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Exploring Predictors of Development and Career Planning Among TVET Educators

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Abstract: Career planning and development a key factor that provides added value to career sustainability. Career development approaches have recently changed due to the fast-paced global change, competitive industry needs, demands, and global education trends. Traditionally, it was the responsibility of an institution to guarantee that its educators possessed the skills necessary to achieve its long-term objectives. Currently, however, educators should be accountable for their career growth. Therefore, a survey was conducted to discover predictors of development and career paling for TVET educators (n = 141). A multiple regression analysis was conducted for all sets of career planning variables such as career aspirations (88.48%), personal aspirations and drive (85.93%), current competency (86.00%), current learning and development opportunities (82.05%), and company support 87.45%) is measured. This study found changes in the predictor, personal aspirations and drive, current competency, current learning and development opportunities, and organization support are significantly associated with changes in career aspiration. This majority of TVET educators are aware and willing to improve their knowledge and skills to meet the standard of current changes in TVET education needs and demands. The finding indicated that a proven technique for meeting organizational and personnel demands includes creating career routes that allow TVET educators to comprehend their options for advancement within the institution and collecting information to assess their abilities for career relevancy and sustainability.

Keywords: Career and development, educators, TVET, regression

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1. Introduction

Engineering - Technical and Vocational Education (TVET) is primarily concerned with transitions and aims to transform TVET-Engineering into a new state of education standard. The TVET transformation is committed to re-engineering the current vocational education system to create a new vocational education system that can contribute to a sustainable learning and high-income country. It was designed to develop a holistic human capital capable of tackling any national or global problem and providing a highly trained workforce to meet the country's employment market needs. Individual self-actualization can lead to the development of comprehensive human capital. The transformation requires that TVET-Engineering educators are well prepared to face the challenges of empowering the high standard of TVET education and committed to supporting an education system that can fulfil the needs and aspirations of a nation. Due to the TVET-Engineering agenda and transformation, educators' teaching and learning practice has become more challenging. Teachers and students are keen to find the best approaches to keep up with this challenge.

Furthermore, in the current era of technology, career growth and planning are of utmost importance because the 21st century and worldwide changes have created an environment where practically everything competes with one another (Albay & Serbes, 2017). This argument holds for educators as well. For example, educators need to deal with integrating teaching and learning with the digital age, how new technologies help in teaching and learning, how big data and artificial intelligence can benefit the learning process, etc. As a solution to these questions, it might require a new set of skills and knowledge. However, skills and knowledge gained from educators during their degrees or training (in five-year times) and in current years might become obsolete soon (McKee & Gauch, 2020).

On the one hand, everything is changing rapidly; on the other, they are expected to adapt to these rapid changes. Such an adaptation needs commitment, motivation, and organisation on their part and that of their students. In this regard, being a competent educator alone will not suffice. Teachers should be receptive to innovations and internal or external (self) evaluations. Institutions are responsible for establishing short- and long-term objectives for the professional development of their instructors. In this approach, the educational process becomes beneficial for instructors, students, and schools. Most organization and TVET-Engineering institutions require educators to elevate learning, reskilling, and up-skilling to ensure up-to-date skills and knowledge are relevant to the new educational situation. Career-growth or professional development program is one of the potential solutions for empowering TVET-Engineering educators in terms of competency, leadership, and innovation. Looking to the current TVET-Engineering prodigy in Malaysia, the government has highlighted these needs by offering and spending a considerable budget on upskilling and reskilling programs, either online or offline courses, and through workplace partnerships (Vinayan, Harikirishanan, & Ling, 2020)

1.1 Research Motivation

In literature, many studies highlight the professional development and needs among educators, including TVET-Engineering educators. For example, Smith (2017) discussed her personal experience as a teacher, educator and researcher associated with the career development process. Smith (2017) reported that two significant factors enhanced her professional development: self-initiation and determination to move out of her comfort zone and seek new challenges and collaboration with colleagues. Self- Initiative in career development provides light on career path toward a problematic task. It shall serve as a student to be empowered to overcome hurdles on their path to achieving their objectives. Learning to take the initiative is a crucial ability for educators to develop in order for to be good educators. However, due to lack of time and work overload, educators tend to give less attention to career-growth development (Rahman, Mokhtar, & Ali, 2020) (i.e., TVET-Engineering instructors in vocational institutions have a broader job scope than teachers in traditional school systems. Surprisingly, TVET-Engineering educators taught 18 to 28 hours per week, and when combined with administrative duties, their willingness to participate in professional development activities is perceived as reticent or reluctant at best. They cannot be expected to balance their professional growth with their other responsibilities.

