

# Exploratory Factor Analysis: Competence Development in Employability Skills Among Business Graduates of Vocational Colleges in Malaysia

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## Abstract

This article discusses the exploratory data analysis on factors for competence development in employability skills among business graduates of a vocational college. This study was conducted to attest the validity and reliability of a research instrument designed for data collection. The instrument comprises of 25 items to collect data from 237 business graduates of a vocational college. The questionnaire was constructed by the researchers to collect online data via Google form. The collected data was analysed through the use of exploratory factor analysis (EFA) method in order to classify, clarify and explain the factors and instructional structures of the research items. The EFA results scientifically discerned two influential factors for competence development in employability skills, namely, involvement and supportive competency developments. The findings indicate that the questions are accurate to measure competence development in employability skills among graduates of business vocational college, thereby suggesting that these questions can be used to collect data for the main study.

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## 1. INTRODUCTION

The development of highly competent and knowledgeable human capital is crucial in helping Malaysia to become a high-income nation. The technical knowledge gained by students from their business courses creates an added value sought by employers, who are mostly seeking for employees with experience [1]. In this regard, most employers value and put more importance on experiences rather than academic achievements when hiring new employees [2]. Over the years, many initiatives have been implemented through various

government policies, including the New Economic Model (EBM), the Economic Transformation Program (PTE) and the 10th Malaysia Plan (10MP), which are aimed to develop highly competent manpower and in turn, could reduce Malaysia's dependence on foreign workforce. Thus, it is paramount for employers, graduates and training institutes to escalate the number of highly skilled workers [3] while advocating the Technical and Vocational Education and Training (TVET) by creating more revelations among students and employers [4].

This demand is in line with the aspiration of the competent workforce development shaped by the 2050 vision of National Transformation towards 'being the top 20 countries in economic development, social progress and innovation'. It is also in line with UNESCO's (2016) goal that by 2030, all students should possess the knowledge, skills and values sought by employers [5]. Therefore, it is essential to include and promote workmanship skills in the curriculum, this would further assist the process of producing competent graduates who are skilled and able to work in an actual business environment [6].

However, research scarcely focuses on workmanship skills related to work experience in industrial training as reported by [7]. This study explains the need for further research on the roles of industrial training to improve workability skills. Furthermore, in [8] argued that further studies related to factors on the involvement of graduates in industrial training must be conducted. Gbadamosi et al. [9] stated that further research is needed on the effect of employers' support during industrial training on the development of employability skills. Moreover, in [10] posited that the issue concerning the employability skills of Higher Education Institutions' graduates could be considered as an economic and policy agenda where the focus lies in exploring how graduates transfer their knowledge and skills, that they have gained during their study to the reality of work environment. Hence, employability is a very important and critical field of study, specifically in light of the high rate of graduate unemployment due to the global economic downturn [11].

This study presents new details to the existing relevant studies by focusing on business skills, specifically in the aspects of competence development. Several studies have attempted to combine the opinions of stakeholders, specifically the employees and supervisors [12]. However, limited research addresses this problem which is to consider the different views of stakeholders including the employers, higher learning institutions and graduates/employees. Notably, these parties however contribute to the competency development of business graduates. The respondents of this study are students from a Vocational College, Department of Business.

This efficiency-based approach offers a more

flexible working environment compared to the traditional-based job approach which is more bureaucratic. These approaches have been argued as to hinder an organisation's quick response to the changes in organisational needs [13]. 'Employability skills' in particular are referred to marketability, workability and employability. Marketability refers to the skills, quality and merit of graduates that could be used to market themselves for work [14-16]. Workability is the ability to work and solve different tasks [17], and employability is the ability to be employed by employers [18-20]. In this light, marketability, workability and employability are aimed to provide benefits to individuals, the workplace and the community [12, 17, 20, 21].

In this study, 'employability skills' reflect the essential elements needed by every employee to produce flexible, innovative and able workers that can perform different tasks [21]. In the meantime, business skills involve the knowledge, skills and abilities needed by every business graduate to become flexible, inventive and capable employees that can complete different tasks and fulfil employers' demand in the industry, particularly those related to the technical aspects of business [1].

