

a. Equal variances assumed

Table 43 shows independent samples *t*-test of perceived training transfer across the type of institution. The table above reveals that the mean score of instructors from public or constituent schools and colleges in perceived training transfer (M = 4.80, SD = .49) was statistically significantly lower (t = -2.095, two-tailed $p < .05$) than that of instructors from institutional schools and colleges in the same (M = 4.93, SD = .52). Based on this result, null hypothesis $H_0$9 was rejected and it was found that the instructors teaching in institutional institutes perceive higher level of training transfer than the instructors teaching in public/constituent institutes. The standardized effect size obtained using Cohen's d was 0.26. Based on this size, the statistical power was 0.65 which was of high-medium level.

Type of Service and Perceived Training Transfer

In this study, type of service has been categorized into two groups: i) Permanent, and ii) Contract. To test null hypothesis $H_0$10, independent samples *t*-test assuming equal variances was run to the test the hypothesis which is shown in the table 44.

Table 44

Perceived Training Transfer across Type of Service

Type of service	N	Mean	SD	*t* value[a]	'p' value Sig. (2- tailed)
Permanent	57	4.80	0.50	-1.020	.309
Contract	194	4.88	0.51		

a. Equal variances assumed

The table 44 above presents descriptive statistics and *t*-value of the two categories of type of service. It shows that the mean score perceived training transfer in permanent instructors (M = 4.80, SD = .50) was not statistically significantly lower (t value = -1.020, $p > .05$) than the mean score of perceived training transfer in contract-based instructors (M = 4.88, SD = .51). So, null hypothesis was retained and it was confirmed that no difference exists between permanent and contracted instructors in relation to perceived training transfer.

Results of Statistical Tests

Perceived training transfer was assessed in relation to ten different demographic variables within which six personal characteristics and four professional characteristics were examined. A summarized result of the tests is presented in the table 45 below.

Table 45

Summary of Hypotheses and Results

Hypotheses	Results
$H_0$1: There was no statistical difference in the distribution of perceived training transfer across the categories of gender of the respondents.	The null hypothesis was rejected. Perceived transfer of training was found to be higher in female than in male.

Hypotheses	Results
$H_0$2: There was no statistical difference in the distribution of perceived training transfer across their age group.	This null hypothesis was retained. It was found that transfer of training was not affected by the age group of instructors.
$H_0$3: There was no statistical difference in the distribution of perceived training transfer across the categories of ethnicity.	This null hypothesis was retained. The results showed that ethnic diversity made no differences in perceived training transfer.
$H_0$4: There was no statistical difference in the distribution of perceived training transfer across their marital status.	This null hypothesis was rejected. Perceived training transfer was found to be higher in married instructors compared to the single instructors.
$H_0$5: There was no statistical difference in the distribution of perceived training transfer across their family type.	This null hypothesis was retained. No difference was found in perceived training transfer across two types of family.
$H_0$6: There was no statistical difference in the distribution of perceived training transfer across their family size.	This null hypothesis was retained. Family size did not make any difference in the level of perceived training transfer.
$H_0$7: The distribution of perceived training transfer was the same across the locale of the institutions.	This null hypothesis was retained. No difference was found in perceived training transfer across the locale of the institution.

Hypotheses	Results
$H_0$8: The distribution of perceived training transfer was the same across the years of experience of the instructors in instruction.	This null hypothesis was rejected but perceived training transfer was only higher in instructors with five to 10 years of experience than in those with less than a year's experience.
$H_0$9: The distribution of perceived training transfer was the same across the types of the institution in which the instructors are engaged.	This null hypothesis was rejected since Perceived training transfer was higher in the instructors engaged institutional schools and colleges than those engaged in public/constituent schools and colleges.
$H_0$10: The distribution of perceived training transfer was the same across the nature of instructors' service.	This null hypothesis was retained. Perceived training transfer did not differ across the nature of instructors' service.

Table 46 shows the summary of hypotheses and their results generated from tables 29 to 44. Altogether, it was found that perceived training transfer statistically significantly differs across instructors' gender, marital status and years of experience, and the type of institution in which instructors are employed.

Concluding the Chapter

Among various demographic characteristics, the distribution of perceived training transfer was the same across categories of age group, ethnicity, family size, locale of the institution and type of service signifying no effect of these demographic characteristics in perceived transfer of training. Yet, perceived training transfer was

reported to be statistically significantly higher in female instructors than in male instructors. It was also higher in married instructors than in single instructors as well as in instructors employed in institutional schools and colleges than the public/constituent ones. The instructors with experience of five to 10 years reported statistically significantly higher perceived training transfer than those with less than one year of experience. These differences were confirmed with high-medium level of statistical power.

CHAPTER VII

FINDINGS AND DISCUSSIONS

This chapter encapsulates the major findings of this research with respect to the set research questions in chapter I. These findings were consolidated by the results and their interpretations from the earlier three chapters: IV, V and VI. On the basis of these findings, I have made necessary discussions under five different themes. This chapter commences with the key findings of this research. Then I have presented the discussions on the grounds of these findings thematically which will follow till the end of this chapter. This chapter also presents a model as an output of the study under one of the discussed themes.

Key Findings of the Research

Using Delphi Method to generate research instrument and Exploratory Factor Analysis (EFA) on the surveyed data collected using that instrument, this research explored that there are six environmental factors that contribute to the transfer of training among the instructors of technical education in Nepal. The six factors are: i) Organizational Transfer Intervention, ii) External Monitoring and Evaluation (M&E), iii) Local School Governance, iv) Management Support, v) Social Support, and vi) Workload. Contradictory to the past literature which only found that training was predicted by work environment in field level, this study found that the environmental factors that contribute to training transfer are not limited to internal work environment of the educational institutions. There are forces from external environment that also affect the training transfer among the instructors. Among the six factors: factor two, three, five and six are composed of variables from external environment, completely or partially. While internal work environment explains that these factors cannot be

influenced by individual instructors, external environment is even beyond the control of the internal work environment. So, this study has produced new body of knowledge that training transfer in instructors' training is contributed by both internal work environment and external environment and both these should be supportive for transfer of training to occur.

The first factor viz. Organizational Transfer Intervention explains support and intervention measures by the institutional management to foster training transfer. It consists of variables related to availability of resources in terms of adequacy, time, and quality; information collection from instructors regarding the use of training; monitoring on usage of resources; and feedback collection from students about the use of training in class. External M&E refers to the M&E from organizations outside the internal work environment. It consists of the variables related to the application of the theoretical knowledge and skills as specified by CTEVT or respective regulatory body by instructors after the training, regular monitoring by external organizations, M&E in a detailed manner and with integrity, as well as encouragement from external bodies upon applying the training. Similarly, Local School Governance includes decisions of management to involve instructors in planning to facilitate training transfer, organizational encouragement to learn from other organizations, and concerns from local stakeholders as well as guardians of the students.

Management support consists of support from mostly senior management of the organisation such as management's decisions to send right employees for training, complexities in decision making for resource purchase, culture of open discussions with supervisors or management, positivity towards supporting in facilitation of training transfer, and concern of management on course completion over quality teaching. Social support as the fifth factor consists of support from peers such as

culture of discussing learned KSA among co-workers, encouragement from peers to apply learning and praises from them when the learning from the training is applied. It also includes support from family to apply training. The sixth factor is workload which includes time to apply the training in classrooms, workload associated to STR and the load of curriculum with reference to limited academic time frame. It is important to note that all these variables are explained in relation to the application of training.

This study shows that the levels of environmental factors are mostly in between medium and high. Among six environmental factors, social support and organizational transfer intervention were higher than other factors; and workload and external M&E were lower as compared to others. Similarly, the level of training transfer as perceived by the instructors was, in general, high. Environmental factors together have moderate positive associations with perceived training transfer; and among themselves with statistical significance. The effect size of this model was high with optimum statistical power. Moreover, there was modest contribution of each environmental factor (except workload with weak contribution) on perceived training transfer with statistical significance with medium to high effect sizes and high statistical power. Comparatively, the contribution of social support was the greatest among the six environmental factors followed by External M&E. These factors have been reflected through support and control as the driving forces.