Besides, most TVET-Engineering educators faced difficulties in transforming the new teaching norm and still using instruction, delivery and materials approaches in current years. This is supported by Aina & Ogegbo (2022) who discover the challenges among the TVET-Engineering educator in transforming teaching into virtual learning. The challenges are lack of support for integrating technology into their practice, access to connectivity, little or no training on pedagogical practices, an unconducive home environment, students' attitudes in the online space, a lack of infrastructure, and poor policy guidelines and framework for implementing virtual learning all pose a threat to educators' desire to change and support a permanent transition to virtual education.

Furthermore, personal identity, motivation, and passion as an educator are challenges in the career development process. Many factors contribute to the passionless, de(motivated) and challenging to leave comfort zone among educators. Zhang, Admiraal, & Saab (2021) have investigated how factors at teachers' personal and school levels are related to their motivation to participate in professional learning activities. This study provided a complete account of personal and school-level characteristics that are substantially associated with teachers' motivation to participate in professional learning activities. Teachers' motivation for professional development was influenced by their experience, teaching experience, self-efficacy, ideas about learning, emotional strain, and principal leadership. Richardson & Watt (2018) has outlined the development of teachers' professional identities from a different perspective and proposed how major motivation theories provide windows into identity development at different points during teachers' career lifespan. This study has proposed a self-determined learning framework that offers a potential integrative, coherent organizational framework capable of bringing together a range of theories and constructs drawn on in examining teacher motivation and identity development. This study also embraces the unfolding of developmental processes in particular contexts of age and stage models of teacher identity and work commitment.

Furthermore, the quality of education is also can be determined based on the teachers' competency and practice. (Ismail, Hassan, Bakar, Hussin, Hanafiah, & Asary, 2018). Therefore, various professional and career-growth development programs for educators, including TVET-Engineering educators, have been established in order to improve and maintain a high level of teaching standards. Noticeably, most industrial, organization, and TVET-Engineering institutions have taken initiatives in offering the course, workshops, and industrial partnerships to empower TVET-Engineering educators. These programs are relatively essential and significant for improving teaching and learning materials and approaches (i.e., considering the digitalization of education and the new norm of a post-pandemics situation); updating new knowledge and skills (i.e., relevant to the new technology applied in local and global industry); provides industrial exposure to the TVET educators (e.g., industrial attachment) (Jaipal-Jamani, Mayne, Ibrahim, Porter-DaCosta, Devonish, Williams-Shakespeare, Martin, & McLean, 2021; Rahman et al., 2020). However, some studies have found that present professional development program do not meet teachers' learning preferences or issues, and are thus misaligned with teachers' challenges in practice, learning preferences, or specific concerns (Yan, 2015; Zhang & Wong, 2018). This uncertain preference and mismatch in program offer led to fewer motivation educators. According to Simegn (2014) a lack of resources and imbalance of support from institution administration resulted in a mismatch in the career-development. Some of the TVET institutions have assigned career-development programs to the certain educators without considering the expertise, preference and experience of the educators. This is due to the poor leadership and the majority of these challenges arise from a lack of communication between leaders and their staff, as well as a lack of the necessary resources and tools to run a business (Rahman et al., 2020). Educators are sometimes perplexed by the confusing message conveyed by leaders since they do not provide support and resources for professional development while expecting teachers to learn and implement new ways to increase student accomplishment. Yet, a supportive working environment provided by school administrators will foster a professional learning environment.

