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Original Research

Level of Determinants of TVET Career Choice and Relation to Locale: A Study on Diploma Level Engineering Students

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Abstract

Career choice of students differs due to many factors which influence their decision on whether or not to pursue their career of choice. Since making a career choice becomes a turning point in a student's life, it requires careful consideration. This research identifies the level of the five determinants (academic interest, self-efficacy, financial benefits, non-financial benefits, and family expectations) of TVET career choice, especially in diploma-level engineering students, and their association with each other. The study adopts a quantitative approach by using a survey design. The respondents are selected using a simple random sampling technique. The data are collected by questionnaire through google form at the time of the COVID-19 pandemic. Out of the total of 215 questionnaires emailed to the first-year students, 205 questionnaire forms are counted as valid. The data are analysed descriptively and inferentially using Statistical Package for Social Sciences (SPSS) Version 25 as the main analysis tool. The finding shows a high level of self-efficacy, and all five determinants are strongly associated with one another. Also, these five determinants differ across the locale.

Keywords: academic interest, self-efficacy, financial benefits, family expectations

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Introduction

Technical and Vocational Education and Training (TVET) is a growing field in the educational context of Nepal and has paid off for TVET graduates to be employed in a chosen field. It is the integration of education and training that helps equip youths with both general foundation skills and specific skills required to enter the labour market (UNESCO, 2016). The constitution of Nepal has pursued a policy, Article 51 (h) 1, of making education scientific, technical, vocational, empirical, and employment-oriented (Nepal Law Commission, 2015). Under consideration, School Sector Development Plan from 2017 to 2023 has given importance to implementing TVET in secondary schools by providing five technical subjects (streams) based on local interests, needs, and market demands (Ministry of Education, 2016). Likewise, Council for Technical Education and Vocational Training (CTEVT) delivers three-year diploma programs with a total enrolment capacity of 45,384 in the year 2020/21 (CTEVT, 2020). However, the dilemma of making a career choice in TVET prevails among the students after and before the Secondary Education Examination (SEE). While stepping up in higher education, students broadly make career choices in either general or technical education. Such career choices differ from individual to individual. They choose a specific career based on their interest, employability in a chosen field, and encouragement from friends, families, and many more.

Most of the students' careers largely depend upon the individual choosing their career based on the career alternatives and outcomes (Agrawal, 2008). For many students in Nepal, an engineering career, especially in civil engineering, has become the preferred career choice. According to the annual report of CTEVT (2020), engineering is the most popular field, with a total of 8595 seats available than other major fields. An engineering career is a concretization of knowledge, abilities, skills, and competencies, where students identify the best fit in their profession. In this regard, Nyamwange (2016) has observed several determinants, such as intrinsic, extrinsic, and interpersonal, might have led to career choice, particularly in diploma in engineering among students in Nepal. Intrinsic focus on the students' interests, academic ability, personality, and professional and career development (Agarwala, 2008). Extrinsic may include well-paying occupations, job security, brand, status, and prestige (Agarwala, 2008; Alexander et al., 2010). Interpersonal may include family members, teachers, peers, and relatives' influence (Ngozika et al., 2020).

Studies (Agarwala, 2008; Korkmaz, 2015; Mamarial et al., 2016) have focused on several intrinsic, extrinsic, and interpersonal determinants that influence an individual's career choice. Considering this, the researcher has regrouped these determinants into five categories: academic interest, self-efficacy, financial benefit, non-financial benefit, and family expectations. In this connection, Lee and Durksen (2018) define academic interest as a student's preferred engagement toward a specific vocation intended to develop one's academic skills and knowledge. Rotgans (2015) states that the students with less interest in the specific discipline are less enthusiastic, knowledgeable, and spend fewer hours than the students with more interest in their own chosen discipline. Bandura defines self-efficacy as "a belief in one's capability to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, as cited in Looney, 2007, p. 784). It explains that students are only ready to do or attempt things they believe in accomplishing and will not focus or try to do things they do not believe in accomplishing.

Financial benefits include well-paying occupations and other monetary values, while non-financial benefits contain job security and social recognition (Agarwala, 2008; Ozbilgin et al., 2004, Sharif et al., 2019). Likewise, most of the students' families decide on their careers to achieve their parents' dreams preferences, and it is found students choose their careers and what their parents expect to please them. Such family expectations are considered the most influential factor in career choice (Fouad et al., 2010). There are inconsistencies and arguments in the past literature as to whether these determinants have a greater influence on career choice. Little has been researched to explore the determinants of TVET, particularly the Diploma in Engineering as a career choice of youth.