Perceived training transfer was found to differ across respondents' gender, marital status, institutional type and years of experience in instruction. It was higher in female respondents than in male and in married respondents compared to single respondents. Furthermore, perceived transfer was higher in instructors working in institutional schools and colleges than those working in public/constituent ones. Also,

instructors with the work experience between six and 10 years perceived that they transfer the training more than those who are new to this profession. The results were confirmed with high-medium level of statistical power. The study found that the level of perceived transfer does not differ across other studied demographic variables.

Discussions on the Findings

In this section, important findings of this study are brought into thematic discussions with reference to extant literature and appropriate established theories. In this study, the key variables are environmental factors. So, most of the discussions are about explored factors of environment.

Pertinent Role of School Management in Training Transfer

This study explored two major environmental factors that contribute to the transfer of training: i) Organizational transfer intervention and ii) Management Support which explain the pertinent role of school management. Both of these factors reveal that there is a significant role of school management in supporting or inhibiting the transfer of training. This study found that within the organization, there is a pertinent role of school management, particularly senior management more than the other actors of the organization.

Organizational Transfer Intervention is a comprehensive factor that incorporates both opportunities to transfer training as well as intervention to ensure the transfer. Organizations that intend to improve their performance make large expenses in training and development (Salas & Stagl, 2009). The expenses do not just occur in monetary value but also in terms of opportunity cost. In case of trainings that last for weeks or months, time cost appears as another huge expense for organizations and these expenses become key the concerns of the senior management more than supervisors or colleagues. In this regard, offering them opportunity means that the

trainees are provided with resources and tasks to enable them to transfer the training (Bates et al., 2012), which is a prerequisite, becomes insufficient. It is because there are many trainee characteristics that might hinder the transfer process such as perceived content validity, motivation to transfer and cognitive ability (Simosi, 2012) as well as 'reluctance to change' caused by the surrounding (Bates at al., 2012).

Unlike other professions, teaching in classrooms or workshops, as one of the core tasks of instructors occurs in higher autonomy and independence. The instructors have more control over the classroom than other people in the organizational hierarchy (Hargreaves, 2011). In this sense, due to the autonomy, it is possible that instructors may not apply the learning from the training and continue teaching in the conventional way. This discussion is also supported by Dimmock and Tan (2013) who argue that there is much low affirmation of role of school leadership in response to the school performance possibly due to perceived remoteness from practices of classroom or workshops. Hence, the school management is required to adopt intervening ways to assess the extent to which instructors apply the training in the classrooms or workshops such as making direct queries, observing resource consumption, and even asking students. Since prevention is better than cure, this kind of assessment is deemed more logical than the factors such as 'opportunity to use' and 'negative personal outcome' used by Bates et al. (2012). The Education Act, 2028 with 8th amendment dictates that head instructors are required to appraise the performance of instructors, monitor their time spent and lead them to uplift educational achievements (Ministry of Education, 2016). Therefore, organizational transfer intervention has appeared as a new factor appropriate in educational stream.

In this study, the support of management as one of the factors has two underlying principles. The first one is managerial support that is instrumental in any

school environment. In any organization, it forms the major part of an organizational social system (Tracey & Tews, 2005). It fosters the process of skill acquisition, encourages transfer of training and their professional growth. Managerial support is imperative for numerous job-related activities, especially in the process of learning. For instructors, their immediate supervisors usually are Trade heads or Department heads while the role of Principals in school is salient (Willms, 2000). The second principle is that any role of top-level management is pervasive where the power distance in the organization is high. The estimated power distance score of Nepal is 65 which is nearly double the available score of 35 in the United States (Hofstede Insights, 2020). The role of senior management may be even stronger for institutional schools and colleges where the owners have more power and concern over the organizational decisions. As the result, the role of school management is pertinent and strong in contributing to training transfer among the instructors.

External Forces contributing to Training Transfer: A new Paradigm explored

One of the major findings of this study, which is also a highlight of this study, is that there are external forces that contribute to the transfer of training in instructors and these factors cannot by controlled by educational institutions. The three environmental external factors are: i) External Monitoring and Evaluation (M&E), ii) Local School Governance and iii) Workload. Among them, the two latter forces consist of both internal and external forces.

In their research on systemic evaluation in education, Supovitz and Taylor (2005) explained the efforts on evaluation from districts and states of the United States as the part of their reform strategy. Their paper helps analyse that evaluations are carried out by different external stakeholders. Policymakers have thus started viewing evaluation of teachers as a strong means of stimulating improvements in

instruction as a whole (Odden & Wallace 2008 as cited in Hallinger et al, 2014). In Nepal, Monitoring and Evaluation have remained one of the highlighted activities as observed in School Sector Development Plan (SSDP). It has been explained in SSDP that monitoring would be conducted periodically by developing appropriate indicators and that MoE (now MoEST) and development partners would conduct joint review of the educational programmes; and for programme evaluation, external evaluators would be assigned (MoE, 2016b). In section 3.3 of TEVT policy 2012, it has also been stated that monitoring and evaluation of the technical institutions would be carried out so as to ensure quality of TVET (MoE, 2012). Similarly, Education policy 2019 of Nepal has declared the need for ensuring the performance and professionalism of the teachers through M&E and connect their performance with their career growth (MoEST, 2019).

Education Policy 2019 informs that there are 1305 institutions with technical education programmes under CTEVT (as constituent, running in partnership, as affiliated, with technical education in community school programmes) as well as under MoEST. Besides, there are other institutions under various universities as well mostly running bachelor's degree programmes. This means that these policies should ensure M&E from external bodies in all these educational institutions including instructors' performance. Therefore, external M&E of the instructors to assess the training transfer is a legitimately generated factor that is contextual in instruction of technical education in Nepal.

Local School Governance includes both internal and external factors to influence training transfer. Internally, the efforts are seen to ensure the involvement of the instructors in planning process and make learning from external organizations. With regard to the external efforts, there are unarguably important contributions of

local stakeholders including guardians in improving teacher performance (Hanberger et al., 2016; Wilder, 2014); and such contributions also help in increasing the transfer of training. As far as the Nepalese education context is concerned, the 8th amendment of Education Act (2028) has clarified that School Management Committee and Parents-Teachers Association should focus on internal and daily management of the school. Similarly, rural municipality and municipality (urban) should ensure access to quality education and provide administrative support to the schools (MoE, 2016a). This Act reflects on Local School Governance by ensuring the contribution and the participation of the local government, guardians and School Management Committee. Other local stakeholders may include funding agencies which also have concerns in quality of education. So, stakeholders have major stake in bringing changes to the instructor's performance and thus to push them to use training in classrooms.

Workload, like Local School Governance, is also composed of factors which are both internal and external to the organization. An instructor's work responsibilities extend past the regular classroom instruction such as preparation, student evaluation, extra-curricular activities, coordination with parents, community outreach and such (Axmann et al., 2015). Therefore, the number of classes to be taken and the size of class or student-teacher ratio (STR) are the key elements to determine their workload. Large class size or high STR affects the instruction time and style as well as classroom management (Benbow et al., 2007). They explain that teachers instead use cost effective and sustainable methods in large classes. In the context of the instructors, it implies that they either do not use or minimize the application of learning from the training in the classroom/workshops such as using the skill demonstration method, guided practice, independent practice and such. With high STR, teachers are pushed to exert effort on controlling classroom behaviour more

than on actual instruction (Wilson, 2006). Similarly, teachers who are responsible to teach as per the vast course contents of the curriculum in limited time take this issue as a critical one (Williamson & Myhill, 2008). So, along with the regular workload, load associated with STR and curriculum set by universities or governing bodies externally affect the extent to which instructors transfer the training.

In this study, all these three factors exhibit fairly low results. For instance, frequency and intensity of external M&E are low while the workload of instructors is high. These external factors are strong and beyond the grip of the school environment. Thus, these external environmental factors are crucial in contributing to the transfer of training in instructors.

Exclusive Composition of Social Support

The support of colleagues on training transfer has been much acknowledged and confirmed in the extant literature. An environment of sharing of the learning from training with peers or receiving support from them in the form of encouragement fosters transfer of training in instructors. The level of estimated individualism in Nepal is only 30 which contrasts with the United States with a whooping level of 91 (Hofstede Insights, 2020). There is a culture of collectivism among the Nepalese instructors due to which interactions among instructors are common. Hence, peer support matters quite much.