2. Literature Review

There has been an increasing interest in TVET-Engineering educators, including their identities, abilities, duties, and opportunities for professional growth. In literature, most professional development studies focus on facilitating career development (Czerniawski, Guberman, & MacPhail, 2017), career development to the employability of graduates (Okolie, Nwajiuba, Binuomote, Ehiobuche, Igu, & Ajoke, 2020) and career readiness that focused on exploration of the professional learning activities of teacher educators throughout their career (Falco & Steen, 2018). Richter, Lazarides, & Richter (2021) designed an instrument to determine the goals and motives of an educator, and the relationship between the motives and job satisfaction, including the emotional control for both teachers and teachers' educators. This study found that four motives commonly become the main control in choosing a professional career aspiration, social engagements, and leaving the comfort zone to escape routine and unexpected events. The basic requirement for being an educator at any level needs significant knowledge and skill. Paying attention to the fundamental competencies of educators helps to guarantee that all educators and others who work in education are prepared to make the institution a positive experience for students and trainees. Educators must be able to interact positively with all students and trainees. This category comprises challenging trainees and students, those who perform less in skills and knowledge. Besides, educators are required to prioritize education and professional growth. Subject-matter expertise deteriorates, teaching tactics evolve, and new research continuously modifies how students learn and how teachers instruct. Educators can continue to improve the quality of their education by continuing their education and participating in professional development events.

3. Methodology

Figure 1 presents the survey overview of underlying factors contributing to the career development program preference. A literature survey was conducted to determine variables that measure the status quo of career planning and development among TVET educators. In this phase, the related previous studies were collected and identified. The related work was divided into categories (i.e., years, subject of interest, and relevancy). The collected documents identified all the

information related to the research aim. There are several career planning and development were identified. However, this study has selected only five parameters to be considered: career aspirations, personal aspirations and drive, current competency, learning and development opportunities, and company support.

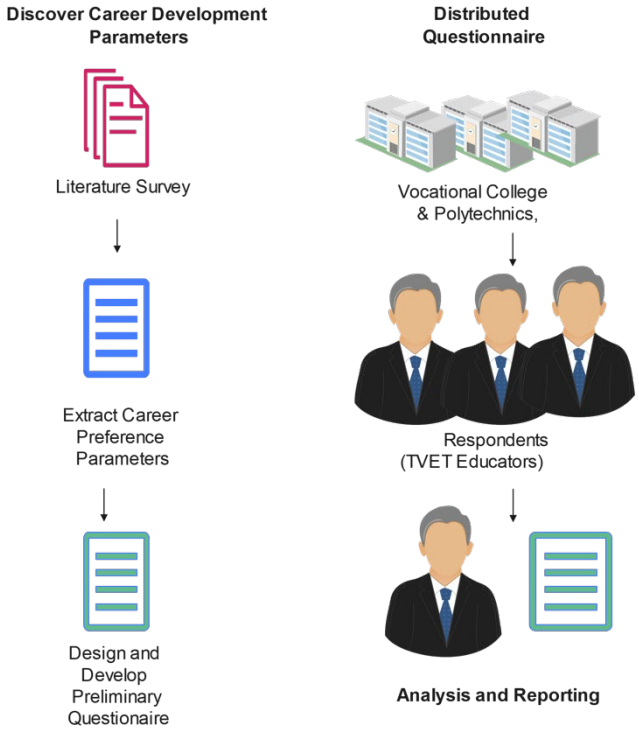

Fig. 1 - Overview of methodology

The next step is the design and development of the preliminary survey questionnaire. This questionnaire consists of two sections, section A is demography profile, and Section B is career planning and development. A total of 25 questions/items were designed, with each variable consisting of five main questions/items. The questionnaire had acceptable internal consistency (Cronbach's $\alpha = 0.89$). Besides, this questionnaire is designed as five pages of printed booklet styles, as shown in Figure 2. The respondents are required to determine career planning and development status quo, with a score ranging from the lowest score (S = 1) to the highest score (H = 4). Then, a questionnaire survey was distributed to the TVET educators (polytechnics, n = 64, vocational college, n = 77) and lecturers with/without administration positions. A total of 150 educators initially contributed to this study. However, only 141 responses are measured (female, n = 94, and male, n = 47) due to the missing value and data inconsistency. This survey was distributed face-to-face and online, and respondents took approximately 5 minutes to complete the survey. The last step is analysis and reporting. All the responses were collected and underwent a data pre-processing process. A descriptive and inference analysis was conducted to determine the career planning and development status of TVET educators.