The main purpose of this study was to understand the level of these five determinants of TVET career choice of diploma-level engineering students. With this purpose, the study's main research question is determined as follows: What is the level of these five determinants and their association with one another? Do these five determinants differ across the locale?

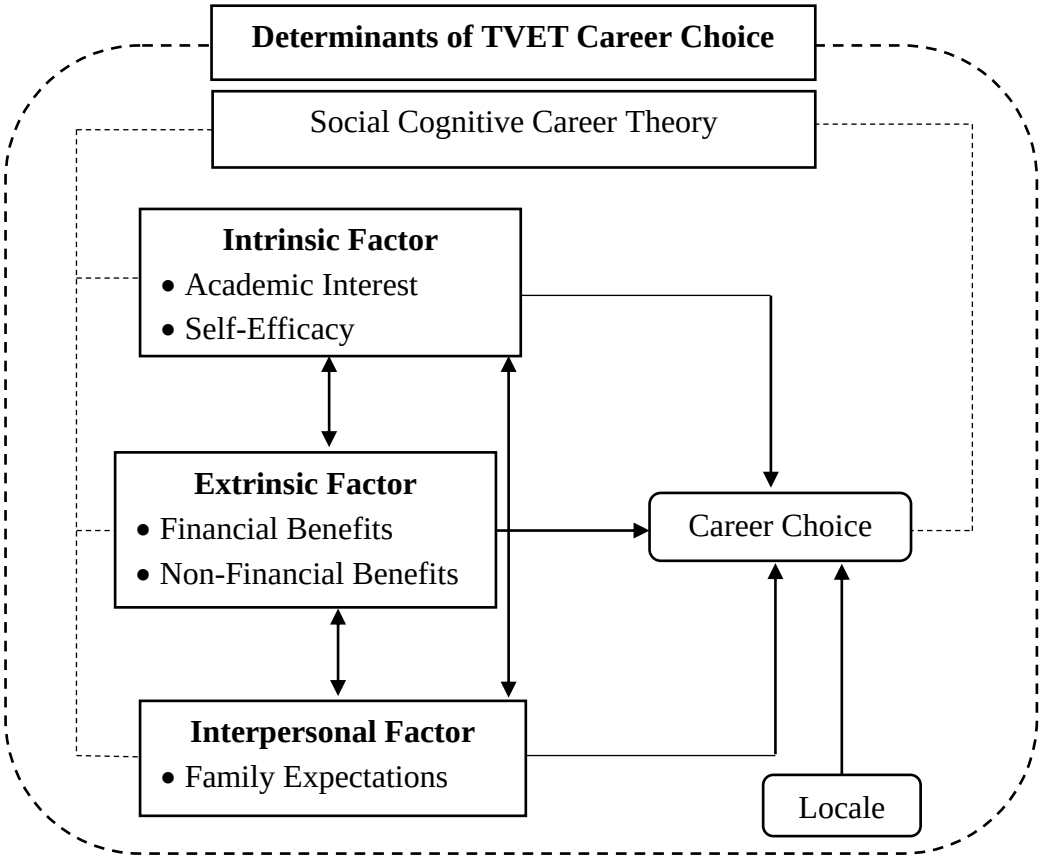
Social Cognitive Career Theory

A theoretical framework developed by Lent et al. (2002), Social Cognitive Career Theory, based on Bandura's Social Cognitive Theory was taken into consideration to understand how students' behavior is influenced by academic interest, self-efficacy, financial benefit, non-financial benefit, and family expectations. These factors reflect on and regulate depending upon the environment. Lent et al. (2002) have explained three interrelated aspects, self-efficacy beliefs, outcome expectations, and goal representations, of the career development process relying on Bandura's work.