On the other hand, as a special feature in teaching profession, the work of instructors extends beyond the school and they are required to spend time and effort at home (Cinamon et al., 2007). While this denotes added stress on them, it also helps interpret that the support of family becomes instrumental in reducing that stress and helping them performing well. Family support holds greater value to females in order to maintain work, family and life balance (Smethem, 2007). Family support

contributes to the use of preventative coping strategies (Greenglass, 1993 as cited in Ferguson et al., 2017) thereby maintaining positive attitude towards the profession. Since instructors need to spend substantial amount of time for preparation, family support is essential for them to prepare for classes using learning from the training. Social support includes support from family and friends along with key actors of the organization who are pivotal in helping reduce their work-related stress (Lambert et al., 2016). However, in studies related to training transfer, social support only consists of peer and supervisor/managerial support (Blume et al, 2010). Therefore, in this study, social support is uniquely composed of peer support and family support.

Environmental and Demographic Factors in relation to Perceived Training Transfer

Firstly, all the environmental factors are positively associated with perceived training transfer. The factors positively and moderately contribute the perceived transfer of training in instructors. Independently, most of the factors have modest contribution in perceived training transfer. This shows that all the factors have important role in contributing to the transfer of training. Among them, social support has made higher influence on training transfer than other factors indicating vital role of peer and family support in the discourse of training transfer. The higher effect also proves that instructors at least transfer the learning and possibly perform better when they get support from their near and dear ones more than when they are impelled. The contribution of External M&E was also strong which suggest control from external bodies help foster the transfer. In contrast, the effect of workload is relatively weaker than that of others meaning though their workload is high, they still perceive to transfer of training. Nevertheless, the study shows that contributions from all factors

are instrumental which signify that both intervention or control from actors of work or external environment as well as their support are required to predict training transfer.

In terms of personal characteristics, female instructors perceive higher level of training transfer than male instructors may show their sincerity and commitment towards their profession which was also explored by Wahsheh and Alhawamdeh (2015). Similarly, married instructors are found to have perceived higher transfer than single instructors which also may imply that marriage might add seriousness towards their profession due to their responsibilities towards their family, or it might help improve their relationships in their schools. Pajak and Blase (1989) explored that for instructors, marriage positively affects their professional lives as it provides them with stability, security, support and positive attitude. Regarding professional characteristics, higher perceived training transfer in the instructors from institutional schools and colleges helps make an interpretation that the educational institutions with private investments are concerned on maximizing their revenues or share values. For this, quality education is the only sustainable way; and to ensure quality education, the management of these institutions exhibit supportive role so as to motivate them to perform better as well as they push the instructors to transfer the training. On the other hand, there was higher perceived training transfer in instructors having experience of five to 10 years in instruction than in those having less than one year of experience. It shows that the instructors might not necessarily have long term career intentions in teaching or might be struggling to blend in the new environment of the school and that those experienced instructors have adjusted in this profession and have probably internalized teaching as their career. In this manner, this difference in them can be inferred as justified.

Support and Control: Major Driving Forces of Environment

When delved carefully, all the six factors explored in this study contribute to the transfer of training among the instructors of technical education through two important forces: i) Support and ii) Control. Some factors explain only supporting forces or only controlling forces while some explain both the forces. For instance, social support comprises the statements explaining support from peers and family. Meanwhile, organizational transfer intervention or external M&E have both supporting and controlling forces. Support as one of the two driving forces is explained by relational ethics while Control is explained by contractarian ethics.

The relational aspect of ethics in TVET is manifested through Support. The strength of relationship with others such as supervisors or higher-level management is affected by i) quality of emotional connections, and ii) working alliance showing the dual commitment and motivation for engagement in certain activities (Wosket, 2009). Support from peers or seniors, or from components of Organizational Transfer Intervention such as availing resources are the indications of strong relationships. Relational ethics explain the way with which environmental elements interact and maintain the relationship with others in their services. It also explains how the senior management or supervisors interact with instructors and offer moral space/support. Relational ethics assume that ethical practices are situated in relationships with others such as teachers, colleagues, learners and other direct stakeholders (Bergum, 2013 as cited in Moore et al., 2014). If relationship is accorded with central importance, supports begin to emerge from various environmental forces and the instructors may transfer the training. In this respect, the practice of relational ethics justifies the support as the driving factor with its components such as mutual respect, engagement and interdependent environment that are intended to strengthen the relationship. This

phenomenon is also supported by Amartya Sen's capability approach which has also been studied along with human development approach (Alkire, 2005; Kuhumba, 2018). While functioning is explained as beings and doings, capability of an individual is their freedom and their opportunity of achieve alternative combination of functionings from which they can one collection (Sen, 1999). The support from school management, family, peers and other elements foster transfer climate which then enhances their ability to do valuable acts which in this study is described as the intended transfer of learning in the workplace.

Within the environment, control as the second driving force is explained by contractarian theory which is studied from the perspectives of internal or external environmental elements. Opposing to relational ethics, the instructors are also bound to transfer the training if moral rules and contractual obligations are stressed by the environmental factors. Due to their moral righteousness and obligations as explained by the theory of contractarian ethics (Kelly, 2012), the instructors are obliged to fulfil the responsibilities of performing better as per their moral duty and for the facilities they receive as the instructors. The environmental factors can exhibit the controlling behaviours such as transfer interventions by organizations, M&E by external bodies and such. Similarly, workload is represented by the Controlling force. It is the moral obligation of the instructor to perform well in the given classroom and complete the curriculum in time for taking up the position of an instructor which is again explained by the theory of contractarian ethics.

Both internal and external environmental factors work with two major driving forces viz. support and control that contribute to training transfer in the instructors which are explained from the perspectives of relational ethics and contractarian ethics. It can also be inferred that both support and control are required at different

circumstances, independently or together, to facilitate the training transfer among the instructors of technical education in Nepal. The figure below offers a model of environmental factors contributing to perceived transfer of training among the instructors of technical education in Nepal.

