



Embracing Psychological Well-Being among Professional Engineers in Malaysia: The Role of Protean Career Orientation and Career Exploration

NORIZAN BABA RAHIM* AND SITI-ROHAIDA
MOHAMED ZAINAL

School of Management, Universiti Sains Malaysia

ABSTRACT

Engineers are fast-track individuals, who have special knowledge and expertise. They have great expectations and ambitions for their career. Engineers are also known to be energetic in climbing their career ladder and in striving for psychological success. However, the conflict between having their own goals and expectations along with opportunities of advancement, work autonomy and work demand structured by the organization have all influenced the well-being of the engineers. As a result, the performance of engineers has shown a drop. This scenario can become worse if less attention is given to research on the engineers' individual well-being. Therefore, it is time to investigate the impact of protean career orientation on the individual well-being among professional engineers in Malaysia. This is precisely what this paper intends to do. The hypotheses are investigated through correlation and path analysis of 387 professional engineers in Malaysia. The results show that protean career orientation has a positive influence on career exploration. Furthermore, career exploration also has a positive influence on psychological well-being. In addition, the mediating effect of career exploration is identified. This paper discusses the implications of these findings to understand the process through which career attitudes affect individuals' psychological well-being.

Keywords: Protean career orientation, career exploration, psychological well-being, engineers

* Corresponding Author: E-mail: nbr11_man127@student.usm.my
Any remaining errors or omissions rest solely with the author(s) of this paper.

INTRODUCTION

New economy careers have emerged in response to the changes in economic and labor market. This has forced changes in working careers and spawned new career models, which tend to be dynamic, less predictable and boundaryless (Lips-Wiersma and Hall, 2007). Similarly, work has become more flexible as organizations become flatter (Feldman and Ng, 2007). As a result, employees need to change their attitudes toward their career development and toward their own role (Briscoe and Hall, 2006). Employees adapting to these changes in labor markets and organizational structures, modify their work values and behaviors such that they bear most of the responsibilities for planning and managing their own careers. Hall (2002, 2004) defined protean career orientation as the development of a distinct mind-set. According to Hall, individuals with protean career orientation strive for psychological success, set themselves challenging goals, and invest a lot of effort. Besides, individuals with protean career orientation are found to be engaged in career exploration (De Vos and Soens, 2008). This behavior can function as a navigation system that guides individuals, who use career exploration as the process by which they collect information about values, interests, skills, strengths and weaknesses (Weng and McElroy, 2010). Related literatures have proven that individuals who manage their careers proactively are more satisfied with their careers compared with individuals with passive career attitudes (Volmer and Spurk, 2011). However, the question is: Does it mean that those who have achieved career satisfaction have also achieved their personal satisfaction from their career? In short, have they also achieved their psychological well-being? Psychological well-being is predicted as meaningful work (Arnold *et al.*, 2007). Johada (1982) supported the notion by saying that employment not only serves as the manifest function of providing income, but also provides individuals with valuable experiences, social interactions, and opportunities for personal development and use of their skills. The potential loss of such psychologically important factors would imply that the individual's well-being is reduced (Lazarus and Folkman, 1984). Engineers who focus on their work, experience their job as important and meaningful. When they experience their job as meaningful, they enjoy working and they do not see it as an effort. However, if engineers struggle with the complexities of their job, they may experience work as meaningless (Schaufeli and Bakker, 2001).

The contribution of engineers to the Malaysian economic development is huge. To reflect this contribution, the government has formulated the new Malaysian Engineering Education Model in 2000 (Megat Johari *et al.*, 2002). This education model aims to recruit and qualify engineers with a strong scientific base, innovative, professionally competent, multiskilled, and well-respected. Consequently, the institution of the Engineering Education Model has increased the annual student

enrolment in engineering faculties at higher institutions. Table 1 illustrates the increasing number of enrolment in the engineering fields of studies at Higher Education Institutions (HEIs) in Malaysia.

Table 1 Number of student enrolment in engineering field at Higher Education Institutions (HEIs) in Malaysia

Field of study		Year	Enrolment
Engineering, manufacturing and construction	Engineering	2012	83,786
		2011	82,348
	Manufacturing, Processing and Technology	2012	13,717
		2011	13,528
	Architecture and Building	2012	19,172
		2011	18,633

Note. Adapted from Malaysia Higher Education Statistics, 2012

In addition, the engineering sector is the key engine to support the country's economic transformation goals (Kelly Services, 2012). In 2010, the government has invested RM58 billion in the engineering sector. The National Key Economy Area (NKEA) targeted that this investment would deliver an annual growth of 5% from 2010 to 2020. This means that it could deliver an estimated RM131 billion in Gross National Income (GNI) with the creation of 52,300 of new jobs during the period. A significant proportion of these new jobs will be highly-skilled jobs with an estimated of 21,000 jobs for qualified professionals such as engineers.