Self-efficacy shows the behavioral approach, i.e., people believe that they can organize their behavior and then they will produce the outcome as per their expectations. Bandura (1986), as cited in Solberg et al. (1993), states that self-efficacy differs from one person to another. He further argued that there were four determinants of efficacy expectations: enactive attainments, vicarious experiences, verbal persuasion, and physiological arousal. It explains that students are only ready to choose the career they believe in to accomplish it and will not focus or pursue the career they do not believe in accomplishing. It shows the behavioral approach. Outcome expectations are defined in the previous study as, "imagined consequences of performing particular behaviors" (Lent et al., 1994, as cited in Alexander et al., 2010, p. 6). It was found that the expectations of the result were influenced by self-efficacy. The success of making a career choice is due to students' self-efficacy and, as a result, the expected outcome. Goals are defined as, "the determination to engage in a particular activity or to affect a particular future outcome" (Lent et al., 1994, as cited in Alexander et al., 2010, p. 7). Looney (2007) states that goals help regulate the behavior of students by providing a set of standards for achieving more acceptable levels of performance in their careers.

Figure 1

Theoretical Framework



(Source: Alexander et al., 2010; Lent et al., 2002)

Methodology

The study adopted a quantitative approach by using a survey as a research method (Creswell, 2014). It employed the survey method in which a questionnaire was utilized to survey 205 first-year diploma-level engineering students. The study was located in Kathmandu District, Nepal. The choice of Kathmandu as the area to conduct the study was: (i) there is an increasing number of students migrating to Kathmandu for quality education (ii) the location is easily accessible, and the researcher can develop a quick rapport with the respondents. (iii) the researcher is familiar with this location which

helped to contextualize, and (iv) finally, the city is host to a number of TVET institutions.

The tool the study employed for data collection consisted of two sections: section "one" includes several demographic questions to gather relevant information about the background of the respondents, including gender, ethnicity, family type, locale, types of school, engineering stream, and parents' education. After a review of related literature, section "two" consists of 30 items focusing on probing the study variables.

Academic Interest: The seven-item scale developed by Rotgans (2015) was used to measure academic interest. The reliability of the scale, as evidenced by Cronbach's α, was 0.84.

Self-Efficacy: Six engineering stream self-efficacy items were used to assess the capability to master content in their chosen engineering stream (Mamaril et al., 2016). Cronbach's α for six self-efficacy items was 0.87.

Financial and Non-Financial Benefits: The financial and non-financial benefits were measured using an 11-item questionnaire developed by Alexander et al. (2010), five items measuring a financial benefit, out of which two items were added by the researcher in the Nepali context, and six items measuring a non-financial benefit. Cronbach's α for five financial items was 0.81, and for six non-financial benefit items, it was 0.79.

Family Expectations: A six-item scale developed by Fouad et al. (2010) was used to measure family expectations. Cronbach's α for family expectations items was 0.71.

The 5-point Likert scale was developed, which was scaled as 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree to assess the level of the determinants of TVET career choice among diploma-level engineering students. In the process, initially, the pilot study was carried out at schools with the TECS program located outside the study location. This was done to identify the difficulties in understanding the questionnaire during the piloting. To enhance the validity of the data, three major forms of validity were considered throughout the study: content validity, construct validity, and criterion-related validity (Cohen et al., 2007).

Prior to collecting the data, ethical approval from the research committee, Kathmandu University School of Education, was taken. To prepare for the study, the

researcher sought a letter from the University administration to carry out the research. Using the letter, the researcher introduced himself via phone, explained the purpose of the research, and requested an electronic file containing the list of the TVET schools, principal/coordinator names, cell phone numbers, and email addresses from CTEVT. Then the list was used to make respective calls to the administration of constituent colleges and schools with the TECS program introducing the researcher and the purpose of the research. In this regard, the researcher requested an electronic file containing students' names, cell phone numbers, engineering stream, and email addresses of all the first-year diploma-level students. The list was used to select students to participate in the study. The total sample size was 205, calculated by applying the sampling formula which was postulated by Yamane (1967, as cited in Sarmah & Hazarika, 2012).

Due to the COVID-19 pandemic, the questionnaire was distributed using google forms. Before sending the questionnaire to the students, the researcher explained the questionnaire, the research objective, and how to fill it up. The respondents were informed that the response was they could take as much time as they needed. A log sheet was maintained to keep a record of the questionnaire distributed and returned. More importantly, respondents were assured that the information was to be protected and maintain their anonymity. The data obtained were analysed by using SPSS Version 25. Statistical tests: frequency and percentage were used for the data related to the demographic variables of the participants. In addition, correlation, independent samples t-test and one-way ANOVA were used to determine the associations and the effect factors across the demographic variables.

Respondents' Attributes

The respondents' attributes are classified into gender, ethnicity, family type, locale, types of school, engineering stream, fathers' education, and mothers' education. The results obtained from the descriptive study are presented in Table 1 and subsequently described.

