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Validation of the career adaptability skills questionnaire in polytechnic student

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Abstract

The issue of career development and how to prepare career skills in educational institutions has become an exciting issue in vocational education. And career adaptability is one of the skills needed in dealing with changes in the world of work. Many studies discuss the vital role of career adaptability skills to drive individual career success and academic success. However, there are still limited studies that discuss how to measure career adaptability skills for polytechnic students. This study aims to examine the measurement model of career adaptability skills of polytechnic students. This study involved 265 polytechnic students at a state polytechnic in Balikpapan, Indonesia. The sampling technique used in this research is using proportional random sampling. Data collection is done using self-report. Students assess their perceptions of their career adaptability skills. Data analysis using Confirmatory Factor Analysis (CFA) using SPSS Amos 21 for Windows. The study results show that career adaptability skills can be explained by indicators of concern, control, curiosity, and confidence. The career adaptability skills questionnaire consists of 23 items consisting of five items of concern, six items of control, six items of curiosity, and six items of confidence. This study has implications for vocational education practitioners and company HRD to make this questionnaire a measuring tool for career adaptability skills of polytechnic students and workers.

Keywords: career adaptability, career development, adaptability skills, CFA

Introduction

The issue of career development and how to prepare career skills in educational institutions has become an exciting issue in vocational education. Because essentially, vocational education aims to prepare skilled individuals in certain areas of expertise (Billet, 2011; Tuatul. Mahfud, Kusuma, & Mulyani, 2017). In addition, a career has been seen as a sequence of important positions in a person's life, especially its role in ensuring human survival (Super, 1957). Thus, the process of preparing for a career is one of the most important developmental tasks during adolescence (Erickson, 1968; T. Mahfud,

Indartono, Saputro, & Utari, 2019) and is known to be very closely related to a person's quality of life. Moreover, at this time, the situation in the world of work is very dynamic, and it is impossible to predict with certainty how the demands will be in the future; this condition encourages workers' concerns. This condition is exacerbated by the rampant outbreak of the COVID-19 pandemic in various countries, which until now there is no certainty of an end. Moreover, the COVID-19 pandemic inevitably harms work productivity in the industry.

The Industrial Revolution 4.0 technology has completely disrupted the world of work, both formal work and non-formal work. The production processes and service processes of Industry 4.0 based on the Cyber-Physical Production System (CPPS) change work systems, procedures and work processes. As a result, the fields of work, job titles, competencies and work skills, job structure, work techniques, and know-how capabilities have also changed completely. Changes in the labour structure at IDUKA need to be anticipated and responded to well by educational institutions, especially vocational education, to prepare prospective workers who are adaptive to these changes.

Many studies have discussed and proven that one type of skill to deal with the changing needs of the industry and the world of work is career adaptability skills (Haenggli & Hirschi, 2020; Lee, Xu, & Yang, 2021; Ocampo et al., 2020; Rottinghaus, Day, & Borgen, 2005; Tolentino et al., 2014). In principle, career adaptability skills are readiness to carry out tasks to be involved in work roles and adjustments that cannot be predicted due to changes. Previous studies have revealed that career adaptability skills can encourage a successful school-to-work transition (Koen, Klehe, Annelies, & Van Vianen, 2012), increase academic satisfaction (Duffy, Douglass, & Autin, 2015), and improve the quality of work (Koen, Klehe, Van Vianen, Zikic, & Nauta, 2010). Therefore, the formation of career adaptability skills needs to be prepared as early as possible through vocational education. Although there have been many studies discussing the critical role of career adaptability skills, there are still limited studies that discuss how to measure career adaptability skills in polytechnic students. Therefore, this study aims to examine the measurement model of career adaptability skills of polytechnic students.

Method

This study involved 265 polytechnic students in Balikpapan-Indonesia. The sampling technique used in this research is using proportional random sampling. Data collection is done using self-report. Students assess their perceptions of their career adaptability skills. The career adaptability questionnaire was adapted and developed from previous research on career adaptability skills (Savickas & Porfeli, 2012). The career adaptability questionnaire is formed by several observed variables (manifest variables or indicator variables): concern, control, curiosity, and confidence. A total of 24 items in this questionnaire consisted of 6 items of concern, six items of control, six items of curiosity, and six items of confidence. This questionnaire uses a Likert scale with five alternative answers consisting of strongly agree = 5, agree = 4, somewhat agree = 3, disagree = 2, strongly disagree = 1. Test the validity of the career adaptability skills questionnaire using confirmatory factor analysis (CFA). Confirmatory factor analysis was performed with the help of SPSS Amos 21 for Windows. This instrument development study uses the acceptance limit of the standardized loading factor value or the lambda (λ) parameter value above 0.5 (Ghozali, 2017).