Figure 5

Model: Environmental Factors Contributing to Perceived Training Transfer

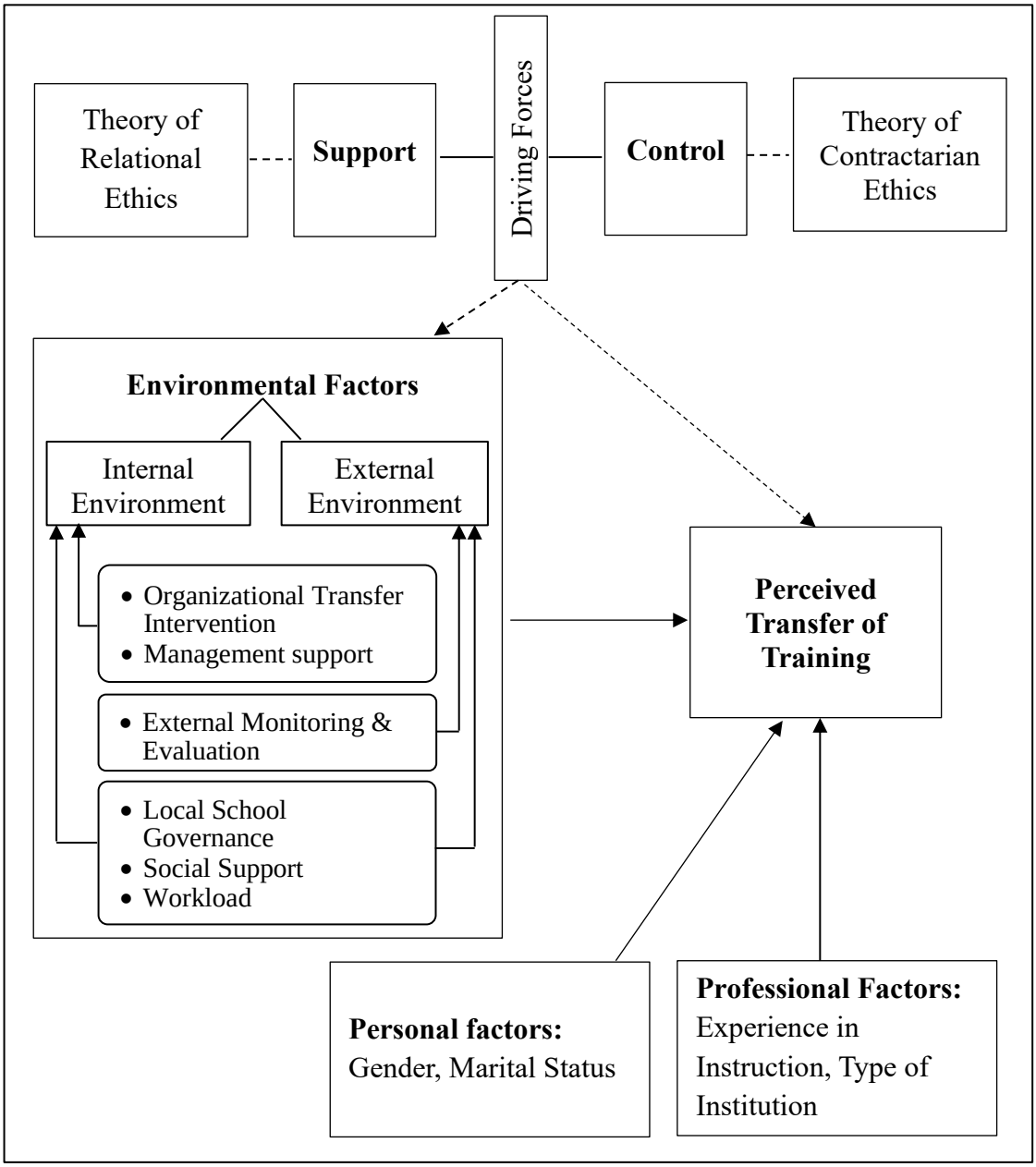


Figure 5 shows the flow of environmental factors and demographic (personal and professional) variables in relation to perceived training transfer. Also, the model shows the linkage of support and control as the driving forces in this relationship which are explained by theory of relational ethics and contractarian ethics respectively.

Concluding the Chapter

With regard to the training transfer, there is a pertinent role of school management in the form of their intervention for transfer and their support. Not only internal, but external forces also affect in training transfer such as M&E from external bodies, concern from the stakeholders, workload related to curriculum from respective universities or Councils, concerns form stakeholders as well as support from family. Social support, a major contributory environmental factor, is composed support from peers and family member. All the environmental factors positively affect perceived transfer of training, together or independently, in which the effect of social support is higher than that of other factors. The distributions of perceived training transfer are found different only in a few demographic characteristics such as gender, marital status, experience and type of institution. Altogether, the two driving forces: i) Support which is explained by the theory of relational ethics and ii) Control which are explained by the theory of contractarian ethics holistically contribute to the transfer of training among the instructors of technical education in Nepal.

CHAPTER VIII

SUMMARY, CONCLUSION AND IMPLICATIONS

This is the last chapter of this study. In this chapter, the synopsis of the study is presented. Following this, conclusions are drawn based on the major findings of this study. After that, implications are discussed commencing with practical implications for educational institutions, TVET instructors, external evaluators as well as TVET policy makers. Within implications, research implications are then discussed which concludes this chapter and the study as a whole.

Research in a Nutshell

Training is recognized as one of the effective means of enhancing knowledge, skills and attitude in employees and meeting the organizational goals efficiently. However, training is considered effective only when it is transferred to the workplace of trainees. Though training is given much priority in the organizations, the transfer of learning from training to the workplace has always remained a key issue because of low transfer of training. It is because the transfer is affected by different dimensions, one of which is work environment and its underlying factors. Despite this grave concern, there is a dearth of studies on environmental factors that affect the transfer of training in TVET instructors in Nepal, the level of the perceived training transfer in them and the extent to which these environmental factors affect the perceived transfer. Therefore, this study has been carried out in response to closing these gaps. Four research questions have guided the journey of this research: 1. Which environmental factors contribute to the transfer of training among the instructors of technical education in Nepal? 2. What is the level of perceived training transfer among the instructors of technical education in Nepal? 3. To what extent do the identified

environmental factors contribute to the perceived transfer of training in instructors in Nepal? 4. Does the perceived training transfer differ across personal characteristics (Gender, Age Group, Ethnicity, Marital Status, Family Type and Family Size) and professional characteristics (Locale of the Institution, Type of institution, Type of Service, Experience in Instruction) of instructors? The answers to these research questions were sought from TVET instructors engaged in technical education in Nepal.

Training is a planned and systematic intervention to enhance the knowledge, skills and attitude in employees. It is a common way to improve employee performance, organizational performance, increase efficiency and even to crowd out the competitors. Meanwhile, transfer of training is the generalization and retention of learning from training in the workplace. The extent to which training is transferred is influenced by work environment. Within work environment, various factors are strongly influential such as support from supervisor, management, peers, feedback from seniors, goal setting, opportunity to use the learning from training, workload, organizational culture and climate and such. These factors can be explained using the theoretical lens of relational and contractarian ethics. Though these factors have been extensively studied in past literature, there exist inconsistencies in their contributions thus making their contributions inconclusive. In Nepal, National Education Policy, 2019 (MoEST, 2019) and TEVT policy, 2012 (MoE, 2012) have focused on making training compulsory to produce quality instructors but these policies have not explicitly specified on attempts to ensure transfer of training in instructors. Further, the issues such as environmental factors that affect in the transfer of training in TVET instructors, the level of training transfer and such have not been addressed and studied. Therefore, the knowledge of the environmental factors that contribute to

training transfer among the instructors of technical education in Nepal is not explored adequately and has remained in the dark.

This study, guided by post-positivistic philosophy, was carried out using cross-sectional survey design. Delphi process was conducted with 13 TVET experts for three rounds from which 40 statements, contextual to TVET instruction of Nepal, were generated under two broad dimensions: internal work environment and external environment. Also, a scale to measure perceived training transfer containing seven statements was developed referring to the literatures. 6-point Likert scale was used for survey. Content validity, construct validity, concurrent validity, and internal as well as external validity were ensured. The successful piloting on 25 respondents yielded Cronbach's Alpha score of 0.899 and 0.834 for internal work environment and external environment respectively and 0.878 for perceived training transfer; and this result ensured reliability of the survey. The survey was conducted on the sample of 251 respondents (instructors of technical education) from the population of 719 instructors who had taken part in Instructional skills-based training from October 2018 to December 2019 from all across the country. Research's ethical values were strictly maintained throughout the study.

Exploratory factor analysis (EFA) was conducted on the collected data from which 29 statements were retained under six factors: namely i) Organizational Transfer Intervention, ii) External M&E, iii) Local School Governance, iv) Management Support, v) Social Support and vi) Workload. The levels of these factors were ranged from fairly low to medium and perceived transfer of training levelled as high. All these factors and perceived training transfer exhibited positive and statistically significant correlations among one another. Multiple regressions revealed moderate and positive contribution of all the factors combined on perceived training

transfer. When regression analysis was run independently, each factor significantly affected perceived training transfer with social support making higher contribution than the others. All these tests had medium to high effect size and substantially huge statistical power.

Only a few demographic variables were identified with which perceived training transfer differed. Perceived transfer of training was higher in females than in males, and higher in married than in single instructors. Similarly, it was higher in instructors from institutional schools and colleges than from constituent/public institutions; and it was higher in the instructors having five to 10 year of experience than the new comers. These differences exhibited effect size in between small to medium level, and high-medium level of statistical power.

Among all the explored environmental factors, two driving forces viz. support and control by environmental factors predict the transfer of training among the instructors of technical education in Nepal. The force of 'Support' was explained by the theory of relational ethics which places interpersonal relationship in the central position and 'Control' was explained by contractarian ethics which assumes moral righteousness and obligations that environmental factors pose on instructors with respect to the training transfer. Both these driving forces, together or independently, contribute to the transfer of training among the instructors of technical education in Nepal.

Conclusions

The whole study concluded here shows that in the context of instructors of technical education in Nepal, six environmental factors contributes in their perceived training transfer which are Organizational Transfer Intervention, External M&E, Local School Governance, Management Support, Social Support and Workload.