Table 1

Demographic Variables

Variables	Frequency	Percent
Gender		
Male	156	76.1
Female	49	23.9
Ethnicity		
Brahmin	54	26.3
Chhetri	43	21.0
Janajati	53	25.9
Madheshi	29	14.1
Others	36	12.7
Family Type		
Nuclear	127	62
Joint	78	38
Locale		
Urban	71	34.6
Semi-urban	69	33.7
Rural	65	31.7
Types of School		
Constituent	130	63.4
TECS	75	36.6
Engineering Stream		
Mechanical	14	6.8
Civil	97	47.3
Computer	15	7.3
Electrical	47	22.9
Geomatics	32	15.6
Fathers' education		
Illiterate	24	11.7
Able to read and write	66	32.2
Secondary Level	21	10.2
SEE or equivalent	46	22.4
10+2 or similar level	32	15.6
Bachelors or above	16	7.9

Variables	Frequency	Percent
Mothers' education		
Illiterate	70	34.1
Able to read and write	68	33.2
Secondary Level	24	11.7
SEE or equivalent	25	12.2
10+2 or similar level	14	6.8
Bachelor or above	4	2.0

In Table 1, the frequency and percentage of gender, ethnicity, family type, locale, types of school, engineering stream, fathers' education, and mothers' education were tabulated. It shows that 156 (76.1%) of the students were male, and 49 (23.9%) were female. The number of male respondents is higher than that of females in the engineering sector. Likewise, the distribution of the respondents was nearly even across Brahmin, Janajati, and Chhetri. There were 26.3% Brahmin, 25.9% Janajati and 21% Chhetri. The enrolment of Madheshi and others was relatively lower. Regarding the family type, the majority of respondents' families were nuclear (62%) as opposed to joint families (38%). On the other hand, respondents were evenly distributed across the urban (34.6%), semi-urban (33.7%), and rural areas (31.7%). The result reveals the respondents from the semi-urban and rural locale are choosing their engineering career even though TVET institutions were running mostly in urban areas. In addition, the table also shows the respondents were mostly engaged in constituent schools (63.4%) more than in schools with TECS programs (36.6%) and studying civil engineering (47.3%) followed by electrical engineering (22.9%). Regarding fathers' education, it fell under the category of being able to read and write (32.2%), followed by SEE or a similar level (22.4%). Unlike that, mothers' education was illiterate (34.1%), followed by being able to read and write (33.2%).

Level of Determinants of TVET Career Choice

In this study, five determinants of TVET career choice were identified from the literature. To measure the level of these determinants, the five-point Likert scale was divided into three levels: Low, Medium, and High (Cohen et al., 2007) after the analysis of mean and standard. In this study, each level is divided at 1.33, i.e., a value ranging from 1 to 2.33 was assigned as "Low", 2.34 to 3.67 as "Medium", and 3.68 to 5 as "High".

Table 2

Level of Determinants of Career Choice

Determinants	Mean	SD	Level	Frequency	Percent
			High	148	72.2
Academic Interest	3.98	0.80	Medium	49	23.9
			Low	8	3.9
			High	169	82.4
Self-Efficacy	4.17	0.69	Medium	33	16.1
			Low	3	1.5
			High	151	73.7
Financial Benefit	4.04	0.72	Medium	49	23.9
			Low	5	2.4
			High	148	72.2
Non-Financial	3.91	0.70	Medium	51	24.9
Benefit			Low	6	2.9
			High	111	54.1
Family Expectations	3.62	0.82	Medium	82	40.0
			Low	12	5.9

Table 2 shows the frequencies and percentages of all five determinants (academic interest, self-efficacy, financial benefit, non-financial benefit, and family expectations) influencing the career choice of TVET students that have been used in this study. The result shows a high level of self-efficacy (82.4 percent). It means most of the students' choices are mostly influenced by self-efficacy. Likewise, the level of financial benefits (73.7 percent), academic interest (72.2 percent), and non-financial benefits (72.2 percent) was nearly evenly distributed. It is to be noted that students' choices also are influenced by academic interests, financial and non-financial benefits. In contrast, regarding family expectations, the percentage of the high score was the least (54.1 percent) observed. This shows the influence of family is less at the time of career choice. It means the decisions of students pursuing a diploma level in engineering are mostly influenced by intrinsic and extrinsic factors than interpersonal factors.