Unfortunately, the survey conducted by Job Central Malaysia's on Work Happiness Survey 2013 revealed that engineers were classified as one of the groups of unhappy workers in Malaysia (Boo Su-Lyn, 2014). This was due to their dissatisfaction with advancement opportunities, work autonomy, and work demand. Such findings are in line with the opinion expressed by Ferrara (1998) in his study that the nature of work load, unorganized working hours, unmanaged work load, and other work related factors have decreased the level of the engineer's well-being. The conflict between fulfilling work demand structured by the organization and being visionaries, ambitious, having their own goals and expectations, has altogether influenced the well-being of the engineers. Therefore, this study intends to investigate the impact of protean career orientation on the psychological well-being among professional engineers in Malaysia. This study also aims to examine the mediating effect of career exploration on the relationship between protean career orientation and the psychological well-being of the professional engineers.

LITERATURE REVIEW AND HYPOTHESES

Protean Career Orientation and Career Exploration

Protean career orientation is defined as involving greater mobility, a more whole-life perspective, and a developmental progression (Briscoe *et al.*, 2006). It has two dimensions, which are self-directed and values-driven. Self-directed refers to an individual taking an independent role in managing his or her vocational behaviour. Meanwhile, values-driven refers as an individual using his or her own values (versus organizational values, for example) to guide his or her career. Individuals with protean career orientation are more close to themselves rather than to their organizations (Baruch and Quick, 2007). Their behaviors are more likely expressed through the proactive management of their career. Since they are driven to achieve their personal meaningful values, therefore they are more engaged in career management behaviors (DiRenzo, 2010). Career exploration is defined as gathering of information about oneself and employment opportunities, respectively (Noe and Wilk, 1993). Career exploration provides individuals with information pertaining to jobs, organizations, career paths, and their individual selves (Stumpf *et al.*, 1983). Therefore, individuals with protean career orientation are more likely to engage in self-exploration to clarify their personal values, career interests, and perceptions of job and career fit (DiRenzo, 2010). Besides, they are more likely to access external information to gain insights regarding jobs and career opportunities and weigh them against their individual values to help them make informed career decisions (DiRenzo, 2010). Previous research has not examined the relationship between protean career orientation and career exploration. However, a positive association is consistent with indirect evidence, which indicates the influence of protean career orientation on both career insight and career authenticity such as the sense of authenticity in one's career role (Briscoe *et al.*, 2006). It is possible that individuals with protean career orientation have a liking for career exploration in order to gain the insight needed to make career decisions that will lead to fulfil their personal goals. Therefore, these individuals will actively explore career development options to achieve their personal values and psychological success (Hall, 2002). With these considerations, protean career orientation (self-directed and values-driven) is expected to have a positive influence on career exploration. Therefore, in this study the following hypotheses were formulated:

H1 : Protean career orientation (self-directed) has a positive influence on career exploration.

H2 : Protean career orientation (values-driven) has a positive influence on career exploration.

Career Exploration and Psychological Well-Being

Several studies have shown that career exploration is related to behaviors such as to accept opportunities for career mobility and to participate in courses and seminars (Noe and Wilk, 1993). Generally, individuals obtain career information through self-exploration of values, interests, strengths, and weaknesses of skills, and exploration of the environment. People who are expected to explore are those who wish to successfully progress in their careers (Philips, 1982). Consequently, exploration leads to increased knowledge of career opportunities and greater awareness of the skills and behaviors that need to be developed for career success. The implication is that people experience their job as meaningful and they enjoy working. Johada (1982) supported this notion by saying that employment not only serves as the manifest function of providing income, but also provides individuals with valuable experiences, social interactions, and opportunities for personal development and skill use. The potential loss of such psychologically important factors would reduce well-being (Lazarus and Folkman, 1984). Since the nature of well-being looks upon broad area and different feeling, many studies has keep it upon instead of focusing to only one single specific construct. In this study, psychological well-being has been chosen as the component for well-being. Psychological well-being is defined as the overall effectiveness of an individual's psychological functioning (Berkman, 1971a, 1971b). Factors such as skill utilization, professional development, and social support have consistently been shown to be related to functional well-being related outcomes such as engagement, job satisfaction, and health (Halbesleben, 2010). As has been said earlier, limited research has been conducted with regard to the theoretical relationship between career exploration and psychological well-being. Therefore, based on the aforementioned assumption, the following hypothesis is formed:

H3 : Career exploration has a positive influence on psychological well-being.

Protean Career Orientation and Psychological Well-Being

Protean career attitudes include self-directed and values-driven behaviors (Briscoe and Hall, 2006). They include developing career insights and taking initiatives to manage career. Individuals with protean career attitudes should be motivated by

targets that challenge and stretch their abilities. In other words, they are motivated by achievements. This idea is in line with that of Hall (2004) who said that individuals with protean career would be more motivated to follow their own internal compass by upholding their personal ideals or principles rather than motivated by extrinsic motivators such as money, status, or promotion. In turn, these individuals increase their feelings of career success (De Vos and De Soens, 2008). In addition, being a protean careerist means that an individual measures his or her success based upon his or her own values (psychological subjective success), rather than climbing up the corporate ladder within an organization (vertical objective success) (Hall, 1996). Thus, protean career attitudes help in achieving psychological success (De Vos and Soens, 2008). Limited research has been conducted with regard to the theoretical relationship between protean career orientation and psychological well-being. Therefore, based on this assumption, the following hypotheses are formed:

H4 : Protean career orientation (self-directed) has a positive influence on psychological well-being.

