



The Influence of Teaching Quality, Social Support, and Career Self-Efficacy on the Career Adaptability Skills: Evidence from a Polytechnic in Indonesia

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Abstract

Introduction. Changes in the industry impact the stable condition of working in a company or industry and it is not something that can be guaranteed again in the future. The proof is that there are many phenomena of job transfers or even layoffs in various business sectors due to COVID-19 pandemic. Many studies have examined the importance of developing career adaptability skills to face the changing needs of the industry. However, studies that discuss the mechanism of forming career adaptability skills involving important antecedent factors such as teaching quality, social support, and career self-efficacy of polytechnic students are still limited. Therefore, this study aims at examining the effect of teaching quality, social support, and career self-efficacy factors on the career adaptability skills of polytechnic students.

Materials and Methods. This study involved 265 students at a polytechnic in East Kalimantan, Indonesia. The students expressed their perceptions of the quality of their internship learning, social support, and career self-efficacy – data analysis used Structural Equation Modeling by Amos 18 software.

Results. This study reveals that teaching quality and social support does not have a direct effect on career adaptability skills. Meanwhile, career self-efficacy has a direct effect on the career adaptability skills of polytechnic students. Other findings, teaching quality and social support have a direct effect on the career self-efficacy of polytechnic students. Finally, career self-efficacy mediates the effect of teaching quality and social support on the career adaptability skills of polytechnic students.

Discussion and Conclusion. This study provides important implications for the development of learning in vocational education so that students have a good mastery of career adaptability skills. Vocational education practitioners must design a vocational teaching model that combines vocational teaching, social support, and career self-efficacy to form mastery of career adaptability skills for pop-polytechnic students. In addition, the development of a vocational education curriculum needs to include mastery of career adaptability skills for students in vocational education, be it vocational high schools or polytechnics. In further research, it is necessary to develop a vocational learning model that aims to inculcate career adaptability skills for vocational students.

Keywords: career adaptability, teaching quality, social support, career self-efficacy, vocational

Funding: This work was funded by the Center for Research and Community Service of Balikpapan State Polytechnic.

The authors declare no conflict of interest.

For citation: Mahfud T., Mulyani Y., Setyawati R., Kholifah N. The Influence of Teaching Quality, Social Support, and Career Self-Efficacy on the Career Adaptability Skills: Evidence from a Polytechnic in Indonesia. *Integratsiya obrazovaniya = Integration of Education*. 2022; 26(1):27-41. doi: <https://doi.org/10.15507/1991-9468.106.026.202201.027-041>

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Научная статья

Влияние качества преподавания, социальной поддержки и карьерной самоэффективности на навыки профессиональной адаптации: на примере Политехнического института в Индонезии

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Аннотация

Введение. Во многих исследованиях изучалась важность развития навыков профессиональной адаптации с целью соответствия к меняющимся потребностям отрасли. Несмотря на многочисленность публикаций по этой проблематике, практически отсутствуют исследования по механизмам формирования навыков профессиональной адаптации с участием важных предшествующих факторов: качества преподавания, социальной поддержки и карьерной самоэффективности студентов политехнических вузов. Цель статьи – представить результаты изучения влияния факторов качества преподавания, социальной поддержки и карьерной самоэффективности на навыки профессиональной адаптации студентов политехнических вузов.

Материалы и методы. В исследовании приняли участие 265 студентов Политехнического института в Восточном Калимантане (Индонезия), выразившие свое восприятие качества обучения в интернатуре, социальной поддержки и карьерной самоэффективности. Для анализа данных использовалось моделирование структурных уравнений с помощью программного обеспечения Amos 18.

Результаты исследования. По результатам проведенного исследования было выявлено, что фактор карьерной самоэффективности напрямую влияет на овладение навыками профессиональной адаптации студентов Политехнического института. Факторы качества преподавания и социальной поддержки оказывают косвенное влияние на профессиональную адаптацию через карьерную самоэффективность.

Обсуждение и заключение. Сделанные авторами выводы вносят вклад в развитие профессионального образования. Практикам рекомендуется разработать модель профессионального обучения, которая сочетает в себе профессиональное обучение, социальную поддержку и карьерную самоэффективность с целью формирования у студентов навыков профессиональной адаптации.

Ключевые слова: карьерная адаптивность, качество преподавания, социальная поддержка, карьерная самоэффективность, профессиональный

Финансирование: данная работа была профинансирована Центром исследований и общественной службы Баликпапанского государственного политехнического института.

Авторы заявляют об отсутствии конфликта интересов.