Table 3

Correlation Among the Determinants of TVET Career Choice

SN	Variables	1	2	3	4	5
1	Academic Interest	-				
2	Self-Efficacy	.634**	-			
3	Financial Benefit	.342**	.499**	-		
4	Non-Financial Benefit	.437**	.626**	.707**	-	
5	Family Expectations	.312**	.347**	.435**	.426**	-

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

Table 3 provides a matrix of the correlation coefficients for five determinants (academic interest, self-efficacy, financial benefit, non-financial benefit, and family expectations). The study examined the associations between determinants influencing career choice. For this, Pearson correlation was run using SPSS Version 25. The result indicates a strong, positive correlation between academic interest and self-efficacy with statistical significance ($r = .634$, $p < .01$) and the correlation between these variables was higher than that among other variables. The result exhibits that respondents who have an academic interest are more likely to have higher self-efficacy while making a career choice. Among five determinants, family expectation was weakly correlated with other variables, such as academic interest ($r = .342$, $p < .01$), self-efficacy ($r = .347$, $p < .01$) and financial benefit ($r = .435$, $p < .01$). Despite the varying strengths of associations, all these determinants were statistically significant at the .01 level.

Effect of Locale

Table 4

Locale and Determinants of TVET Career Choice

Determinants	Resident	N	Mean	SD	F	Sig.
Academic Interest	*Urban*	71	3.9457	.78036		
	Semi-urban	69	3.7805	.88355	5.660	.004
	Rural	65	4.2286	.64276		
Self-Efficacy	*Urban*	71	4.1338	.74035		
	Semi-urban	69	4.1377	.70996	.680	.508
	Rural	65	4.2564	.60530		
Financial Benefits	*Urban*	71	4.0282	.76740		
	Semi-urban	69	4.0058	.72920	.297	.743
	Rural	65	4.0985	.66532		
Non-Financial Benefits	*Urban*	71	3.8216	.79399		
	Semi-urban	69	3.9300	.66692	1.099	.335
	Rural	65	3.9974	.61976		
Family Expectations	*Urban*	71	3.4437	.86966		
	Semi-urban	69	3.5531	.83210	5.533	.005
	Rural	65	3.8846	.67310		

Table 4 shows that among the five factors, self-efficacy, financial benefit, and non-financial benefit were statistically not significant ($p > 0.05$). In contrast, academic interest and family expectations were statistically significant ($p < 0.05$). Further, the Post Hoc Test was conducted to clarify the statistical difference between the means of locale. It could be well observed that academic interest differed between rural and semi-urban with a mean difference of .44803 ($p < 0.05$). Similarly, the family expectations differed among rural, semi-urban, and urban locale with mean differences .44095 and .33148, respectively, having a *p*-value less than 0.05. It means that the students from the rural locale have higher academic interests and family expectations than those from semi-urban and urban locales. Thus, these five determinants differ across the locale.

Pertinent Role of Self-Efficacy on TVET Career Choice

The study found the pertinent role of academic interest, self-efficacy, financial benefit, and non-financial benefit to make a TVET career choice than the family expectations. The level of academic interest and self-efficacy was found to be high. Previous studies have supported the claim that academic interest is a leading variable that influences career choice, including self-efficacy (Choi & Kim, 2013). This study was consistent with the study of Lent et al. (2002), which stated that the person who has low self-efficacy tends to avoid a career in which they lack abilities and skills, while an individual who has high self-efficacy tends to successfully make a good career choice. This reflects that the students' self-efficacy predicts their academic interest, even when other factors are considered. Students' self-efficacy in engineering-related areas has also been shown to influence their career choice (Mamaril et al., 2016). The Social Cognitive Career Theory hypothesizes that a primary cause of the behavior is an individual's self-efficacy beliefs in his or her abilities to accomplish certain career goals (Looney, 2007). When students have the ability to achieve what they believe, they get motivated and make their careers successful. Further, the study also showed that there was a strong positive association between academic interest and self-efficacy.