Career Aspirations	Score			
	1	2	3	4
I am currently on a career path within the organization that is in line with my aspirations	☐	☐	☐	☐
I feel that my personal goals align with the organization broader goals	☐	☐	☐	☐
I intend to remain with the organization in the medium-long term in order achieve my career aspirations	☐	☐	☐	☐
I intend to undertake formal studies to enhance my career further	☐	☐	☐	☐
I have set key goals for my development areas in the short-term (next 12 month period)	☐	☐	☐	☐

Fig. 2 - Partially content of questionnaire survey design

4. Findings and Discussions

This section presented the finding and discussion of the preliminary survey on career planning and development. Based on the frequency of responses, this study analysed each item in detail. Table 2 presented the mean and standard deviation for career aspirations elements measured in this study. In the context of career aspirations, most of educators agreed that remaining in the same organization is one of the important keys to achieving career aspirations (mean = 3.539, SD = 0.3854). This shows that career planning is necessary to achieve both short- and long-term organizational objectives. It allows educators to align resources with the institution's objectives in the most effective manner, especially in fulfilling the TVET transformation agenda. Additionally, short- and long-term planning ensures that TVET educators obtain the maximum levels of job satisfaction that drives by their career aspirations. Besides, the fifth rank of career aspiration is related to career planning in a short-term context, with a mean = 3.36, SD = 0.525.

Table 1 - Mean and standard deviation for career aspiration

C1	Career Aspiration	Mean	SD	Rank
1	I am currently on a career path within the organization that is in line with my aspirations	3.67	0.473	2
2	I feel that my personal goals align with the organization broader goals	3.50	0.569	3
3	I intend to remain with the organization in the medium-long term in order achieve my career aspirations	3.71	0.456	1
4	I intend to undertake formal studies to enhance my career further	3.45	0.627	4
5	I have set key goals for my development areas in the short-term (next 12-month period)	3.36	0.525	5
	Average	3.539	0.3854	

Table 3 presented the mean and standard deviation for personal aspirations elements and drive measured in this study. In the context of personal aspiration and drive is focusing on the way educators ensure their work fits well to themselves. Passionate is obtained the mean = 3.436. However, the fifth rank of the personal aspiration and drive is "I would not change anything about my current work role," mean = 2.65 and SD = 1.001, where educators are willing to transform their teaching and learning style aligned with the technology and the current state of TVET transform as discussed above.

Table 2 - Mean and standard deviation for personal aspirations and drive

C2	Personal Aspirations and Drive	Mean	SD	Rank
1	I am currently very passionate about what I do and fulfilled in my job	3.78	0.416	1
2	I feel my personality suits my current job, and I am in the right career	3.71	0.528	2
3	I would not change anything about my current work role	2.65	1.001	5
4	I need to develop certain personality traits further to be better at my job	3.52	0.568	3
5	I feel motivated by working in my role for the organization	3.52	0.580	3
	Average Score (Score = 4)	3.44	0.354	

Table 4 presents the mean and standard deviation for current competencies elements in this study. The study found that TVET educators are willing to improve their knowledge and skills related to their subject experts. This can be seen when the response of "I would like to enhance my technical skills related to my function" has obtained the highest mean, mean = 3.66 and SD= 0.476. This is aligned with the statement of (Ismail et al., 2018) which stated that TVET educators are responsible for preparing, advising, instructing, leading teaching, evaluating, and reviewing student achievement. In various approaches, a TVET educator facilitates theoretical and practical learning sessions. Consequently, the emphasis on technical competencies is essential for the professional development of TVET teachers in the industrial era. This technical competency encompasses instructional planning, instructional delivery, instructional evaluation, classroom management, student motivation and facilitation, student career development, technology application, and subject matter mastery, all of which are crucial to TVET education in current industry needs and demands.