H5 : Protean career orientation (values-driven) has a positive influence on psychological well-being.

The Mediating Role of Career Exploration between Protean Career Orientation and Psychological Well-being

Individuals with protean career orientation are always optimistic (Briscoe and Hall, 2006). They are quite optimistic when it comes to managing their careers (Lovallo and Kahneman, 2003). They objectively assess their own strengths and develop career strategies accordingly (Lovallo and Kahneman, 2003). Because individuals have the tendency to choose behaviors that are in line with their attitudes, protean career attitudes lead employees to engage in certain career development behaviors that in turn result in important individual work outcomes. As the career actor is better able to cope with the changes taking place in his or her organization, his or her job performance will almost certainly be relatively better than that of other employees. The ability to cope with problems has the potential to mediate between appraisal of a situation and the resulting emotional response (DiRenzo, 2010), and thus could increase psychological well-being. Research conducted by De Vos and Soens (2008) has proven that the impact of protean career attitudes on career success is indirect and operates through career self-management. However, limited research has been conducted with regard to the mediating effect of proactive career management behaviors on the relationship between protean career orientation and

psychological well-being. Therefore, based on the said assumption, the following hypotheses are formed:

H6 : Career exploration mediates a positive effect between protean career orientation (self-directed) and psychological well-being.

H7 : Career exploration mediates a positive effect between protean career orientation (values-driven) and psychological well-being.

RESEARCH METHODOLOGY

Sampling Frame

The respondents in this study are the professional engineers who have registered with Board of Engineers Malaysia (BEM). BEM defines professional engineers as follows:

- (a) They are graduate engineers who have satisfied the training requirement of BEM;
- (b) They have passed the Professional Assessment Examination of BEM, or they have been elected as a corporate member of Institution of Engineers Malaysia (IEM); and
- (c) They need to accumulate at least 50 hours from the CPD activities every year for their license renewal.

Sample Size

To determine the minimum sample size, the “10 times” rule of thumb suggested by Hair *et al.* (2010) was used as a guideline in this study. Hair *et al.* (2010) recommended that the minimum requirement for sample size is to have at least five participants per variable or item. However, the more acceptable sample size is to have 10 participants per variable or item. In this study, 22 items were used to measure all the variables. Hence, by employing the guideline as recommended by Hair *et al.* (2010), the acceptable minimum sample size is 10 x 22 items, that is 220 respondents. Based on the above guidelines, the actual sample size of 387 was deemed enough. However, since the usable rate cannot be guaranteed, the researcher has decided to distribute the questionnaires to 600 respondents.

Data Collection Procedures

To collect data, a self-administered questionnaire was applied. A drop-off/pick-up method was applied in this study. This method provides the opportunity for the researcher to convey the message personally to the respondents. It ensures the presence of the respondent to answer the questions because the questionnaires are hand delivered by the researcher (Steele *et al.*, 2001). All variables were measured at the individual level. Altogether, 600 sets of questionnaires were distributed to the respondents during the CPD activities at IEM. Out of 600 sets of questionnaires, only 387 sets of questionnaires were received from the respondents, yielding a response rate of 65%.

Measures

All measurement items were adopted from previous studies with acceptable reliabilities. Protean career orientation was measured using the 14-item scale developed by Briscoe *et al.* (2006). Based on the first protean scale, self-directed was used to assess the degree to which people believe that they can act independently in managing their career. This scale consisted 8 items. Based on the second protean scale, values-driven was designed to determine the degree to which people use personal versus external values to define career priorities and goals. It consisted 6 items. Briscoe *et al.* (2006) reported that the alpha coefficients for the two subscales are 0.81 and 0.69, respectively. Meanwhile, career exploration was measured using 3 questions developed by previous researchers (Noe, 1996; Zikic and Klehe, 2006). The Cronbach's alpha for career exploration was 0.86. Finally, psychological well-being was measured using the 8-item Index of Psychological Well-Being developed by Berkman (1971a, 1971b). Ratings were made on the 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree* for all the variables in this study. In this study, the coefficient alpha was 0.72.

Data Analysis

Data were analyzed using SmartPLS software which was developed in the late seventies by Wold (1975). It is a covariance-based structural equation modelling (SEM) technique, widely used to model the relationship between multiple independent variables and dependent variables in technology acceptance studies (Compeau and Higgins, 1995). Unlike traditional regression techniques, PLS is not only capable of assessing the causation among a set of dependent and independent variables (structural model), but also capable of determining the validity and

reliability of latent variables (measurement model). It is particularly useful for analyzing models and theory building due to its minimal demand on measurement scales, sample size, and residual distributions (Chin, 1998b).