Comparing the findings of this study with prior research, self-efficacy has also played an important intermediate role while making a career decision. It has been identified as the predominant and strongest influence on career choice and performance. Therefore, Looney (2007) highlighted that students having higher self-efficacy would develop a more likely interest in the discipline of their choice. The study's finding shows that female students' academic interest in technical education is gradually losing because their self-efficacy is influenced and manipulated by environmental conditions (Luo et al., 2019; Rotgans, 2015). In general, most Asian parents expect their children, especially female students, to engage more in household chores than non-household ones. Such expectations have created low self-efficacy among female students; as a result, they are less inclined toward the engineering stream than males. Gokuladas (2010) has stated that there is a high level of influence of academic interest and self-efficacy while selecting their first career choice than financial benefits, non-financial benefits, and family expectations.

The high level of family expectations was observed low compared to other determinants. The study by Alexander et al. (2010) found that female students are concerned with the advice given by their families when choosing what to study. According to this, female students tries to meet the expectation of their family. Based on family expectations, female students are influenced to choose "feminine stereotyped" careers and avoid "masculine appropriate" ones (Mudhovozi & Chireshe, 2012). It showed the participation of women in the TVET sector, i.e., 59 percent of health programs, out of which 43 percent is nursing (Paudel, 2019). On the other hand, it has been found that male students have higher family expectations than female students. Pablo-Lerchundi and Morales (2015) show that male students are more guided by financial and non-financial benefits than female students when choosing an engineering career. The author further highlights that female students are bound into the social stereotype and make preferences for their careers based on the job and image which are suitable to them. The finding of this study is valuable, as another study has not examined the determinants influencing TVET career choice, and additional study is essential. Comparing the intrinsic and interpersonal factors with the extrinsic factor, the study showed that the level of financial and non-financial benefits was evenly distributed. According to Lent et al. (2002), outcome expectations are interlinked with financial and non-financial benefits.

Level of Determinants of TVET Career Choice in Relation to Locale

In terms of locale, prior research has not focused on determining the relationship with the determinants of TVET career choice. Hence, the finding of this study is novel. With regards to locale (see Table 4), this study found that students from rural areas had higher academic interest than students from semi-urban and urban areas. Looney (2007) states that there is a positive relationship between academic interest and expectations of results. The career outcome expectations reveal a better knowledge of jobs, abilities to perform, etc. Such expected outcomes have a more direct impact on the students from rural areas than semi-urban and urban areas. However, most of the TVET institutions were largely located in urban areas where the study was carried out. The result showed that the TVET programs had not reached the students from socially underprivileged, regionally backward, and economically poor communities. However, the study of Gokuladas (2010) found that the geography of the country might influence the career choice of students and might be the high recruitment of civil engineers which affects

the decision of the students. Most of the TVET institutes are located in urban areas; even students are choosing technical education, especially engineering, from rural areas. Furthermore, the finding of this study revealed that the parents having low educational attainment and illiteracy did not make any differences in their children's career choices in TVET or general education. Kim et al. (2015) state that students make decisions about their careers based on their parents' expectations. Parents from rural areas expect to have their dreams to be fulfilled by their children and decide to make a career choice of their preferences than parents from urban areas. It has shown that expected outcomes (financial and non-financial benefits) have helped to raise academic interest and family expectations among students from rural areas more than in semi-urban and urban areas.

Conclusion and Implications

To sum up, the findings of the present study led to conclude that there is a pertinent role of self-efficacy while making a career choice, followed by other determinants of TVET career choice, i.e., financial benefits, academic interest, non-financial benefits, and family expectations. In fact, individuals become motivated, skillful and spend more time in their own chosen discipline when the students are only ready to do or attempt things; they believe in accomplishing them. It shows that self-efficacy students are more likely to be interested in the field of their choice. As a result, it directly impacts the expected outcomes (financial and non-financial benefits). In addition, all these five determinants were strongly associated with one another, and if one determinant influencing career choice in engineering increases, other factors are likely to increase as well.

The conclusion drawn from above can contribute at different levels, such as policymakers, TVET institutions, students, and future researchers. TVET institutions could offer subjects that will equip students with skills or upgrade their skills and get a chance to understand the labour market. The finding of this study is expected to help TVET institutions to create programs, such as: "career conventions," or "career conference," or "school counsellors" and spread the importance of TVET among the students and policymakers. However, a future in-depth research is necessary to investigate further and generate new findings. The present study used previously explored variables in other study contexts and looked at only five determinants. It is,

therefore, important that a similar study can be carried out to explore many determinants influencing career choice in depth by qualitative or mixed methods. Furthermore, factor analysis can be considered to explore more determinants that influence TVET career choice.

Disclosure

The author declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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