Table 3 - Mean and standard deviation for current competencies

C3	Current Competencies	Mean	SD	Rank
1	I currently have all the required competencies to undertake my function to an excellent level	3.40	0.491	3
2	I would like to enhance my technical skills related to my function	3.66	0.476	1
3	I feel that I should work on specific personal skills for the next 12 months	3.38	0.581	4
4	I feel I need to attend formal training courses in key competencies in the next 12 months	3.48	0.501	2
5	My current skill level is sufficient for promotion to the next level in the institution	3.28	0.757	5
	Average Score (Score = 4)	3.44	0.374	

Table 5 presented the mean and standard deviation for current learning and development opportunities elements measured in this study. The highest mean for this construct is "I have tangibly demonstrated my competencies gained through formal learning course," mean = 3.3571, SD = 0.599. This shows that TVET educators are willing to participate in career planning and development programs in order to improve their knowledge and skills.

Table 4 - Mean and standard deviation for current learning and development opportunities

C4	Current learning and development opportunities	Mean	SD	Rank
1	I have identified vital training courses to attend in the current year	3.23	0.683	4
2	I feel that previous training courses have been helpful to me in the work environment	3.30	0.705	2
3	I have tangibly demonstrated my competencies gained through formal learning course	3.35	0.599	1
4	I have critical areas for enhancement that require formal courses to help me develop	3.30	0.459	2
5	I have identified a coach/mentor in the workplace and set up a formal mentoring relationship with them	3.23	0.814	4
	Average Score (Score = 4)	3.2823	0.485	

Table 6 presents the mean and standard deviation for organization support elements measured in this study. This study shows that organization and institutions play an important role as a supporter for the TVET educators to improve their career development. The highest mean response for this construct is "The organization prioritizes formal learning and training opportunities for me on an annual basis", mean = 3.6429, SD = 0.4880.

Table 5 - Mean and standard deviation for organization support

C5	Organization support for self-development	Mean	SD	Rank
1	I feel that there are opportunities for me to advance within the organization	3.40	0.573	4
2	The organization provides opportunities for me to develop to the next level	3.56	0.578	2
3	The organization prioritizes formal learning and training opportunities for me on an annual basis	3.64	0.482	1
4	My employer assists me in achieving a development plan to address my career gaps	3.38	0.629	5
5	My employer helps me understand the required skills and competencies for success	3.50	0.628	3
	Average Score	3.497	0.483	

Based on the overall finding, table 7 presents the percentage of the parameters that factor in the career planning and development.

Table 6 - Percentage score of each construct

No	Construct	Percentage Score (%)
1	Career Aspirations	88.48
2	Personal Aspirations and Drive	85.93
3	Current Competency	86.00
4	Current Learning and Development Opportunities	82.05
5	Organization Support	87.45
	Total	

Furthermore, multiple regression is modelled to determine the relationship between career aspiration with four variables, i.e., career aspirations, personal aspirations and drive, current competency, current learning and development opportunities, and organization support. In our study, it can be seen that the p-value of the F-statistic is <2.2e-16, which is highly significant. This means that at least one of the predictor variables is significantly related to the outcome variable. Table 8 presents the coefficients table, which shows the estimate of regression beta coefficients and the associated t-statistic p-values. For a given predictor, the t-statistic evaluates whether or not there is a significant association between the predictor and the outcome variable, that is, whether the beta coefficient of the predictor is significantly different from zero. In our study, changes in personal aspirations and drive, current competency, learning and development opportunities, and organization support are significantly associated with changes in career aspiration. For a given predictor variable, coefficient (b) can be interpreted as the average effect on y of a one unit increase in the predictor, holding all other predictors fixed. In multiple linear regression, the R2 represents the correlation coefficient between the observed values of the outcome variable and the fitted (i.e., predicted) values of y.

For this reason, the R-value will always be positive and range from zero to one. R2 represents the proportion of variance in the outcome variable y, which may be predicted by knowing the value of the x variables. An R2 value close to 1 indicates that the model explains a large portion of the variance in the outcome variable. A problem with the R2 is that it will always increase when more variables are added to the model, even if those variables are only weakly associated with the response (James et al., 2014). A solution is to adjust the R2 by considering the number of predictor variables. The adjustment in the "Adjusted R Square" value in the summary output is a correction for the number of x variables included in the prediction model. In our study, with drive, current competency, opportunity, and support predictor variables, the adjusted R2 = 0.628, F (4,136), P < 0.01), meaning that "62% of the variance in the measure of aspiration can be predicted by drive, competency, opportunity and support score".