Competency development is an activity undertaken by organisations to maintain and enhance the efficacy, knowledge and competency of their employees [11]. It encompasses an integrative approach towards development activities which involve both an organisation and its employees [22, 23]. In this regard, this study focuses on the development of competencies, specifically the employability skills among business graduates of vocational colleges.

This study focuses on the apprenticeship approach. This approach is based on the cognitive apprenticeship theory, which uses simple constructivism [24]. At the early stage, this approach was initiated by conducting demonstration sessions to the students. These sessions were delivered by industry training supervisors to equip the students with the relevant skills. The students were given the opportunity to attempt these skills either individually or in groups under the guidance of industry training supervisors. The support of the industrial training supervisor was slowly reduced to increase the students'

independence as they complete the assignment.

The main objective of this study is to justify the dimensions of two factors which are regarded as the main inducements in the development of competencies and employability skills among business students of a vocational college.

## 2. METHODOLOGY

Data of this study was collected via online questionnaire answered by the samples of selected graduates representing the population of students studying business program at a vocational college in Malaysia. The questionnaire was constructed and adapted based on the organisation theory [25] and human capital theory [26]. 25 items were designed based on these two theories. The items were constructed using the Five-point Likert scale for the respondents to reflect their responses towards the items. The questionnaires were administered to 500 respondents. Afterwards, the respondents' feedbacks and perceptions were gathered on their involvement and supportive competency developments. However, only 237 answered questionnaires were used for further analysis. The remaining questionnaires were untreated due to incomplete responses. With that regards, the number of variables was also reduced. Hence, factor analysis is a suitable measure to distinguish between inactive and valuable variables in a set of items [27]. In addition, it is an apt approach to discern items which have similar characteristics and also to constitute a set of

variables. Moreover, the correlation among items would also be easily recognised [28]. In sum, factor analysis was carried out to understand the data objectively and to recognize inactive variables.

## 3. RESULTS AND DISCUSSION

The focus on the development of involvement competency was achieved by testing 13 items which specifically built to answer the question of the first factor. Meanwhile, the development of supportive competency was determined through 12 items which specifically answer the question of the second factor.

The 25 statements on competency development were systematically analysed and results of the analysis are described in Table 1. The obtained results of the competencies are explained in the eigenvalue columns. The factor analysis managed to differentiate the two factors which have the eigenvalues higher than one ( $>0.01$ ). Each of the 25 statements shares similar variance as shown in the variance percentage column. The column shows involvement competency has larger share (32.556 with an eigenvalue of 8.139) of variance, than supportive competency (28.600 with an eigenvalue of 7.150). Notwithstanding, the 25 statements of the questionnaire have 61.156% of variance for both factors with the eigenvalues larger than one ( $>0.01$ ), though the factor loading of each statement is actually close to one. Due to that, all items for the two factors of competency development were justified to be satisfactorily valid, hence the hypotheses were accepted.

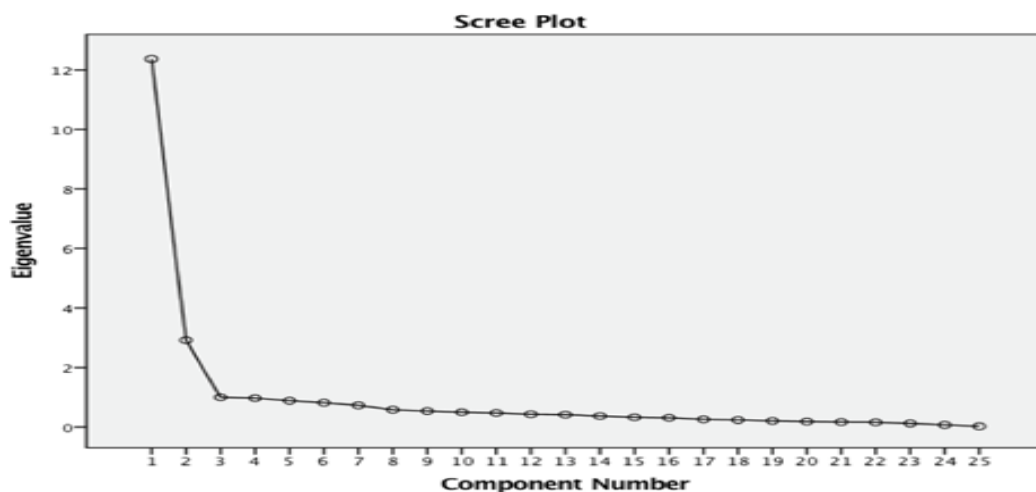
**Table 1.** Eigenvalues, variance percentage and cumulative variance of factors based on the varimax rotation