Для цитирования: Влияние качества преподавания, социальной поддержки и карьерной самоэффективности на навыки профессиональной адаптации: на примере Политехнического института в Индонезии / Т. Махфуд, Ю. Муляни, Р. Сетьявати, Н. Холифах // Интеграция образования. 2022. Т. 26, № 1. С. 27–41. doi: <https://doi.org/10.15507/1991-9468.106.026.202201.027-041>

Introduction

Many studies have been developed to discuss career adaptability in the last decade [1–3]. For example, several studies highlight the importance of developing career adaptability in educational institutions such

as schools and colleges [4–6]. The development of career adaptability skills is significant in vocational education, especially polytechnics. This is because polytechnics seek to prepare students to be skilled in certain areas of expertise¹. In addition, a career

¹ Billet S. Vocational Education: Purpose, Tradition and Prospects. New York: Springer; 2011. Available at: <https://clck.ru/atr4V> (accessed 15.08.2021). (In Eng.)

has been seen as a sequence of important positions in a person's life, especially its role in ensuring human survival². Thus, it is very important the process of preparing an individual's career in adolescence [7; 8], especially for polytechnic students. Currently, career adaptability skill at polytechnics is considered appropriate because it can help individuals deal with changes in the employment structure during the COVID-19 pandemic and in the future. Polytechnics need to anticipate and respond to changes in the labor structure in the industry to prepare prospective workers who are adaptive to these changes.

Previous studies have discussed and proven that one type of skill to deal with the changing needs of the industry is career adaptability skills [3; 6; 9]. 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 [5], increase academic persistence [10], and improve career success [9]. Therefore, the formation of career adaptability skills needs to be prepared as early as possible in polytechnics by involving several important antecedent factors in forming career adaptability skills for polytechnic students.

Social Cognitive Career Theory (SCCT) states that individual career development can be formed through the interaction between the dimensions of the learning experience, person, and contextual [11; 12]. In the context of this study, the implementation of SCCT plays an essential role in directing how to instill career adaptability skills in polytechnic students by involving factors from the three dimensions of SCCT, which include teaching quality, social support, and social self-efficacy. Empirically, improving teaching quality (e.g., experiential learning, learning styles, and teaching quality) is important for the career development of vocational students [13; 14]. Several methods have shown

an increase in the quality of teachers in vocational education, for example, applying various work-based learning methods in polytechnics [15; 16]. This means that the quality of vocational learning in an internship program is crucial for developing career adaptability skills for polytechnic students.

In addition, efforts to build social support for students to form career adaptability are significant. Wang and Fu [17] revealed that social support could improve career adaptability. In another study, social support predicts career adaptation resources consisting of concern, control, curiosity, and confidence [18]. The study aligns with the Career Construction Theory (CCT), the contextual factors are important in career development. CCT mentions that contextual factors are the only predictors of career development and personal factors³. Personal factors that are often discussed in career development studies are psychological aspects. This makes sense, and sound psychological capital will encourage increased career adaptation of hotel frontline employees [19]. Furthermore, one psychological capital considered playing an important role in psychological capital is self-efficacy [20]. Previous studies also mentioned that personal factors that are widely discussed and have an essential role in career development are career self-efficacy [21; 22]. Wang and Fu [17] stated that self-efficacy is a mediator on the effect of social support on career adaptability.

Based on the theoretical database and previous studies, it can be concluded that the teaching quality, social support, and career self-efficacy are essential factors in shaping the career adaptability of polytechnic students. Although many studies have discussed the importance of these factors on career adaptability skills, there are still limited studies that discuss the mechanism of forming career adaptability skills by involving the antecedent factors of teaching quality, social support, and career self-efficacy of polytechnic students. Therefore, this study

² Super D.E. *The Psychology of Careers: An Introduction to Vocational Development*. New York, NY: Harper & Row; 1957. (In Eng.)

³ Savickas M.L. *The Theory and Practice of Career Construction*. In: *Career Development and Counseling: Putting Theory and Research to Work*. Hoboken, NJ: John Wiley & Sons, Inc; 2005. p. 42-70. Available at: <https://psycnet.apa.org/record/2004-21312-003> (accessed 15.08.2021). (In Eng.)



aims to examine the structural model of the formation of career adaptability skills of polytechnic students by involving factors of teaching quality, social support, and career self-efficacy as mediator. Specifically, this study aims to examine the effect of teaching quality, social support, and career self-efficacy factors on the career adaptability skills of polytechnic students.

Literature Review

Career Adaptability Skills. Career adaptability is the readiness to perform tasks to be involved in work roles and adjustments that cannot be predicted due to changes. Savickas stated that career adaptation is a psychological condition of individuals to deal with problems in their careers [23]. Career adaptation consists of four adaptive sources (attention, control, curiosity, trust) that prepare individuals to take advantage of opportunities, face obstacles and setbacks, and manage work-life transitions⁴ [24]. The career adaptability resource is a person's ability to deal with various complex, unknown, and unclear problems within the scope of their work. This psychological potential is not at the core of the individual, they exist as a meeting point between people in the environment. Thus, career adaptability is one of the psycho-social constructs.