These factors represent both internal and external environment in which Organizational Transfer Intervention and Management Support fall under internal work environment, External M&E falls under external environment while Local School Governance, Social Support and Workload represent both internal and external work environment.

Organizational Transfer Intervention and Management Support show that there is a strong contribution of top-level school management to the transfer of training. Instructors teach in classroom/workshops with autonomy and independence. Therefore, the supporting and controlling role of management through resource allocations, personal communication, student feedback and monitoring of resource utilization are evidently influential in the transfer of transfer. This is stronger role of support from peers and family shown as social support indicating the strength of support from social circles in transferring the training. There is also fundamental role of factors that are external to the school's environment such as External M&E, Local School Governance and Workload. While higher workload can control their behaviour and inhibit in the transfer process, M&E from external institutions and the practices to ensure good governance at local school level play both controlling role and supporting role. These factors majorly impel the instructors to transfer the training. Meanwhile encouragements from M&E for applying the training, or organizational practices of involving instructors in planning to facilitate the transfer and such also work as an impetus for them to use training in the classrooms.

Both Support (explained by relational ethics) and Control (explained by contractarian ethics) are the driving forces in contributing to the transfer of training in instructors of technical education in Nepal. These forces come from both the factors of internal and external environment and they either jointly or independently

contribute in the transfer of training since these work environments are either playing supporting role or controlling role in transfer of training. Though instructors perceive their training transfer as higher, training transfer does not occur as expected because there are numerous factors that influence in the transfer process after the instructors come back to the workplace and attempt the transfer the learning. All these explored six environmental factors together contribute to training transfer and each individual factor also contribute to training transfer. These factors are outside the grip of individuals meaning even if the instructors are motivated to apply the training but the environment is hindering in the transfer process, the transfer cannot occur. Besides, the factors of external environment that even beyond the control of school environment. If these factors are supportive, it may help foster the transfer of training. However, if they are not supportive or hindering, the transfer gets affect despite positive attitude of instructor and support of school management. In addition, it was concluded that the extent to which the training gets transferred is also affected by various demographic variables such instructors' gender, marital status, type of institution and experience in instruction. Among the instructors of technical education in Nepal, female instructors, married instructors and instructors from institutional schools/colleges perceive higher transfer of training. Also as opposed to freshers with less than one year of experience, those with five to 10 years of experience perceive higher transfer. Perceived transfer of training is highly contextual, affected by several environmental factors and demographic variables and this is evident among the instructors of technical education of Nepal as well. Thus, before conducting training programmes and assuming that learning will be transferred, the environmental factors must be carefully studied and analysed.

Implications

This research has brought ahead some important findings in the arena of training transfer based on which some conclusions were drawn. These conclusions can contribute to different TVET actors, policy makers, planners and the institutions providing technical education all the across the country. The conclusions above also open possibilities for further research works. The below section gives the glimpses of practical and research implications.

Practical Implications

The above drawn conclusions have several implications to TVET actors such as educational institutions, TVET instructors, external evaluators as well as TVET policy makers. Firstly, there are implications to educational institutions running TVET programmes. This study showed that the role of top-level management of the institutions and the support of peers are instrumental. This research therefore serves as a basis to realize what works better for them. School management can develop a positive learning culture in the school environment and encourage the instructors to communicate openly with the management. School management can adopt both control and support mechanisms carefully depending upon the situation. It has implications to TVET Instructors as well. Six environmental factors, if become unfavourable, inhibit the transfer process of instructors and may demotivate them in their performance. So TVET instructors can shape up their mind and work considering the nature of their work environment. On a positive note, they can initiate efforts from their end to develop positive learning culture in the school and increase support from school management by making the management realize their strong role in the transfer process.

The research has implications to external evaluators as well. Extant literatures show that external evaluation of schools helps improve their performance. This study has contributed to the existing body of knowledge by exploring that External Monitoring and Evaluation (M&E) affect in the training transfer of TVET instructors as well. It also shows low level of External M&E in the educational institutions of Nepal in terms of regularity, integrity and comprehensiveness of the tools applied. This research therefore serves as a reference for the external institutions such as respective universities, Councils, donor agencies and such to carry out M&E regularly and ethically. They can also assess the results to take corrective actions or to encourage the instructors. Besides, there are also some practical implication to TVET policy makers. The findings of this research hold a greater value to policy makers of TVET instruction. Policy makers have bigger responsibilities of ensuring quality of TVET. The quality of TVET institutions are dependent on various aspects in which one is pedagogy. Providing training to improve instruction is not adequate because it does not ensure the transfer of training due to various other reasons and one is environmental factor. Policy makers can thus develop mechanisms to assess if the management of school is being supportive or not, if external bodies are performing M&E regularly and ethically or not; and if the instructors are working under high workload or not. So, policy makers can make decisions so as to enhance the transfer process addressing the above issues.

Research Implications

There are still a few facets of training transfer that have not yet been covered in this study. This study thus serves as a reference for future researches. Firstly, further research can be carried out using Confirmatory Factor Analysis (CFA) that can help further screen the variables and confirm the explored factors to establish the new

knowledge. 29 statements (variables) under six environmental factors explored using EFA can be further substantiated using CFA which is a more rigorous tool that assesses a set of factors against a hypothesized model of groupings and relationships. The second research implication is drawn upon one perceived limitation of this research. This research was guided by cross-sectional survey research design. It was deemed appropriate to assess perceived transfer of training to conduct EFA. However, longitudinal studies can be conducted which would help assess the actual training transfer rather than the perceived training transfer. Also, research works can be expanded by collecting the responses from supervisors or Principals of the instructors to cross verify the data regarding perceived training transfer.

This study also opens a new avenue to carry out further researches on other factors such as trainee characteristics or training design and delivery. Since new factors and variables of environment were explored that were different from those in extant inventories, it opens possibility of exploring new factors and variables within trainee characteristics and training design and delivery as well. This research opens up for a few other researches as well. Studies can be conducted to explore the explanations for the low-level factors such as workload and external M&E. On the grounds of the findings that perceived training transfer differs across gender, marital status, type of institutions, further research works can be expanded to dig into the reasons behind female instructors and married instructors perceiving higher transfer of training. Moreover, the reasons for why instructors from institutional schools and colleges perceive higher transfer of training than those from public or CTEVT's constituent schools can also be of future research areas. In this way, several other researches can emerge from the findings of this study.

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ANNEX

Annex I: Background of Delphi Experts

Delphi Expert	Gender	Designation	Location (District)	Academic Background	Province	Experience
Delphi Expert 1	M	Program Director	Bhaktapur	Civil Engineering	3	10 years
Delphi Expert 2	M	Instructor	Sarlahi	Electrical Engineering	2	5 years
Delphi Expert 3	M	Instructor	Rupandehi	Mechanical Engineering	5	4 years
Delphi Expert 4	M	Principal	Ramechhap	Plant Science	3	3 years
Delphi Expert 5	F	Program Director–Instruction	Bhaktapur	Nursing	3	10 years
Delphi Expert 6	M	Department Head	Rupandehi	Mechanical Engineering	5	16 years
Delphi Expert 7	M	Instructor	Dang	Agriculture	5	5 years
Delphi Expert 8	F	Principal	Lalitpur	Nursing	3	8 years
Delphi Expert 9	M	Instructor	Kathmandu	Mathematics	3	3 years
Delphi Expert 10	F	Principal	Kathmandu	Nursing	3	10 years
Delphi Expert 11	F	Instructor	Chitwan	Plant Science	3	2 years
Delphi Expert 12	F	Instructor	Surkhet	Nursing	6	6 years
Delphi Expert 13	F	Instructor	Surkhet	Plant Science	6	4 years
Total Years of Experience in TVET Instruction						*86 years*

Annex II: Questionnaire (प्रश्नावली)