Dimension	Factors	Sums of Squared Loadings		
		Eigenvalue	Variance (%)	Cumulative Variance (%)
Competency Development	Involvement Competency Development	8.139	32.556	32.556
	Supportive Competency Development	7.150	28.600	61.156

The table above illustrates results of variance for the two variables. It also depicts the comparable eigenvalues which has a pivotal role in

distinguishing the two factors. Figure 1 shows the eigenvalues of the variables are higher than one. Therefore, the 25 competency development

statements can be reduced into two separate factors.



**Figure 1.** Cattell's screen plot for factors of competency development

Table 1 summarises the two influential factors of competency development; namely involvement and supportive competency development factors, based on the Principle Component Analysis (PCA) and varimax rotation methods. Accordingly, each factor is further explained in the following discussion.

The principal component analysis (PCA) was used to describe the factors. Additionally, the Kaiser-Meyer-Olkin (KMO) test was conducted

to determine the sample size. The KMO test resulted with a value of 0.916, thereby it justified that the total number of samples is a sufficient size for this study. Moreover, the Bartlett test was also carried out to examine any significant correlation of the variables. Findings of the latter test show a notable correlation among the variables. Table 2 discloses a significant result of the Bartlett's test of Sphericity, with chi-square = 52567.182, df = 300 and significance = 0.000.

**Table 2.** Factor analysis, KMO and Bartlett's tests for each research variable as regards competency development

Factors	Items	Factor Loading	KMO	BT	df	p-Value
Involvement Competency Development	pcd1	0.623	0.916	52,567.182	300	0.000
	pcd2	0.527				
	pcd3	0.761				
	pcd4	0.543				
	pcd5	0.517				
	pcd6	0.712				
	pcd7	0.556				
	pcd8	0.540				
	pcd9	0.538				
	pcd10	0.808				
	pcd11	0.528				
	pcd12	0.583				
	pcd13	0.821				
Supportive Competency Development	scd1	0.513				
	scd2	0.590				
	scd3	0.598				
	scd4	0.706				
	scd5	0.688				



	scd6	0.532				
	scd7	0.623				
	scd8	0.607				
	scd9	0.636				
	scd10	0.570				
	scd11	0.602				
	scd12	0.567				

The above visual highlights the probability values are less than 0.05 ( $p < 0.05$ ), in addition, the items are significantly correlated. Thus, these results allowed the researchers to conduct the PCA and factor analysis due to the sample size and data normality of the research statements. In addition, factor loadings for all questions were higher than 0.5. This finding explains the corresponding variance of the statements, and all items are also reliable. As a conclusion, all the 25 statements are deemed suitable to determine the competency development factors studied in this research.

#### 4. CONCLUSION

The EFA findings have clearly identified the two important factors. The first factor contains 13 elements of competency development for involvement, and the second factor contains 12 elements of supportive competency development required by business management students. These findings reveal the lack of employers' support needed during industrial training in developing employability skills. Furthermore, this study has explored the two primary factors, and thereby successfully confirmed them as the contributing factors for competency development. Therefore, it is indeed eminent to explain the importance of enhancing competency development, particularly on (i) development of involvement competency and (ii) development of supportive competency.