In Career Construction Theory (CCT), adaptation resources help shape individuals' strategies to direct their adaptive behaviour⁵. It means that adaptability resources will encourage the individual's social adaptability in a broader social environment. In short, career adaptability resources are part of the psychosocial aspect that can build the ability to adapt strategies and actions in careers. Previous studies revealed that career adaptability drives individual career success [9]. Subjective career success is closely related to career resources, especially motivation and environment. Meanwhile, objective career success is positively correlated with knowledge and skill resources [9]. Career adaptability is essential to develop in vocational education is

that career adaptability impacts the success of a person's transition process from school to work [5]. In addition, career adaptability also increases academic persistence [10] and improves career success [9].

The Role of the Teaching Quality in Vocational Education. The quality of teaching is an essential aspect in the process of instilling competence in students. In the context of career development, SCCT also highlights the critical role of experiential learning [11; 12]. The process of providing learning experiences is carried out through quality teaching. Separately, the important role of teaching quality for career development has also been discussed in previous studies, such as career optimism [24] and career choice [25; 26]. A quality education process will provide an extraordinary learning experience [27]. Teaching quality is described as teachers' ability in teaching activities, including learning support, cognitive activation, and classroom management [28]. Another study also revealed that important indicator aspects related to teacher teaching consist of classroom management, monitoring, instructional completeness, good classroom climate, and clarity of presentation⁶.

In the context of vocational colleges, the teaching quality is primarily determined by the ability of lecturers to teach and manage classes. Wagner et al. describe indicators of teaching quality consisting of understandableness, structure, motivation, student involvement, and classroom management [29]. The ability of lecturers to improve teaching quality can be done by increasing the ability to motivate students, knowledge transfer/understandableness abilities, encourage student involvement, teaching structures, and manage classes. Good management of teaching programs at polytechnics is expected not only as a medium for transferring technical and non-technical skills. However, it is expected to provide work experience to form career adaptability. So far, not many studies have discussed the impact of teaching quality on the formation of career adaptability for polytechnic students.

⁴ Ibid.

⁵ Ibid.

⁶ Hattie J. Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. London, UK: Routledge; 2009. Available at: <https://clck.ru/QKRVL> (accessed 15.08.2021). (In Eng.)

H1: The teaching quality has a direct influence on the career adaptability skills of polytechnic students.

H2: The teaching quality has a direct influence on the career self-efficacy of polytechnic students.

The Social Support Role. Social support is a resource that individuals obtain through their social environment, for example, support in the form of material, emotional or informational assistance [30]. In addition, social support is considered a resource obtained from others⁷. The function of social support is described in four categories, namely appraisal, tangible, belonging, and self-esteem support⁸. Appraisal support refers to the availability of someone to talk to about someone's problems; tangible support refers to instrumental help; belonging support refers to the availability of people who can do something with them; and self-esteem support refers to the availability of favourable comparisons when comparing oneself to others.

Social support is manifested in information resources or potentially valuable things that have negative and positive effects⁹. Social support may come from family members, friends, and significant others [31]. Previous studies have shown that four sources of social support consisting of social support from classmates, teachers, parents, and friends are important sources of support related to academic success [32]. Individuals perceived as social support can influence their physical, mental, and social behavior¹⁰.

Previous studies have stated that social support significantly affects an individual's vocational ability [33]. In another study, social support also positively affects a person's self-efficacy [34]. Social support directly influences a person's self-efficacy and can simultaneously have an indirect effect on individual performance. Thus, we can understand that social support will influence one's

self-efficacy and ultimately shape one's behavior and performance changes.

H3: Social support has a direct influence on the career self-efficacy of polytechnic students.

H4: Social support has a direct influence on the career adaptability skills of polytechnic students.

The Role of Career Self-efficacy. Career self-efficacy is an individual's confidence in completing career planning and decision-making [35]. Previous studies have shown that personal and contextual factors influence career behavior by involving self-efficacy as a mediator [36]. Social Cognitive Career Theory (SCCT) states that a person's environment can encourage the development of interest and self-efficacy and can subsequently influence career choices and behavior [12]. Other studies have also shown that self-efficacy mediates the relationship between career adaptability and social support [17].

Theoretically, social support affects career self-efficacy [37], and ultimately has an impact on their work performance, commitment, and career choice [38]. Other researchers also state that career self-efficacy can increase an individual's career adaptability [39]. In addition, Wang, Chen, and Hsu [40] revealed that an effective teaching process positively influences students' psychological capital. Moreover, one aspect of psychology considered necessary in building individual psychological capital is self-efficacy [20]. This means the quality of teaching as a model of vocational teaching is believed to influence career self-efficacy and ultimately impact career adaptability skills for polytechnic students.

H5: Career self-efficacy has a direct influence on the career adaptability skills of polytechnic students.

H6: Social support indirectly affects career adaptability skills through career self-efficacy of polytechnic students.

⁷ Cohen S., Syme S.L. Social Support and Health. Orlando, FL: Academic Press.; 1985. (In Eng.)

⁸ Cohen S., Mermelstein R., Kamarck T., Hoberman H.M. Measuring the Functional Components of Social Support. In: Sarason I.G., Sarason B.R., eds. Social Support: Theory, Research and Applications, Dordrecht: Springer Netherlands; 1985. p. 73-94. (In Eng.)