RESULTS

Descriptive Findings

This section presents the demographic profiles of the respondents. In terms of gender, out of the total respondents, 319 (82%) were males, while 68 (18%) of them were females. In terms of their qualification, 212 (55%) of the respondents were master degree holders, followed by 147 (38%) bachelor degree holders, while 28 (7%) of the respondents were PhD holders. All the 387 respondents in this study were registered professional engineers (PE) with BEM. With regard to their CPD hours, all of these professional engineers have collected more than 50 CPD hours in the year 2013. Table 2 summarizes the demographic characteristics of the respondents.

Table 2 Demographic profile of respondents (N = 387)

Demographics	Categories	Frequency	(%)
Gender	Male	319	82
	Female	68	18
Level of Education	Bachelor Degree	147	38
	Master Degree	212	55
	Doctoral Degree	28	7
Registered as Professional Engineer (PE) with BEM	Yes	387	100
Total CPD hours collected for the year 2013	More than 50 hours	387	100

Model Testing

To test the conceptual model, this study used the two-step approach suggested by Anderson and Gerbing (1988) and Chin (2010). First, the measurement model was analyzed, and then the structural model. The purpose of this approach is to assess the fit and construct validity of the measurements before assessing the structural model for path coefficients or relationships between the constructs. Therefore, “convergent validity” and “discriminant validity” will be assessed next to confirm

“construct validity” by looking at the results of the measurement model. Figure 1 shows the measurement model in this study. Meanwhile, Figure 2 shows the structural model in this study.

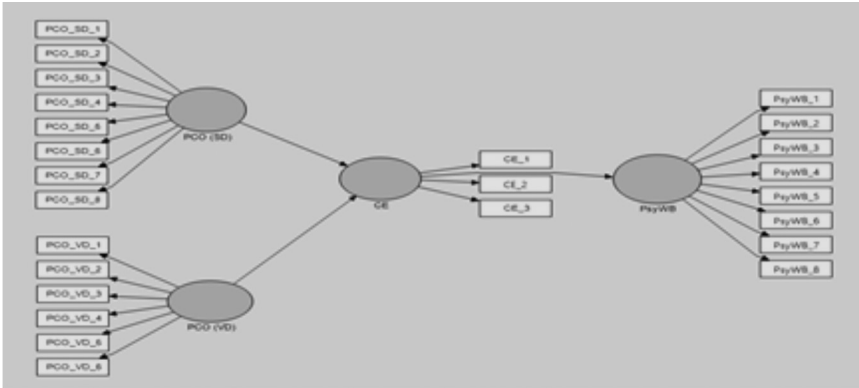


Figure 1 The measurement model of the study

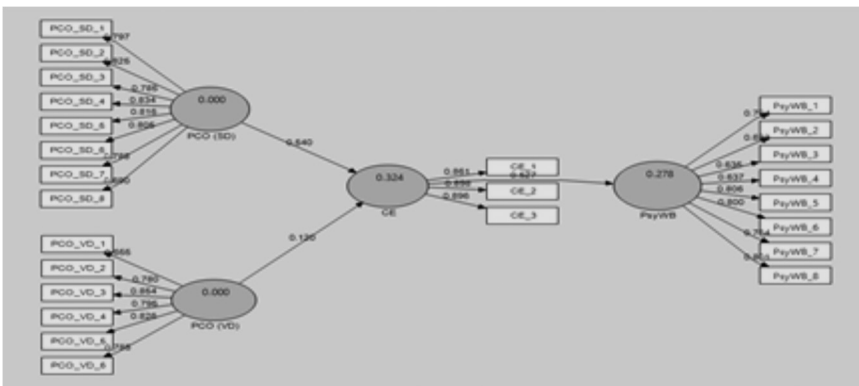


Figure 2 The structural model of the study

Convergent Validity

Table 3 shows that cross-loadings, AVE (Average Variance Extracted), and composite reliability could be assessed to confirm the convergent validity. AVE is the mean variance extracted for the items loading on a construct, and it is a summary indicator of convergence (Fornell and Larcker, 1981). AVE value of at

least 0.5 indicates sufficient convergent validity, which means that on average, a latent variable is able to explain more than half of the variance of its indicators (Goetz, Liehr-Gobbers, and Krafft, 2009). Next, composite reliability was assessed for reliability. Composite reliability is a measure of convergent validity. The composite reliability value should be higher than 0.7 in order to assure an accurate scale (Nunnally and Bernstein, 1994). Based on this guideline, the CR values shown in Table 1 are satisfactory. Therefore, the measures used provided satisfactory reliability. In view of results of factor loadings, AVE, and composite reliability, adequate evidence of convergent validity was established. To confirm the construct validity, the results of discriminant validity will be discussed next. Table 3 illustrates the items loading, CR, and AVE in this study.