Table 7 - Multiple regression

Elements	Multiple Regression				Confident Interval	
	Estimate, β_1	Std. Error	T- Value	Pr(>|t|)	2.5%	97.5%
Intercept	0.427	0.221		1.936	**0.055**	-0.009
Drive	0.087	0.085	0.097	1.027	**0.306**	-0.081
Competency	0.307	0.072	0.298	4.269	**0.000**	0.165
Opportunity	0.210	0.054	0.264	3.867	**0.000**	0.103
Support	0.305	0.055	0.382	5.548	**0.000**	0.196

Residual standard error: 0.2384 on 136 degrees of freedom
Multiple R-squared: 0.6282, Adjusted R-squared: 0.6172
F-statistic: 57.44 on 4 and 136 DF, p-value: < 2.2e-16

A multiple linear regression was calculated aspirations based on drive, competency, opportunity and support. A significant regression was found (F (4, 136) = 57.436, p < 0.000), with R^2 of 0.628. Participant's predicted aspirations is equal to 0.427+ 0.087 (drive) + 0.307 (competency)+ 0.210 (opportunity) + 0.305 (support), where variables are measured as score. This study found that all the parameters were significant predictors of competency, opportunity and support. Figure 3 presented the graphical representation of regression coefficients. The fitted line plot illustrates this by graphing the relationship between aspirations with drive, competency, opportunity and supports' variables.

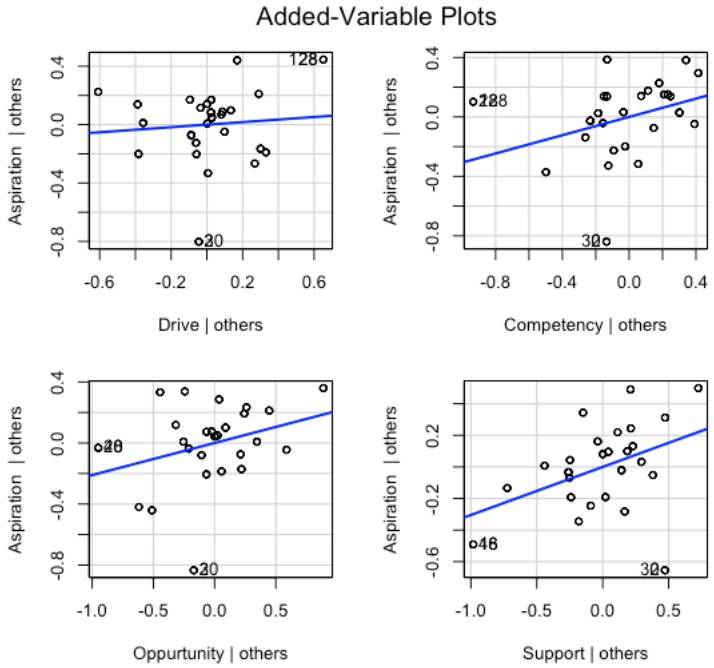

Fig. 3 - Multiple regression

5. Conclusions

Five main predictors were measured in this study. The career aspiration among educators illustrated the desire and intent to pursue a profession or a particular position within a profession. Aspirations significantly impact job selections by indicating the objectives and intents that inspire individuals to pursue a particular path. Second, personal aspiration and drive reflect the willingness of the educators to improve their knowledge and skill over time, and it helps monitor work performance and career path. Self-interests are goals individuals wish to accomplish in their personal or professional lives. Aspirations may include the desire to obtain a promotion, become a top researcher and teacher, and become international trainers that allow TVET to transform. Besides, the current competency encourages TVET educators to be aware of the current practices and needs of TVET educators. In conclusion, this paper describes the variables we consider in designing career development programs. These variables may lack external validity and generalizability. For future service providers attempting to design an effective career development program, this paper will guide them to anticipate the needs, technical resources, and potential challenges.

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