⁹ Cohen S., Syme S.L. Social Support and Health. (In Eng.)

¹⁰ Cohen S., Underwood L., Gotlieb B. Social Support Measurement and Interventions: A Guide for Health and Social Scientists. New York: Oxford; 2000. Available at: <https://www.oxfordclinicalpsych.com/view/10.1093/med:psych/9780195126709.001.0001/med-9780195126709> (accessed 15.08.2021). (In Eng.)

H7: Teaching quality indirectly affects career adaptability skills through career self-efficacy of polytechnic students.

Figure 1 shows the conceptual model of this study. Also, figure 1 shows the relationship between latent variables, developed based on theoretical studies and previous studies.

Materials and Methods

This study uses an ex-post facto research type. The population in this study were Balikpapan State Polytechnic students who

had completed an internship program or on-the-job training. The details of the population and sample of this study are shown in Table 1. This study uses a reference to the sample size table from Isaac and Michael to determine the number of samples with an error rate of 1%¹¹. The number of samples obtained is 265 respondents. Furthermore, this study uses proportional random sampling. Also, all respondents have understood the research objectives and expressed their willingness (agreement) to cooperate.

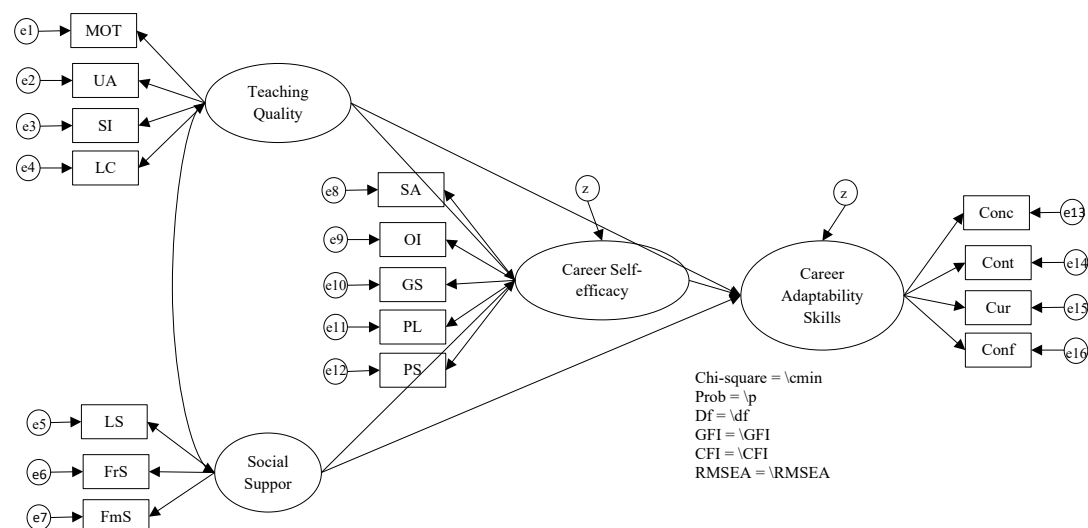


Fig. 1. Conceptual Research

Note: MOT = motivation, UA = understandableness, SI = student involvement, LC = learning context, LS = lecturer support, FrS = friends support, FmS = family support, SA = self-appraisal, OI = occupational information, GS = goal selection, PL = planning, PS = problem-solving, Conc = concern, Cont = control, Cur = curiosity, Conf = confidence.

Table 1. Distribution of Population and Research Sample

No	Study Program	Total Population	Number of Samples
1	D3 Culinary Arts	48	30
2	D3 Room Division	15	10
3	D3 Heavy Equipment Mechanical Engineering	70	43
4	D3 Electronic Engineering	87	54
5	D3 Electrical Engineering	25	16
6	D3 Civil Engineering	71	44
7	D4 Engineering Bridge Road Engineering	24	15
8	D3 Banking and	64	40
9	D4 Tax Accounting	21	13
	Total	425	265

¹¹ Isaac S., Michael W.B. Handbook in Research and Evaluation. California: Edits Publisher; 1981. (In Eng.)



Data collection for each variable is done using self-report. Students assess their perceptions of the quality of internship learning, social support, career self-efficacy, and career adaptability skills. The research instrument was adapted and developed from the results of previous studies such as teaching quality¹², social support [41], career self-efficacy [42], and career adaptability skills [43]. All instruments use a five-point Likert scale (strongly disagree to agree strongly).

Data analysis in this study uses structural equation modelling (SEM), which allows testing the relationship between variable constructs, both exogenous and endogenous variables, while still paying attention to measurement errors¹³. The SEM analysis tool in this study uses Amos 18 software, which has advantages due to its user-friendly graphical interface. According to Ghazali, the minimum number of samples in SEM analysis using Amos software is 100 in order to get a good model fit, although some experts require a minimum of 200 samples¹⁴. Table 2 shows the minimum criteria for determining the fit index of the model.