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#### REFERENCES

- [1] Jackson, D., 2011. Profiling industry required non-technical competencies in university business graduates. PhD thesis, University of Western Australia Press.
- [2] Chronicle of Higher Education, 2012. The role of higher education in career development: Employer perceptions. Washington DC: The Chronicle of Higher Education.
- [3] National Economic Advisory Council, 2010. New Economic Model for Malaysia. Putrajaya, National Printing Malaysia Berhad.
- [4] Economy Planning Unit, 2016. Eleventh Malaysia plan 2016-2020. Putrajaya: Minister of Economic Affairs.
- [5] Jackson, D. and Chapman, E., 2012. Non-technical skill gaps in Australian business graduates. Education and Training, 54(2/3), pp. 95–113.
- [6] Sangwan, S. and Garg, S., 2017. WIL and business graduate skill transfer to workplace. On the Horizon, 25(2), pp. 109–114.
- [7] Jackling, B. and Ricardo, N., 2015. Employability skills of international accounting graduates Internship providers' perspectives. Education and Training, 57(7), pp. 757–773.
- [8] Kagaari, J.R.K., 2007. Evaluation of the effects of vocational choice and practical training on students' employability. Journal of European Industrial Training, 31(6), pp. 449–471.
- [9] Gbadamosi, G., Evans, C., Richardson, M., and Ridolfo, M., 2015. Employability and students' part-time work in the UK: Does self-efficacy and career aspiration matter? British Educational Research Journal, 41(6), pp. 1086–1107.
- [10] Tomlinson, M. and Holmes, L., 2017. Graduate employability in context. London: Palgrave Macmillan.
- [11] Forrier, A. and Sels, L., 2003. The concept employability: A complex mosaic. International Journal of Human Resources Development and Management, 3, pp. 102–124.
- [12] Quality Assurance Agency, 2009. Learning from ELIR 2003–07: Emerging approaches to employability and personal development planning. Gloucester: QAA for HEA.
- [13] Campion, A.M., A.Fink, A., Ruggeberg, J.B., Carr, L., Phillips, M.G., and Odman, B.R., 2011. Doing competencies well: Best practices in competency modeling. Personnel Psychology, 64(1), pp. 225–262.
- [14] Hansson, B., 2002. Marketable human capital investments: An empirical study of employer-sponsored training. Stockholm University, School of Business Working Paper, pp. 1–37.
- [15] Chik, M.A., 2009. The extent to which industry involvement enhances the marketability of graduates and suggests how this cooperation can be enhanced

towards achieving that goal. pp. 16–20.  
<http://www.pmm.edu.my/zxc/pustaka/writing/pmmfa>  
sa4567.

- [16] Hazrul, M.I., 2012. Studies on Graduate Marketability in Malaysia: A Review from the Employer's Perspective. 8th Malaysian National Economic Conference, pp. 906–913.
- [17] Lees D., 2002. Graduate employability. Literature Review. York: LTSN Generic Centre.
- [18] Cleary, M., Flynn, R. and Thomasson, S., 2006. Employability Skills from framework to practice: An introductory guide for trainers and assessors. Canberra: Australian Capital Territory.
- [19] Hillage, J. and Pollard, E., 1998. Employability: Developing a framework for policy analysis. London: Department for Education and Employment.
- [20] Yorke, M. and Knight, P., 2006. Employability in higher education: What it is – what it is not (A Guide within the higher education academy learning and employability series). England: University of Exeter, LTSN Beneric Centre.
- [21] Vocational Technical Education and Training Division, 2014. Employability Skills Implementation Guidelines. Putrajaya: Ministry of Education Malaysia.
- [22] Sandberg, J., 2000. Understanding human competence at work: An interpretative approach. *Academy of Management Journal*, 43(1), pp. 9–25.
- [23] Heijde, V.D.C.M. and Heijden, V.D.B.I.J., 2006. A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management*, 45(3), pp. 449–476.
- [24] Collins, A., Brown, J.S. and Newman, S.E., 1988. Cognitive apprenticeship: Teaching the craft of reading, writing and mathematics. *Thinking: Journal of Philosophy for Children*, 8(1), pp. 2–10.
- [25] Robbins, S.P., 1990. *Organization Theory: Structures, Designs, and Applications*. New Delhi: Pearson.
- [26] Schultz, W.T., 1961. Investment in human capital. *The American Economic Review*, 51(1), pp. 1–17.
- [27] Kim, J.O. and Mueller, C.W., 1978. Introduction to factor analysis: What it is and how to do it (Quantitative applications in the social sciences). In *Quantitative Applications in the Social Sciences*. London: SAGE Publications.
- [28] Field, A., 2017. *Discovering statistics using IBM SPSS statistics*. London: SAGE Publications.
- [29] Leech, N.L., Barrett, K.C. and Morgan, G.A., 2005. *SPSS for intermediate statistics, Use and interpretation*. Lawrence Erlbaum Associates Inc., Mahwah.