Findings and Discussion

Measurement of career adaptability is formed by several observed variables (manifest variables or indicator variables): concern, control, curiosity, and confidence. A total of 24 items in this questionnaire consisted of 6 items of concern, six items of control, six items of curiosity, and six items of confidence. The results of the CFA test on the career adaptability questionnaire are shown in Figure 1. The estimation results of the model measurement in Figure 1 using the Maximum Likelihood estimation on Amos

show good loading factor results for each item. All items have standardized loading factor values or lambda parameter values (λ) above 0.5 (see Table 1). Table 1 shows that there is 1 item that has a loading factor value below 0.5 on the concern indicator, namely the Conc6 item (0.311), this item is then not recommended to be used. Thus,

this result means that there are 23 items declared valid to measure the perceptions of polytechnic students about their career adaptability. In addition, these results also show that career adaptability can be explained significantly together by the indicators of concern, control, curiosity, and confidence

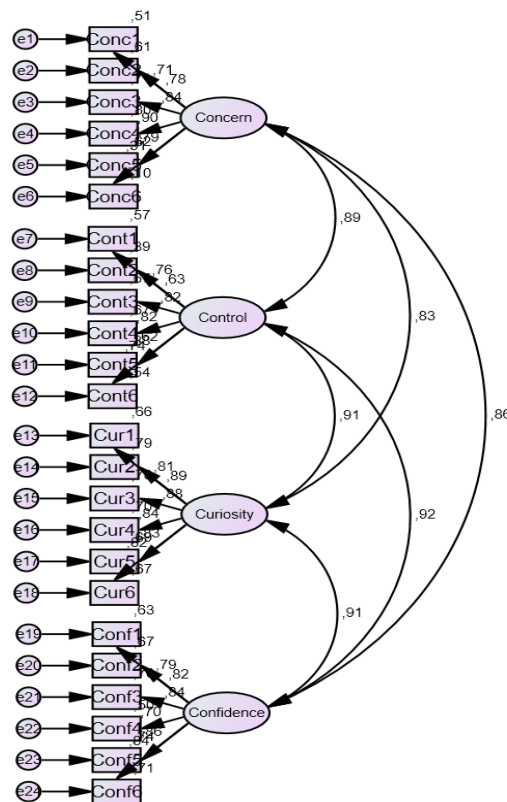


Figure 1. Career Adaptability Questionnaire Measurement Model

Table 1. Value of Standardized Loading Factor on Career Adaptability Measurement Model

Indicator	Item Code	Statement Items	Estimate	P-value
Concern	Conc1	I have been thinking about what my future will be like.	0,713	***
	Conc2	I realized that today's choices will determine my future.	0,78	***
	Conc3	For me, preparing for the future as early as possible is important.	0,844	***

Indicator	Item Code	Statement Items	Estimate	P-value
Control	Conc4	I am aware of the educational and career choices I have to make.	0,896	***
	Conc5	I have planned to achieve my career goals.	0,788	***
	Conc6	I worry about my career.	0,311	***
	Cont1	I have passion towards my career goals.	0,757	***
	Cont2	I feel capable of making my own decisions.	0,628	***
	Cont3	I am responsible for my actions.	0,821	***
Curiosity	Cont4	I stick to my beliefs.	0,819	***
	Cont5	I can rely on myself.	0,618	***
	Cont6	I did what was right for me.	0,738	***
	Conf1	I have a desire to explore things around me.	0,794	***
	Conf2	I am looking for opportunities to realize my career choice.	0,818	***
	Conf3	I always investigate options before making a choice.	0,836	***
	Conf4	I observe different ways of doing things.	0,705	***
	Conf5	If I have a question about something, I will investigate it in depth.	0,863	***
	Conf6	I have a high curiosity about something new opportunity.	0,842	***
	Confidence	Cur1	I do my job efficiently.	0,813
Cur2		I am careful to do things well.	0,887	***
Cur3		I enjoy learning new skills.	0,883	***
Cur4		I work to the best of my ability.	0,837	***
Cur5		When there are obstacles, I try to overcome them.	0,833	***
Cur6		When problems come, I try to solve them.	0,819	***

The reliability test in this study uses the reference value of construct reliability in SEM. This test is used to determine the reliability and consistency of data from a research instrument. The limit of acceptance criteria for construct reliability value is > 0.7 . However,

because Amos does not have an output to determine how significant the construct reliability value is, it is calculated using the following formula (Netemeyer, Bearden, & Sharma, 2003):

$$\text{Construct Reliability} = \frac{(\sum \text{Std. loading})^2}{(\sum \text{Std. loading})^2 + \sum \varepsilon_j}$$

The results of the construct reliability test for the career adaptability instrument are shown in Table 2. These results indicate that all indicators including concern, control, curiosity, and confidence have to construct reliability values above 0.7. The curiosity indicator has the highest construct reliability value than other indicators. Meanwhile, the lowest construct reliability value is shown in the concern indicator. Thus, career adaptability can be explained or measured by concern, control, curiosity, and confidence indicators.

Table 2. Reliability of Career Adaptability Measurement Model

Variable	Construct Reliability	Note
Concern	0,943	Reliabel
Control	0,948	Reliabel
Curiosity	0,979	Reliabel
Confidence	0,973	Reliabel

Conclusion

This study shows that students' perceptions of career adaptability skills can be explained by indicators of concern, control, curiosity, and confidence. The results of the CFA analysis to test the construct validity of the career adaptability skills of polytechnic students revealed that there were 24 items of the career adaptability skills questionnaire consisting of five items of concern, six items of control, six items of curiosity, and six items of confidence. This study has implications for vocational education practitioners and company HRD to make this questionnaire a measuring tool for career adaptability skills of polytechnic students and workers.

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