Testing the hypothesis of this study was tested by looking at the acquisition of p-value

on the regression path with a significance level (α) of 0.05. The hypothesis is rejected if it has a p-value of more than 0.05, otherwise the hypothesis is accepted if the p-value is less than 0.05. Meanwhile, testing the significance of the role of career self-efficacy mediator in this research model used the estimated bootstrapping confidence interval analysis technique (estimated bootstrapping confidence interval). This study uses 500 bootstrap samples with a 90% confidence level.

Results

Validities and reliabilities questionnaire.

Before testing the structural model on the whole model, the first step needs to be testing the measurement model on each research variable consisting of a model for measuring teaching quality, social support, career self-efficacy and career adaptability – analysis of the validity and reliability of this study questionnaire using Confirmatory Factor Analysis (CFA). The results of the CFA test on the questionnaire on teaching quality, social support, career self-efficacy, and career adaptability skills are shown in Table 2. This study uses Maximum Likelihood estimation on Amos to test a good loading factor for each

Table 2. Fit Index Criteria

Fit Index	Criteria	Source
Chi-square	Chi-square < 2 db	Arbuckle ¹⁵
Cmin/df	≤ 5	Wheaton et al. [44]
p-value	p-value > 0.05	Phedazur ¹⁶
The goodness of Index (GFI)	GFI ≥ 0.90 is <i>good fit</i> ; while 0.80 ≤ GFI < 0.90 is <i>marginal fit</i> .	Ferdinand ¹⁷
Root Mean Square Error of Approximation (RMSEA)	RMSEA ≤ 0.05 is <i>close fit</i> ; 0.05 > RMSEA ≤ 0.08 is <i>good fit</i> ; 0.08 > RMSEA ≤ 0.1 is <i>marginal fit</i> ; and RMSEA > 0.1 is <i>poor fit</i> .	
Comparative Fit Index (CFI)	CFI ≥ 0.90 is <i>good fit</i> ; while 0.80 ≤ CFI < 0.90 is <i>marginal fit</i> .	

¹² Faraday S., Overton C., Cooper S. Effective Teaching and Learning in Vocational Education. Holborn, London: LSN Learning; 2011. (In Eng.)

¹³ Bollen K.A. Structural Equations with Latents Variabel. New York: Wiley; 1989. Available at: <https://www.wiley.com/en-us/Structural+Equations+with+Latent+Variables-p-9780471011712> (accessed 15.08.2021). (In Eng.)

¹⁴ Ghazali I. Structural Equation Models: Concepts and Applications with the AMOS 24 bayesian SEM Update Program (Indonesian version), Edisi 7. Semarang: Badan Penerbit Universitas Diponegoro; 2017. (In Eng.)

¹⁵ Arbuckle J.L. Amos Users' Guide: Version 3.6. Chicago: Small Waters Corporation; 1997. (In Eng.)

¹⁶ Phedazur E.J. Multiple Regression in Behavioral Research. Victoria: Thomson Learning; 1997. (In Eng.)

¹⁷ Ferdinand A. Structural Equation Modeling Dalam Penelitian Manajemen: Aplikasi model-model rumit dalam penelitian untuk skripsi, tesis, dan disertasi. Semarang: Badan Penerbit Universitas Diponegoro; 2002.

item. All items in each variable have standardized loading factor values or lambda parameter values (λ) above 0.35 (see Table 3)¹⁸.

Meanwhile, Table 3 shows the results of the reliability test. The reliability test in this study uses the reliability construct. This test aims to test the reliability of the questionnaire. Construct reliability is good if it has a value > 0.7 . The calculation of the construct reliability of this study uses the reference formula from Netemeyer et al.¹⁹. Based on Table 3, the overall reliability value of the questionnaire is above 0.7 and is declared reliable.

Structural Equation Modeling Analysis (SEM). SEM was used to identify the antecedent factors of career adaptability skills of polytechnic students. Based on the theoretical study, several essential antecedent factors that affect the career adaptability of students are obtained, namely the factors of teaching quality, social support, and career self-efficacy – the first two factors, which include teaching quality and social support, act as exogenous variables. Meanwhile, career self-efficacy acts as an endogenous variable and a mediator of the relationship between the two exogenous variables on career adaptability.

The results of the SEM analysis using SPSS Amos 21 for Windows are shown in Figure 2. At a glance, the results of this analysis have shown a good fit model with the acquisition of GFI, CFI, and RMSEA values that have met the criteria. However,

the chi-square value is still too high (greater than 2. df), and this model can still be optimized by modifying it. Modification of the SEM model serves to improve model fit and increase the significance level of the regression path in the SEM model. The step of modifying the SEM model in this study uses the reference output of Amos on the modification indices. Modification indices on Amos provide several suggestions to improve the model fit criteria.