आदरणीय सर/ म्याडम,
नमस्ते तथा अभिभादन !
म काठमाडौं विश्वविद्यालय स्कुल अफ एजुकेशन (KUSOED) मा एम. फिल. (M. Phil) तहमा अध्ययनरत विद्यार्थी हुँ। मेरो अध्ययनको उद्देश्य नेपालमा प्राविधिक शिक्षामा प्रशिक्षण सम्बन्धी तालीम (उदाहरणः ToT, Instructional Skill-1, Instructional Skill-2 आदि) लिएका प्रशिक्षकहरुमा तालीमको सिकाइलाई लागू गर्दा प्रभाव पार्ने वातावरणीय तत्त्वहरुको बारेमा खोज गर्नु रहेको छ। यो प्रश्नावली माथि उल्लेखित उद्धेश्य प्राप्त गर्नका लागि यहाँलाई दिइएको हो। यो सर्वेक्षण मेरो प्राज्ञिक अध्ययनको सोध-पत्रको सानो हिस्सा हो। यसमा तपाईहरुको सहयोग मेरो लागि अमूल्य हुनेछ र आवश्यक समय प्रदान गर्नहुनका लागि अनुरोध गर्दछु।
तपाईको उत्तर **गोप्य राखिनेछ** र केवल **अनुसंधान प्रयोजनको लागि मात्र प्रयोग गरिनेछ** । यस सर्वेक्षणमा उत्तरदाताको **परिचय खुल्ने कुनै पनि प्रकारको सूचना राखिनेछैन** । कृपया, तल दिएका **सबै प्रश्नहरुको यथार्थ** उत्तर दिनुहोला । तपाई प्रति म आभारी रहनेछु । धन्यवाद !

\- अनुप भुर्तेल

खण्डः क (उत्तरदाताको प्रोफाइल)

संस्थाः ..... **संस्थाको स्वामित्वः** सरकारी/CTEVTको आंगिक ☐ निजी ☐

प्रदेशः ..... **ठेगानाः** ..... **स्थानः** सहरी ☐ अर्ध-सहरी ☐ ग्रामीण ☐

सेवाको प्रकारः स्थायी ☐ करार ☐ **लिङ्गः** पुरुष ☐ महिला ☐ अन्य ☐ **पढाउने विषयः** .....

पढाउने तहः Pre-Diploma ☐ Diploma ☐ Bachelor ☐ **लिनुभएको तालीमः** ToT ☐ Instructional Skills ☐ दुबै ☐ अन्य ☐ ..... (खुलाउनुहोस्)

उमेर समूह (Age Group) (✓ चिन्ह लगाउनुहोस्)		प्रशिक्षणमा अनुभव (Experience in Instruction)		शैक्षिक योग्यता (Academic Qualification)		पद (Designation)	
२५ वर्ष भन्दा मुनि	☐	१ वर्ष भन्दा मुनि	☐	SLC/TSLC वा सो सरह	☐	प्रशिक्षण सहायक (Teaching Aid)	☐
२६ देखि ३५ वर्ष सम्म	☐	१ देखि ५ वर्ष सम्म	☐	10+2, Diploma वा सो सरह	☐	सहायक प्रशिक्षक	☐
३६ देखि ४५ वर्ष सम्म	☐	६ देखि १० वर्ष सम्म	☐	स्नातक (Bachelors)	☐	प्रशिक्षक	☐
४६ देखि ६० वर्ष सम्म	☐	११ देखि २० वर्ष सम्म	☐	स्नातकोत्तर (Masters) वा सोभन्दा माथि	☐	अन्य (खुलाउनुहोस्)	☐

धर्मः हिन्दु ☐ बौद्ध ☐ इस्लाम ☐ क्रिस्टियानिटी ☐ किराँत ☐ अन्य ☐ .....

जातीयता (Ethnicity): ब्राह्मण/क्षेत्री ☐ नेवार ☐ जनजाति ☐ दलित ☐ मधेसी ☐ आदिवासी ☐ अन्य ☐ .....

वैवाहिक स्थितिः अविवाहित ☐ विवाहित ☐ **परिवारको प्रकारः** एकल ☐ संयुक्त (Joint) ☐ **परिवार संख्याः** .....

खण्डः ख

कृपया तल दिएका श्रेणीमापनका अङ्कहरु मध्ये कुनै **एउटा Scale** मा गोलो चिन्ह O लगाउनुहोस् । (उदाहरणः ⑤)

संस्थागत वातावरण (Organizational Work Environment)

नोटः यो विश्वविद्यालय अन्तर्गतको अनुशन्धान भएकोले र हजुरको परिचय पूर्ण रुपमा गोप्य राखिने हुनाले कृपया सही (वास्तविक) उत्तर दिनको लागि हार्दिक अनुरोध गर्दछु।

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
we01	तालीमलाई प्रयोगमा ल्याउने सन्दर्भमा मेरो संस्थामा केही व्यक्तिहरुले बोलेको कुरालाई बढी महत्त्व दिइन्छ।	१	२	३	४	५	६

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
	In the course of transferring the training, the voice of a few people is given more importance in my organization.						
we02	मलाई तालीममा पठाउनुको उद्देश्य तालीम अघिनै स्पष्ट पारिएको हुन्छ। My organization clearly communicates with me the purpose of sending me to training prior to the training commencement.	१	२	३	४	५	६
we03	मेरो संस्थाले तालीमको आवश्यकता भएको व्यक्तिलाई भन्दा बढी फुर्सदिला र उपलब्ध भएका व्यक्तिलाई तालीममा पठाउने गर्छ। My organization sends free and available employees to training more than those who actually need it.	१	२	३	४	५	६
we04	प्रशिक्षकलाई तालीमको सिकाइ स्थानान्तरण (लागु) गराउन मेरो संस्थामा आवश्यक सामाग्रीको खरिद गर्ने प्रकृया झंझटिलो छ। The decision-making process on purchase of necessary resources to facilitate training transfer is a hassle.	१	२	३	४	५	६
we05	मेरो संस्थाको व्यवस्थापन पक्षले योजना बनाउदा तालीम पश्चातको ज्ञान-सीपलाई लागु गराउने विषयमा मलाई पनि सहभागी गराउछ। The management of my organization participates me in the subject matter of transferring training while developing the plan.	१	२	३	४	५	६
we06	प्रशिक्षकहरुलाई तालीममा सिकेका ज्ञान-सीप लागु गराउन मेरो संस्थाले अरु संस्थाहरुसँग सिक्न प्रोत्साहित गर्छ। In the course of transferring the training, my organization encourages instructors to learn from other organizations.	१	२	३	४	५	६
we07	मेरो संस्थामा तालीम लिएर फर्केपछि सिकेका ज्ञान-सीप सहकर्मीहरुसँग छलफल गर्ने गरिन्छ। In my organization, there is the culture of discussing learned knowledge and skills after returning from the training.	१	२	३	४	५	६
we08	मलाई मेरो सहकर्मीहरुले तालीमको सिकाई प्रयोग गर्न प्रोत्साहित गर्छन्। My colleagues encourage me to apply training at the workplace.	१	२	३	४	५	६
we09	मेरा सहकर्मीहरुले तालीम पश्चात ममा कुनै सकारात्मक परिवर्तन आएको देख्दा मलाई प्रशंसा गर्छन्। My peers praise me if they notice any positive changes in me after taking the training.	१	२	३	४	५	६
we10	तालीमको सिकाइलाई लागु गर्न संस्थाबाट चाहिने सामाग्रीहरु पर्याप्त रुपमा दिइन्छ। My organization provides me adequate resources needed to apply the training.	१	२	३	४	५	६
we11	तालीमको सिकाइलाई लागु गर्न चाहिने सामाग्रीहरु मेरो संस्थाले समयमै उपलब्ध गराउछ। My organization makes the required resources available timely to apply the training.	१	२	३	४	५	६