Discriminant Validity

Hair *et al.* (2010) suggested that discriminant validity is the extent to which a construct is fully distinct from other constructs. Discriminant validity indicates to what extent measures in the model are different from other measures in the same model. It is analyzed by comparing the square root of the AVE with the correlations between the variables. Chin (2010) suggested that discriminant validity is established if the square root of the AVE exceeds the correlations. Table 4 shows the square root of the AVE, placed in the diagonal. Note that the correlations for each construct are less than the square root of the AVE by the indicators measuring that construct, which indicates adequate discriminant validity. Based on the reported results, the measurement model confirmed the construct validity. Therefore, the testing of hypotheses can proceed to prove the research model.

Hypothesis Testing

The relationships of the direct paths among the exogenous variables and endogenous variables are explained in this section. The structural model was assessed to determine the significance of path coefficients for structural paths. In total, this study proposed five hypotheses. Out of seven hypotheses, two were related to the relationship between the independent variable and the mediating variable. One hypothesis was related to the relationship between the mediating variable and the dependent variable. Two hypotheses were related to the relationship between the independent variable and the dependent variable. Finally, two hypotheses were related to the role of the mediating effect between the independent variable and the dependent variable.

Table 3 Results of items reliability, internal consistency and convergent validity

Constructs	Items	Loadings	Composite Reliability (CR) ^a	Average Variance Extracted (AVE) ^b
Protean career orientation (Self-directed)	PCO_SD_1	0.792	0.932	0.631
	PCO_SD_2	0.823		
	PCO_SD_3	0.791		
	PCO_SD_4	0.835		
	PCO_SD_5	0.821		
	PCO_SD_6	0.808		
	PCO_SD_7	0.793		
	PCO_SD_8	0.681		
Protean career orientation (Values-Driven)	PCO_VD_1	0.563	0.905	0.618
	PCO_VD_2	0.751		
	PCO_VD_3	0.857		
	PCO_VD_4	0.830		
	PCO_VD_5	0.860		
	PCO_VD_6	0.815		
Career exploration	CE_1	0.860	0.916	0.783
	CE_2	0.899		
	CE_3	0.896		
Psychological well-being	PsyWB_1	0.699	0.898	0.526
	PsyWB_2	0.616		
	PsyWB_3	0.629		
	PsyWB_4	0.636		
	PsyWB_5	0.806		
	PsyWB_6	0.807		
	PsyWB_7	0.772		
	PsyWB_8	0.802		

Notes: a Average variance extracted (AVE) = (summation of the square of the factor loadings) / {(summation of the square of the factor loadings) / (summation of the error variances)}

b Composite reliability (CR) = (square of the summation of the factor loadings) / {(square of the summation of the factor loadings) / (square of the summation of the error variances)}

Table 4 Discriminant Validity

	1	2	3	4
Career exploration	0.885			
Protean career orientation (self-directed)	0.553	0.794		
Protean career orientation (values-driven)	0.186	0.131	0.786	
Psychological well-being	0.525	0.452	0.161	0.725

Note: Diagonal values (in bold) represent the square root of the AVE, while off-diagonals represent the correlations

Hypotheses Testing: Protean career orientation and career exploration

Two hypotheses were postulated on the relationship between protean career orientation (self-directed and value-driven) and career exploration. The results showed that both hypotheses were supported. Protean career orientation (self-directed) was found to have a positive influence on career exploration ($\beta = 0.538$; $p < .01$). Similarly, protean career orientation (values-driven) was found to have a positive influence on career exploration ($\beta = 0.116$; $p < .05$). Therefore, H1 and H2 were supported. The results are shown in Table 5.

Table 5 Path coefficient for protean career orientation and career exploration

H	Relationship	Path Coefficient (β)	Std. error	t-value	Results
H1	PCO(SD) ---> CE	0.538***	0.044	12.201	Supported
H2	PCO(VD) ---> CE	0.116**	0.053	2.182	Supported

Note: *** $p < .01$ (2.33), ** $p < .05$ (1.645), * $p < .1$ (1.28)

Hypotheses Testing: Career exploration and psychological well-being

One hypothesis was postulated for the relationship between career exploration and psychological well-being. The result showed that career exploration positively influenced psychological well-being ($\beta = 0.119$; $p < .1$), thereby supporting H3. The result is illustrated in Table 6.

Table 6 Path coefficient for career exploration and psychological well-being

H	Relationship	Path coefficient (β)	Std. error	t-value	Results
H3	CE ---> PsyWB	0.119*	0.079	1.512	Supported

Note: *** $p < .01$ (2.33), ** $p < .05$ (1.645), * $p < .1$ (1.28)

Hypotheses Testing: Protean career orientation and psychological well-being

Two hypotheses were postulated on the relationship between protean career orientation (self-directed and value-driven) and psychological well-being. The results showed that protean career orientation (self-directed) positively influenced psychological well-being ($\beta = 0.184$; $p < .01$), thereby supporting H4. However, hypothesis H6 was not supported ($\beta = 0.060$; $p > .1$). Table 7 illustrates the results.