Modification of the SEM model is done by providing a path of variance on several error variables (teaching quality and career self-efficacy), as shown in Figure 3. The results of the SEM analysis on the modified model show that the criteria for the model fit are better than the previous model. The chi-square value is already below 2. df, which is 180,058. The RMSEA value decreased by 0.009 in the modified model, and this value was close to the close fit of 0.058 (RMSEA 0.05). In addition, an increase in the model fit criteria was also experienced in the GFI and CFI criteria.

The SEM analysis of the modified model shows the excellent model fit results (see Table 4). The model fit test (fit model) shows the Chi-square criteria of estimate model, Cmin/df, GFI, RMSEA, and CFI, providing a suitability index following: the recommended limits. However, the probability level criteria show the criteria do not fit because it passes the recommended limit.

Table 3. Validity and reliability of the questionnaire

Variables	Validity	Reliability
Teaching Quality	.696*** ~ .885***	.986
Social Support	.630*** ~ .878***	.966
Career Self-Efficacy	.446*** ~ .872***	.984
Career Adaptability Skills	.311*** ~ .896***	.990

Note. *** Very small p-value (less than 0.001).

¹⁸ Hair J.F., Black W.C., Babin B.J., Anderson R.E. Multivariate Data Analysis: A Global Perspective. 7th Upper Saddle River: Pearson Prentice Hall; 2010. Available at: <https://clck.ru/atufq> (accessed 15.08.2021). (In Eng.)

¹⁹ Netemeyer R.G., Bearden W.O., Sharma S. Scaling Procedures: Issues and Applications. Thousand Oaks, Calif: Sage Publications; 2003. Available at: <https://methods.sagepub.com/book/scaling-procedures> (accessed 15.08.2021). (In Eng.)

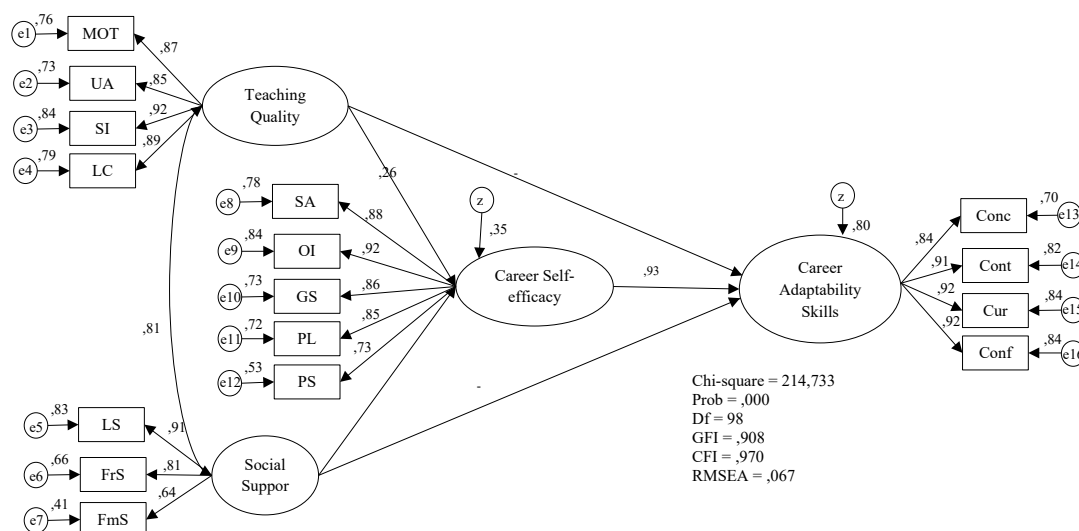


Fig. 2. SEM Career Adaptability Analysis

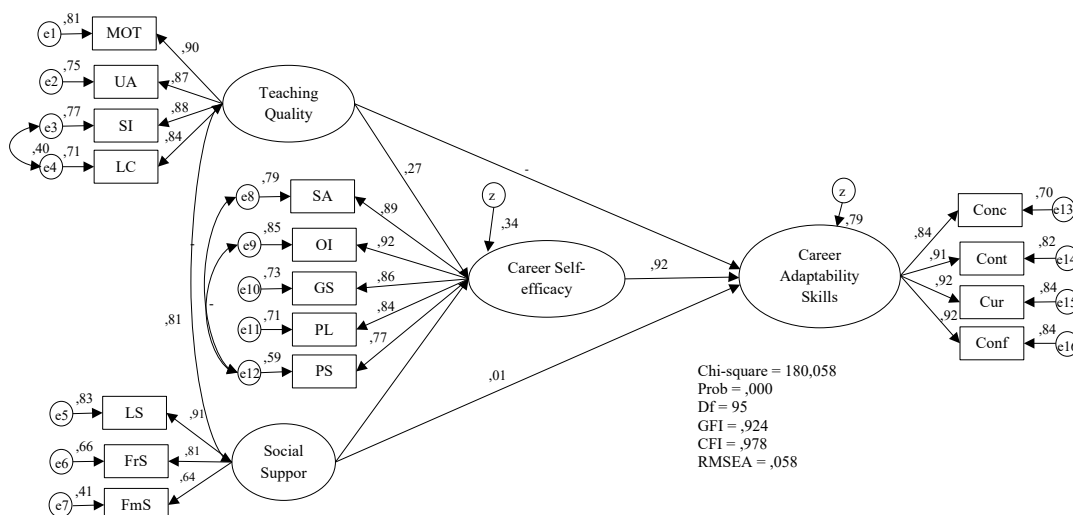


Fig. 3. SEM Career Adaptability Analysis (modification)