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
we12	तालीमको सिकाई लागु गराउदा मेरो संस्थाले प्रशिक्षकलाई उपलब्ध गराउने आवश्यक सामाग्रीहरु गुणस्तरीय हुन्छन्। The resources that my organization provides the instructors during the course of training transfer are of standard quality.	१	२	३	४	५	६
we13	तालीमको सिकाइलाई लागु गराउने/नगराउने कुरामा सुपरिवेक्षकको भन्दा मेरो संस्थाको व्यवस्थापन पक्षको वा संस्था-प्रमुखको भूमिका बढी महत्वपूर्ण रहेको छ। The management team or the head of my organization has more important role than my supervisor in the context of transferring/not transferring the training.	१	२	३	४	५	६
we14	व्यवस्थापन पक्षले तालीमको सिकाई अनुसार मैले काम गरेको/नगरेको बारे नियमित जानकारी लिन्छ। The management regularly collects the information of whether I am performing as per the training or not.	१	२	३	४	५	६
we15	तालीमको ज्ञान-सीपलाई लागु गर्नको लागि उपलब्ध गराइएका स्रोत-साधनको प्रयोगबारे व्यवस्थापन पक्षले अनुगमन गर्दछ। The management monitors about the usage of resources availed to facilitate the training transfer.	१	२	३	४	५	६
we16	तालीम पश्चात ममा आएको परिवर्तनबारे व्यवस्थापन पक्षले विद्यार्थीहरुबाट जानकारी लिन्छ। The management team takes the feedback from the students about the changes observed in me after the training.	१	२	३	४	५	६
we17	मेरो संस्थाले तालीमको सिकाइ लागु गर्ने कर्मचारीहरुलाई प्रोत्साहन गर्छ। My organization encourages those instructors who apply the training at the workplace.	१	२	३	४	५	६
we18	तालीमको प्रयोग सम्बन्धी आफुलाई लागेका कुराहरु मैले मेरो संस्थामा खुलेर छलफल गर्न पाउँछु। I can openly discuss on the issues about the application of training in my organization.	१	२	३	४	५	६
we19	तालीमको सिकाई लागु गर्नको लागि आवश्यक सहयोग पुऱ्याउन मेरो संस्थाको व्यवस्थापन पक्ष सकारात्मक छ। The management of my organization is positive about providing necessary support to facilitate the training transfer.	१	२	३	४	५	६
we20	व्यवस्थापन पक्षको ध्यान तालीमको ज्ञान-सीप लागु गरे/नगरेको हेर्नु भन्दा पनि कोर्ष सके/नसकेकोमा बढी हुन्छ। The management is more concerned on the course completion than on whether the training is being transferred or not.	१	२	३	४	५	६
we21	तालीममा सिकेको ज्ञान-सीप मैले मेरो काममा लागु गर्न पर्याप्त समय पाउँछु। I get adequate time to apply the knowledge and skills learned in the training back to my work.	१	२	३	४	५	६

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
we22	तालीमको सिकाई अनुसार पढाउनको लागि विद्यार्थी संख्याको दाँजोमा प्रशिक्षकको संख्या पर्याप्त छ। There is adequate number of instructors in comparison to number of students to apply the training.	१	२	३	४	५	६

वाह्य वातावरण (External Environment)

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
ee01	तालीमको ज्ञान-सीप स्थानान्तरण (लागु) गर्दा मेरो बढुवा हुने कुरामा नीतिगत स्पष्टता छ। There is clarity in policy that I would get promotion if I transfer the training at my work.	१	२	३	४	५	६
ee02	मेरो संस्थामा तालीम पश्चातको कार्यसम्पादनलाई प्रशिक्षकहरुको जागिरको स्थायित्व (Job Security) सँग जोड्ने गरिन्छ। In my organization, the performance of instructors after taking training is linked to job security.	१	२	३	४	५	६
ee03	स्थानीय तहका सरोकारवालाहरुले तालीम लिएका प्रशिक्षकहरूको पढाउने शैली प्रति चासो लिन्छन्। Local stakeholders show concern towards the teaching style of instructors after training.	१	२	३	४	५	६
ee04	अभिभावकहरु प्रशिक्षकहरुले दक्षताका साथ पढाएको छ/छैन भन्ने कुरा प्रति सचेत हन्छन्। Guardians are aware about whether instructors teach with competence or not.	१	२	३	४	५	६
ee05	तालीमको सिकाई अनुसार पढाउन पाठ्यक्रम निकै लामो र सीमित समयावधिको रहेको छ। With regard to the transfer of training, the course is too long to be covered in limited time.	१	२	३	४	५	६
ee06	तालीमको ज्ञान/सीप प्रयोग गरेर पढाउँदा कमजोर विद्यार्थीहरुको लागि थप समय खर्चिनु पर्छ। While teaching based on the knowledge and skills of training, instructors have to spend extra time for weak students.	१	२	३	४	५	६
ee07	विद्यार्थीहरुको चासो प्रशिक्षकले तालीममा सिकेको अनुसार पढाएको/नपढाएको भन्दा नोट दिए/नदिएकोमा बढी हुन्छ। Students are more concerned on whether they get notes or not than on whether instructors teach as learned in the training.	१	२	३	४	५	६
ee08	प्रशिक्षकले तालीममा सिकेअनुसार कक्षा संचालन गर्दा विद्यार्थीहरुले बढी ध्यान दिन्छन्। Students pay more attention when instructors take classes as learned in the training.	१	२	३	४	५	६

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
ee09	तालीमको सिकाई अनुसार पढाउने क्रममा राजनैतिक हड्ताल/अवरोधले असर पुऱ्याउछ। In the course of teaching as per the learning from training, political disturbances affect the classes.	१	२	३	४	५	६
ee10	तालीममा सिकेअनुसार प्रशिक्षकले विद्यार्थीहरुको **सैद्धान्तिक ज्ञानको मूल्याङ्कन** गरे/नगरेको कुरा प्राविधिक शिक्षा तथा व्यवसायिक तालीम परिषद (CTEVT) ले वा अन्य सम्बन्धित निकायले सुनिश्चित गर्दछ। CTEVT ensures that instructors evaluate the **theoretical knowledge** of students as they have learned in the training.	१	२	३	४	५	६
ee11	तालीममा सिकेअनुसार प्रशिक्षकले विद्यार्थीहरुको **सीपको मूल्याङ्कन** गरे/नगरेको कुरा प्राविधिक शिक्षा तथा व्यवसायिक तालीम परिषद (CTEVT) ले वा अन्य सम्बन्धित निकायले सुनिश्चित गर्दछ। CTEVT ensures that instructors evaluate the **skills** of students as they have learned in the training.	१	२	३	४	५	६
ee12	प्रशिक्षकले तालीम प्रयोगमा ल्याए-नल्याएको बारे सम्बन्धित निकायले अनुगमन गर्नुपर्छ भन्ने कुरा नीति-नियममा उल्लेखित छ। It has been stated in policy that the respective organization should conduct monitoring on whether the instructors use the training or not.	१	२	३	४	५	६
ee13	अन्य बाहिरी संस्थाले प्रशिक्षकले तालीम अनुसार पढाएको/नपढाएको बारे अनुगमन गर्दछ। Other external bodies conduct monitoring on whether instructors teach as per the training or not.	१	२	३	४	५	६
ee14	सम्बन्धित निकायले प्रशिक्षकले तालीमको सिकाई लागु गरेको/नगरेको बारे नियमित अनुगमन गर्दछ। Respective bodies regularly monitor whether the instructors are using the training or not.	१	२	३	४	५	६
ee15	प्रशिक्षकले तालीम प्रयोगमा ल्याए-नल्याएको अनुगमन तथा मूल्याङ्कन **सुक्ष्म ढङ्गबाट** हुन्छ। Monitoring and evaluation of whether the instructors are using the training or not are conducted in **detailed manner**.	१	२	३	४	५	६
ee16	प्रशिक्षकले तालीम प्रयोगमा ल्याए-नल्याएको अनुगमन तथा मूल्याङ्कन **निष्ठापुर्वक** (With Integrity) गरिन्छ। Monitoring and evaluation of whether the instructors are using training or not are conducted with **integrity**.	१	२	३	४	५	६
ee17	प्रशिक्षकले आफुले लिएको तालीम प्रयोगमा ल्याएमा सम्बन्धित निकायले प्रोत्साहन गर्छ। Respective bodies encourage the instructors if they transfer the training.	१	२	३	४	५	६
ee18	तालीममा सिकेअनुसार तयारी गर्न मैले घरपरिवार बाट सहयोग पाउँछु। I get support from my family to prepare for class as learned in the training.	१	२	३	४	५	६

अनुभूति गरिएको तालीमको सिकाई-स्थानान्तरण (Perceived Transfer of Training)