Table 7 Path coefficient for protean career orientation and psychological well-being

H	Relationship	Path coefficient (β)	Std. error	t-value	Results
H4	PCO(SD) ----> PsyWB	0.184***	0.057	3.250	Supported
H5	PCO(VD) ----> PsyWB	0.060	0.072	0.834	Not supported

Note. *** $p < .01$ (2.33), ** $p < .05$ (1.645), * $p < .1$ (1.28)

Hypotheses Testing: The Mediating Role of Career Exploration between Protean Career Orientation and Psychological Well-Being

Two hypotheses were postulated on the mediating effect of career exploration on the relationship between protean career orientation (self-directed and value-driven) and psychological well-being. The results showed that both hypotheses were not supported. The rejected hypotheses were H6 ($\beta = 0.064$; $p > .1$) and H7 ($\beta = 0.014$; $p > .1$). Details of the results are presented in Table 8.

Goodness of Fit (GoF) Index

Tenenhaus *et al.* (2005) proposed the Goodness of Fit (GoF) Index for evaluating the overall predictive performance of a model. It is a geometric mean of the average communality and average R^2 for all endogenous variables. Following the guidelines by Wetzels *et al.* (2009), the study estimated the GoF values, which may serve as cut-off value for global validation of PLS models. In this study, the GoF value of 0.241 was obtained for the complete (main effect) model, which exceeded the cut-off value of 0.36 for large effect size of R^2 . Therefore, the results indicated that the model has the medium prediction power compared with baseline value (GoF small = 0.10, GoF medium = 0.25, GoF large = 0.36). The Goodness of Fit (GoF) index for the present study is shown in Table 9.

Table 8 Hypotheses testing: The mediating effect of career exploration between protean career orientation and individual well-being

H	Relationship	Path a	Path b	Indirect path (a*b)	SD (a*b)	t-values	Results
H6	PCO(SD) -> CE -> PsyWB	0.538***	0.119	0.064	32.763	0.002	Not supported
H7	PCO(VD) -> CE -> PsyWB	0.116**	0.119	0.014	7.020	0.002	Not supported

Note: ***p < .01 (2.33), **p < .05 (1.645), *p < .1 (1.28)

Table 9 Goodness of fit (GoF) index

Construct	AVE	R²
Protean Career Orientation (Self-Directed)	0.631	
Protean Career Orientation (Values-Driven)	0.618	
Career Exploration	0.783	0.324
Psychological Well-Being	0.526	0.278
AVERAGE	0.640	0.301
GoF		0.618

Note: GoF = Square root of (Average AVE * Average R²)
= 0.618

DISCUSSION

Guided by the objectives of this study this paper investigated whether protean career orientation (self-directed and values-driven) has a positive influence on career exploration. Then, it investigated whether career exploration has a positive influence on psychological well-being. The study proceeded to find out whether protean career orientation (self-directed and values-driven) has a positive influence on psychological well-being. Finally, this study examined whether career exploration mediates the relationship between protean career orientation (self-directed and values-driven) and psychological well-being.

The empirical findings from this study showed that both dimensions of protean career orientation (self-directed and values-driven) positively influenced career exploration. This finding is consistent with the finding of De Vos and Soens (2008) who found that protean career orientation is positively associated with career exploration. The reason behind this positive relationship is that protean careerists are more particular about their own career goals, and they more likely to act for themselves rather than for their organization (Baruch and Quick, 2007). Their behaviors are more likely expressed through their proactive management of their career.

Career exploration has also been shown to have a positive influence on psychological well-being. This indicated that exploration activities are undertaken by persons, who wish to successfully progress in their career (Direnzo, 2010; Philips, 1982). Exploration results in increased knowledge of career opportunities and greater awareness of what skills and behaviors that need to be developed for career success. The implication of this is that people experience their job as meaningful, and thus, they enjoy working (Philips, 1982). The finding also indicated that the relationship between protean career orientation and psychological well-being is partially supported. One possible explanation for this finding could be attributed to

job conditions and working environments. This could be because engineers work in companies that operate in a highly competitive market, with projects driven by very strong focus on quality, costs, and time. Always, engineers have to struggle to meet unrealistic deadlines. In addition to the difficulties of managing time demand in the industry, projects are often located in remote sites, or in areas that take their time away from their families. Time taken for travelling contributes in making the lives of engineers more hectic. Therefore, engineers, who experience work overload, may exhaust their mental and physical resources. This may therefore lead to their health problems or to their being burnout.

As to the mediating effect of career exploration on the relationship between protean career orientation (self-directed) and psychological well-being, the study found that the mediating effect of career exploration did not exist. This result indicated that professional engineers are respected by the public and they are seen in the same way as other licensed professionals in other fields. They are also held in high esteem within the engineering community as they are an elite group. Consequently, these engineers enjoy respect and high esteem in their society, and the impression they get as an elite group. This could possibly explain why the professional engineers experience positive emotions such as the feeling of enjoyment, feeling good, and feeling great pleasure. With such life background, it is impossible for them to experience negative emotions such as feeling lonely or detached from other people, and feeling depressed or unhappy or even feeling bored.

CONCLUSION

Most of previous related literatures on well-being originated in the west with western backgrounds and studied the issue in the context of western industries. This paper is one of the few studies to investigate the interaction between protean career orientation and career exploration and the influence it has on psychological well-being among professional engineers in Malaysia.