Overall, five indexes show the fit of the model and one index that shows the model does not fit. Thus, it can be concluded that the overall SEM model of the structural model of mastery career adaptability of polytechnic students is acceptable and has been tested empirically.

After obtaining good goodness of fit criteria for the full model, then the research hypothesis is tested. They tested the research hypothesis to determine the significance of the effect of exogenous variables

on endogenous variables using the reference value of Regression Weights (p-value) in each regression path. In the context of this study, there are 7 (seven) hypotheses to be tested by obtaining the Regression Weights (p-value). The results of the regression test analysis on the seven hypotheses of this study are shown in Table 5.

Table 5 shows that one of the three antecedent factors of career adaptability skills significantly influences career self-efficacy (estimate = 0.924, $p = ***$), hypothesis 5 is accepted.



Table 4. Full SEM Model Fit Index

The goodness of Fit Measure	Index Value	Note
Chi-square of estimate model	180.058	Model fit
p-value	0.000	Model doesn't fit
Cmin/df	1.895	Model fit
The goodness of Index (GFI)	0.924	Model fit
RMSEA	0.058	Model fit
Comparative Fit Index (CFI)	0.978	Model fit

Table 5. Results of path analysis (standardized regression weights) Full Model SEM

Regression Path			Estimate	S.E	C.R.	P
TQ	→	CSE	0.270	0.139	2.252	0.024
SS	→	CSE	0.342	0.164	2.792	0.005
CSE	→	CAS	0.924	0.085	11.977	***
SS	→	CAS	0.013	0.120	0.156	0.876
TQ	→	CAS	-0.084	0.101	-1.073	0.283

Note: TQ = teaching quality; SS = social support; CSE = career self-efficacy; CAS = career adaptability skills. *** Very small p-value (less than 0.001).

Meanwhile, the teaching quality factor and social support did not significantly affect the mastery of career adaptability skills of polytechnic students ($p > 0.05$); hypotheses 1 and 4 were rejected. A direct influence analysis was also conducted to examine the effect of teaching quality and social support on the career self-efficacy of polytechnic students. The results of the path analysis (standardized regression weights) show that the p-value in the two paths is below 0.05 (p-value = 0.024 & 0.005), hypotheses 3 and 2 are accepted.

Meanwhile, testing the significance of the role of career self-efficacy mediator in this study model utilised the estimated bootstrapping confidence interval analysis technique (estimated bootstrapping confidence interval). In this study, 500 bootstrap samples were used with a 90% confidence level. This analysis technique is used to test the sixth and

seventh hypotheses. The significance test results of the mediating role with the bootstrapping method are shown in Table 6.

Table 6 shows that the role test of career self-efficacy mediators significantly mediates the effect of social support and teaching quality on the mastery of career adaptability skills of polytechnic students (p-value = 0.019 & 0.026). These two hypotheses were tested by looking at the obtained p-value on the standardized indirect effect regression path with a significance level (α) of 0.05. Based on the output of SEM analysis with Amos in Table 6, the estimated standardized indirect effect value is 0.316 (p-value = 0.019; Confidence Interval/CI = 0.110 ~ 0.568) on the path of DS → EDK → CAS. The obtained p-value is smaller than the limit of the hypothesis acceptance criteria (p-value < 0.05). Thus, the sixth hypothesis

Table 6. Standardized Effect and bootstrapping on Full Model SEM

Regression Path			Standardized direct effect		Standardized indirect effect		Standardized total effect	
			Estimate	P-value	Estimate	P-value	Estimate	P-value
TQ	→	CSE	0.270	0.029	–	–	0.270	0.029
SS	→	CSE	0.342	0.020	–	–	0.342	0.020
CSE	→	CAS	0.924	0.016	–	–	0.924	0.016
SS	→	CAS	0.013	0.802	0.316	0.019	0.329	0.038
TQ	→	CAS	-0.084	0.254	0.249	0.026	0.165	0.253

(H6) is accepted ($p\text{-value} < 0.05$) and means that career self-efficacy significantly mediates the effect of social support on the mastery of career adaptability skills of polytechnic students. In addition, the results of testing the seventh hypothesis show that the estimated value of the standardized indirect effect is 0.249 ($p\text{-value} = 0.026$; Confidence Interval/CI = 0.064 ~ 0.509) on the path of $KP \rightarrow EDK \rightarrow CAS$. This means that the seventh hypothesis (H7) is accepted ($p\text{-value} < 0.05$), and it means that career self-efficacy significantly mediates the effect of teaching quality on the mastery of career adaptability skills of polytechnic students.