नोटः यो विश्वविद्यालय अन्तर्गतको अनुशन्धान भएकोले र हजुरको परिचय पूर्ण रुपमा गोप्य राखिने हुनाले कृपया सही (वास्तविक) उत्तर दिनको लागि हार्दिक अनुरोध गर्दछु।

१ निकै असहमत	२ असहमत	३ थोरै असहमत	४ थोरै सहमत	५ सहमत	६ निकै सहमत

SN	कथन (Statement)	निकै असहमत	असहमत	थोरै असहमत	थोरै सहमत	सहमत	निकै सहमत
tt01	मैले तालीममा सिकेका ज्ञान-सीप मेरो कार्यस्थलमा लागु गर्न सक्षम भएको छु। I was able to transfer the competences learned in the training programme back to my actual job.	१	२	३	४	५	६
tt02	मेरो दैनिक प्रशिक्षण कार्यमा मैले तालीममा सिकेका कुराहरु प्रयोगमा ल्याएको छु। I have incorporated the learned training content into my daily job activities.	१	२	३	४	५	६
tt03	मैले तालीमको सिकाई मेरो कार्यसम्पादनलाई सुधार्न नियमित रुपमा प्रयोग गर्दैआएको छु। I have been using the skills learned from the training to help improve my performance.	१	२	३	४	५	६
tt04	तालीममा सिकेका ज्ञान-सीपले मेरो कार्य शैलीमा परिवर्तन आएको छ। Due to the knowledge and skills that I learned from the training, I have changed my job behaviour.	१	२	३	४	५	६
tt05	तालीममा सिकेका विषयहरु मलाई अझै राम्रोसँग स्मरण छ। I still remember the main topics learned in the training.	१	२	३	४	५	६
tt06	तालीम पश्चात पनि मैले प्रायः तालीममा सिकेका विषयवस्तुहरु सम्झने गर्छु। Even after the training, I often remember the training contents.	१	२	३	४	५	६
tt07	तालीममा सिकेका ज्ञान-सीपका कुराहरु मैले सजिलै भन्न सक्छु। I can easily re-state several things (knowledge, skills, and abilities) learned in the training.	१	२	३	४	५	६

सहयोगको लागि धन्यवाद !

सोधकर्ता (अनुप भुर्तेल)

Annex III: Family Size and Ethnicity of the Respondents

Categories	Frequency	Percent
Family Size		
Small	77	30.7
Medium	143	57.0
Large	31	12.4
Ethnicity		
Brahmin/Chhetri	171	68.1
Newar	15	6.0
Janajati	23	9.2
Madhesi	25	10.0
Other	17	6.8
Total	251	100

Annex IV: Level in which the Respondents are teaching

Categories	Responses		Percent of Cases
	N	Percent	
Teaching Level Pre-Diploma	87	30.7%	34.7%
Teaching Level 9 to 12	4	1.4%	1.6%
Teaching Level Diploma level	173	61.1%	68.9%
Teaching Level Bachelors	19	6.7%	7.6%
Total	*283*	*100.0%*	*112.7%*

Annex V: Academic Qualifications & Trainings Taken

Category	Frequency	Percent
Academic Qualifications of the Respondents		
SLC/TSLC or equivalent	5	2.0
Diploma/10+2 or equivalent	38	15.1
Bachelors	146	58.2
Masters and above	62	24.7
Training(s) taken		
ToT	183	72.9
Instructional Skills Training	40	15.9
Both ToT & IS Training	28	11.2
Total	251	100.0

Annex VI: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.916
Bartlett's Test of Sphericity	Approx. Chi-Square	3993.054
	df	496
	Sig.	.000

Annex VII: Communalities

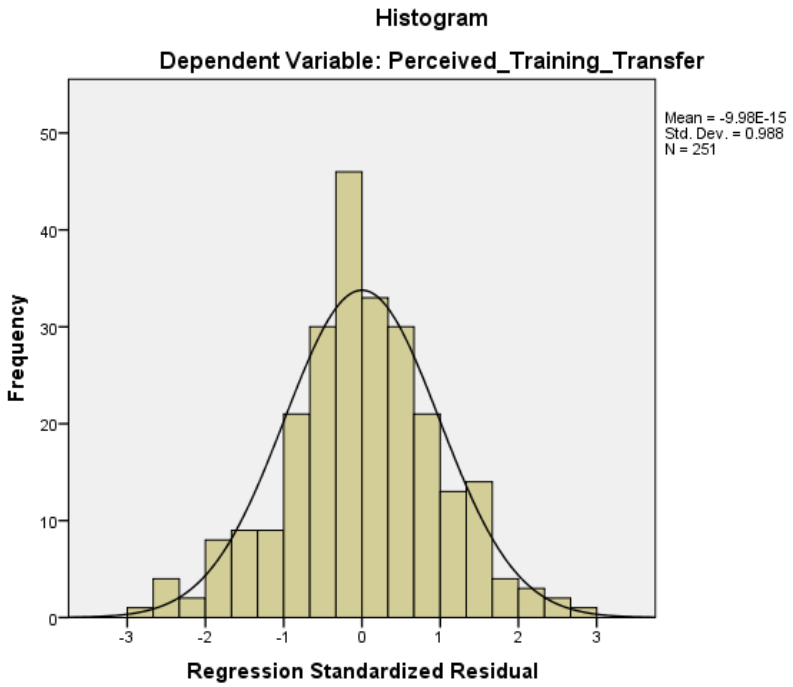
Factors & Items	Initial	Extraction
Organizational Transfer Intervention		
we10	1.000	.750
we11	1.000	.767
we12	1.000	.719
we14	1.000	.661
we15	1.000	.732
we16	1.000	.553
Average Factor Extraction		0.70
External M&E		
ee10	1.000	.697
ee11	1.000	.752
ee13	1.000	.477
ee14	1.000	.610

Factors & Items	Initial	Extraction
ee15	1.000	.638
ee16	1.000	.629
ee17	1.000	.512
Average Factor Extraction		0.62
Local School Governance		
we05	1.000	.528
we06	1.000	.511
ee03	1.000	.485
ee04	1.000	.570
Average Factor Extraction		0.52
Management Support		
we03_R	1.000	.587
we04_R	1.000	.626
we18	1.000	.627
we19	1.000	.659
we20_R	1.000	.515
Average Factor Extraction		0.60
Social Support		
we07	1.000	.583
we08	1.000	.680
we09	1.000	.628
ee18	1.000	.484
Average Factor Extraction		0.59
Workload		
we21	1.000	.602
we22	1.000	.558
ee05_R	1.000	.598
Average Factor Extraction		0.59
Total Average Extraction		*0.61*

Annex VIII: Descriptive Statistics of Perceived Training Transfer

Variable	N	Mean	Std. Deviation
Perceived Training Transfer	251	4.86	.51

Annex IX: Histogram of Perceived Training Transfer



Annex X: ANOVA[a] of Six Regression Models

Model		Sum of Squares	*df*	Mean Square	F	Sig.
1	Regression	11.660	1	11.660	55.823	.000[b]
	Residual	52.012	249	.209		
	Total	63.672	250			
2	Regression	13.700	1	13.700	68.266	.000[c]
	Residual	49.972	249	.201		
	Total	63.672	250			
3	Regression	9.318	1	9.318	42.685	.000[d]
	Residual	54.354	249	.218		
	Total	63.672	250			
4	Regression	8.823	1	8.823	40.052	.000[e]
	Residual	54.850	249	.220		
	Total	63.672	250			
5	Regression	17.364	1	17.364	93.367	.000[f]
	Residual	46.308	249	.186		

Model		Sum of Squares	*df*	Mean Square	F	Sig.
	Total	63.672	250			
	Regression	4.007	1	4.007	16.724	.000[g]
6	Residual	59.665	249	.240		
	Total	63.672	250			

a. Dependent Variable: Perceived Training Transfer

b. Predictors: (Constant), Organizational Transfer Interventions

c. Predictors: (Constant), External Monitoring and Evaluation

d. Predictors: (Constant), Local School Governance

e. Predictors: (Constant), Management Support

f. Predictors: (Constant), Social Support

g. Predictors: (Constant), Workload