Theoretically, the contribution comes from the dependent variable, namely psychological well-being. Despite the huge turn of research focus on well-being among the behaviorists, studies on the well-being paradigm are still scarce, especially those looking at the issue from the local perspective. This study believes that it is important to look into the issue of psychological well-being, especially among the professional engineers in Malaysia. Therefore, this study has included professional engineers as the target respondents and analyzed the impact of protean career orientation and career exploration on their psychological well-being. In addition, professional engineers were selected as the respondents in this study because of the nature of their work and because the three variables chosen for this

study suit them well. Since this is a quantitative study, a questionnaire was designed by adopting well-established measurement items on the respective variables. Seven hypotheses were formulated to achieve the research objectives and to answer the research questions. PLS was used as the tool for data analysis. Overall, this study recorded a mixed finding. Four hypotheses were accepted, while the remaining three hypotheses were rejected.

To sum up the discussion, professional engineers in Malaysia indicated that career exploration does not mediate the relationship between protean career orientation and psychological well-being. The justification and rationalization are elaborated in detail in the discussion section.

LIMITATION AND SUGGESTION FOR FUTURE RESEARCH

Similar to other studies, this study also has certain limitations. Since this is a cross-sectional study, the findings may be different if the study applies a qualitative approach. Results might be different if behaviors of the professional engineers can be observed over time. Therefore, the authors recommend that future researchers consider the use of a longitudinal approach to investigate this issue. In addition, this study has used professional engineers as the sample of study; the parameters of the research might change if different types of professional groups were used. Hence, future researchers might consider using a comparative approach to study the issue among various professional groups.

REFERENCES

- Anderson, J. and Gerbing, W., 1988. Structural Equation Modelling In Practice: A Review and Recommended Two Stage Approach. *Psychological Bulletin*, 27(1), pp. 5-24.
- Arnold, K. A., Turner, N., Barling, J., Kelloway, E. K. and McKee, M. (2007). Transformational Leadership and Well-Being: The Mediating Role of Meaningful Work. *Journal of Occupational Health Psychology*, 12(3), pp. 193-203.
- Baruch, Y. and Quick, J. C. 2007. Understanding Second Careers: Lessons From A Study of U.S. Navy Admirals. *Human Resource Management*, 46(4), pp. 471-491.
- Berkman, P. L. 1971a. Life Stress and Psychological Well-Being: A Replication Of Langer's Analysis in The Midtown Manhattan Study. *Journal of Health and Social Behaviour*, 12(1), pp. 35-45.
- Berkman, P. L. 1971b. Measurement Of Mental Health In A General Population Survey. *American Journal of Epidemiology*, 94(2), pp. 105-111.
- Boo Su-Lyn., 2014. Survey: Doctors, Lawyers, Engineers Are Malaysia's Unhappiest Workers. *The Malaymail Online*, [online] 1 Jan. Available at: <http://www.>

- themailmailonline.com/malaysia/ article/survey-doctors-lawyers engineers-are-malaysias-unhappiestworkers#sthash. u7AYw838.dpuf [Accessed dd month year].
- Briscoe, J. P. and Hall, D. T. 2006. The Interplay of Boundary Less And Protean Careers: Combinations And Implications. *Journal of Vocational Behaviour*, 69(1), pp. 4-18.
- Briscoe, J. P., Hall, D. T. and DeMuth, R. L. F. 2006. Protean and Boundary Less Careers: An Empirical Exploration. *Journal of Vocational Behaviour*, 69(1), pp. 347.
- Chin, W. W. 1998b. The Partial Least Squares Approach to Structural Equation Modelling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295-336). Mahwah, NJ: Lawrence Erlbaum Associates.
- Chin, W. W. 2010. How to Write Up and Report PLS Analyses. In: V. Esposito, W. W. Chin, J. Henseler and H. Wang, eds. 2010. *Handbook of partial least squares*. New York, NY: Springer-Verlag, pp. 655-688.
- Compeau, D. R. and Higgins, C. A. 1995. Computer Self-Efficacy: Development of A Measure and Initial Test. *MIS quarterly*, pp. 189-211.
- De Vos, A. and Soens, N. 2008. Protean Attitude and Career Success: the Mediating Role of Self-Management. *Journal of Vocational Behaviour*, 73(3), pp. 449-456.
- DiRenzo, M. S. 2010. *An examination of the roles of protean career orientation and career capital on work and life outcomes*. Ph. D. Drexel University. Philadelphia, PA.
- Feldman, D. C. and Ng, T. W. H. 2007. Careers: Mobility, Embeddedness, and Success. *Journal of Management*, 33(3), pp. 350-377.
- Ferrara, C.M. 1998. Crunch Time for Engineers. *Design News*, 53, pp. 92.
- Fornell, C. G. and Larcker, D. F. 1981. Evaluating Structural Equation Models With Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), pp. 39-50.
- Goetz, O., Liehr-Gobbers, K. and Krafft, M. 2010. Evaluation of Structural Equation Models Using The Partial Least Squares (PLS) Approach. In: V. Esposito, W.W. Chin, J. Henseler and H. Wang, eds., *Handbook of partial least squares*. New York, NY: Springer-Verlag. pp. 691-711. doi: 10.1007/978-3-540-32827-8_30
- Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. 2010, *Multivariate data analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Halbesleben, J. R. B. 2010. A Meta-Analysis of Work Engagement: Relationships with Burnout, Demands, Resources, and Consequences. In: A. B. Bakker and M. P. Leiter, eds. *Work engagement: a handbook of essential theory and practice*. New York, NY: Psychology Press, pp. 102-117.
- Hall, D. T. 2002. *Careers in and out of organizations*. Thousand Oaks, CA: Sage Publications.
- Hall, D. T. 2004. The Protean Career: A Quarter-Century Journey. *Journal of Vocational Behaviour*, 65(1), pp. 1-13.

- Jahoda, M. 1982. *Employment and unemployment: a social-psychological analysis*. Cambridge, UK: Cambridge University Press.
- Kelly Services. 2012. Employment Outlook 2012 - Malaysia. Available at: <http://www.kellyservices.com.my/MY/About-Us/Kelly-Services-Malaysia-Employment-Outlook-and-Salary-Guide-2012/13/#.VCpy-PmSwjU> [Accessed on dd mmmm yyyy].
- Lazarus, R. S. and Folkman, S. 1984. *Stress, appraisal, and coping*. New York, NY: Springer.
- Lips-Wiersma, M. and Hall, D. T. 2007. Organizational Career Development is not Dead: A Case Study on Managing The New Career During Organizational Change. *Journal of Organizational Behaviour*, 28(6), pp. 771-792.
- Lovallo, D. and Kahneman, D. 2003. Delusions Of Success: How Optimism Undermines Executives' Decisions. *Harvard Business Review*, 81(7), pp. 56-63.
- Malan, M. 2004. Work-related well-being of engineers in South Africa. Ph D. North-West University, Africa.
- Malaysia. 2012. Malaysia Higher Education Statistics 2012, Ministry of Higher Education Malaysia, 2013, Kuala Lumpur: Malaysia.
- Megat Johari, M. M. N. *et al.*, 2002. A New Engineering Education Model for Malaysia. *International Journal of Engineering Education*, 18(1), pp. 8-16.
- Noe, R. A. 1996. Is Career Management Related to Employee Development and Performance? *Journal of Organizational Behaviour*, 17(2), pp. 119-133. doi: 10.1002/(SICI)1099-1379(199603)17:2<119::AID-JOB736>3.0.CO;2-O
- Noe, R. A. and Wilk, S. L. 1993. Investigation of The Factors that Influence Eemployees' Participation In Development Activities. *Journal of Applied Psychology*, 78(2), pp. 291-302.
- Nunnally, J. C. and Bernstein, I. H. 1994. *Psychometric theory*. 3rd ed. New York, NY: McGraw-Hill.
- Phillips, S. D. 1982. Career Exploration in Adulthood. *Journal of Vocational Behaviour*, 20(2), pp. 129-140.
- Schaufeli, W. B. and Bakker, A. B. 2001. Werk en welbevinden: Naar een Positieve benadering in de Arbeids- en Gaondheidspsychologie [Work And Well-Being: Towards A Positive Occupational Health Psychology]. *Gedrag en Organizatie*, 14, pp. 221-253.
- Steele, J., Bourke, L., Luloff, A. E., Liao, P-S, Theodori, G. L. and Krannich, R. S. 2001. The Drop-Off/Pick-Up Method for Household Survey Research. *Journal of Community Development Society*, 32(2), pp. 238-250.
- Stumpf, S. A., Colarelli, S. M., and Hartman, K. 1983. Development of The Career Exploration Survey (CES). *Journal of Vocational Behaviour*, 22(2), pp. 191-226. doi: 10.1016/0001-8791(83)90028-3

- Tenenhaus, M., Vinzi, V. E. Chatelin, Y-M. and Lauro, C. 2005. PLS Path Modeling. *Computational Statistics and Data Analysis*, 48(1), pp. 159-205.
- Wetzels, M., Odekerken-Schroder, G. and Claudia van Oppen. 2009. Using PLS Path Modeling For Assessing Hierarchical Construct Models: Guidelines and Empirical Illustration. *Management Information System Quarterly*, 33(1), pp. 177-195.
- Weng, Q. X. and McElroy, J. C. 2010. Vocational Self-Concept Crystallization as A Mediator Of The Relationship Between Career Self-Management And Job Decision Effectiveness. *Journal of Vocational Behaviour*, 76(2), pp. 234–243. Available at: <http://dx.doi.org/10.1016/j.jvb.2009.10.012>
- Volmer, J. and Spurk, D. 2011. Protean and Boundaryless Career Attitudes: Relationships with Subjective and Objective Career Success. *Journal for Labour Market Research*, 43(2), pp. 207-218.