Discussion and Conclusion

Changes that occur in the industry have impacted changes in the qualifications of prospective workers, especially in preparing prospective workers who are skilled and able to adapt to changes in work technology in the future. Changes in the labor structure in the world of work need to be anticipated and responded to well by educational institutions, especially vocational education, to prepare prospective workers who are adaptive to these changes. Career adaptability skills are one of the skills that are believed to be very important in facing future changes. Career adaptability skills are the readiness to carry out tasks to be involved in work roles and adjustments that cannot be predicted due to changes. Although many studies have discussed career adaptability skills, there are still limited studies discussing the antecedent factors of career adaptability skills in vocational education. This study aims to examine the structural model of the formation of career adaptability skills of polytechnic students by involving factors of teaching quality, social support, and career self-efficacy.

The findings of this study reveal that one of the three antecedent factors (career self-efficacy factors) career adaptability skills is statistically a direct predictor of mastery of career adaptability skills of polytechnic students. Meanwhile, two other antecedent factors, social support and teaching quality, did not directly affect the mastery of career adaptability skills of polytechnic students. These two antecedent factors have a signi-

ficant indirect effect on career adaptability skills through career self-efficacy.

Our research found that the most important predictor of the formation of career adaptability skills which includes indicators of concern, control, curiosity, and confidence, is the career self-efficacy of polytechnic students. The findings of this study reinforce previous studies which state that career self-efficacy can encourage increased career adaptation [39]. Basically, career self-efficacy is a psychological condition related to beliefs about individual career abilities, especially regarding the completion of their career tasks [35]. Individual beliefs related to their careers are expressed by the extent to which they are confident about occupational information, planning, self-appraisal, problem-solving, and goal selection. In the context of this research, self-appraisal provides the most significant contribution in shaping the career adaptability skills of polytechnic students. Self-appraisal describes the extent to which an individual's ability to assess the resources they have, personal characteristics and constraints faced in determining their career choices [45]. The more individuals believe in their abilities in a career, the more they can adapt to changes in work. Not only that, individuals in developing their career self-efficacy need to be able to gather information about career opportunities, determine career goals, plan vocational projects, and overcome difficulties related to their careers.

Thus, strengthening student career self-efficacy is very important to encourage mastery of career adaptability skills for polytechnic students. That is, vocational lecturers need to design learning that can instill high career self-efficacy in students. The findings of this study reveal that the quality of teaching and social support affect the career self-efficacy of polytechnic students. The vital role of teaching quality in the formation of self-efficacy was also discussed in previous studies [40]. According to J. H. Wang et al. [40], an effective teaching process positively influences students' psychological capital. Moreover, one aspect of psychology considered necessary in building individual psychological capital is self-efficacy [20]. This finding means that the ability of lecturers to



design teaching that is motivating, easy to understand, actively involves students, and the development of learning contexts with students' careers is significant to note. The descriptive statistics show that the components of the learning context become an essential aspect in explaining the quality of teaching. Lecturers must connect learning materials with the context of student career development according to their field of expertise.

Teaching quality is not the only thing that affects students' career self-efficacy, but also social support. This study indicates that social support is an essential predictor in forming career self-efficacy for polytechnic students. The findings of this study reinforce previous studies showing that social support positively affects one's self-efficacy [34]. In the context of this research, social support comes from the support of lecturers, friends, and family. In addition, social support based on its function can be in the form of tangible, appraisal, self-esteem, and belonging support. The source of social support must lead to support for strengthening vocational skills and student career choices. Thus, social support that contains strengthening career choices will encourage high career self-efficacy for polytechnic students.

As at the beginning of the discussion of the results of this study, although the quality of teaching and social support did not directly affect the mastery of career adaptability skills of polytechnic students, these two antecedent factors had an indirect influence on career adaptability skills through career self-efficacy. Previous studies have shown that self-efficacy is an important mediator linking teaching quality and social support to career adaptability [17; 20; 40]. This finding means that the main focus of learning objectives and the development of social support should lead to strengthening students' career self-efficacy. Furthermore, strengthening career self-efficacy will impact the mastery of polytechnic students' career adaptability skills. Without career self-efficacy as a me-

diator in this research model, the quality of teaching and social support does not significantly shape the career adaptability skills of polytechnic students.

This study provides important implications for the development of learning in vocational education so that students have a good mastery of career adaptability skills. Vocational education practitioners must design a vocational teaching model that combines vocational teaching, social support, and career self-efficacy to form mastery of career adaptability skills for pop-polytechnic students. In addition, the development of a vocational education curriculum needs to include mastery of career adaptability skills for students in vocational education, be it SMK or polytechnics.

This study provides several conclusions regarding the structural model of mastering career adaptability skills of polytechnic students by involving the antecedent factors of teaching quality, social support, and career self-efficacy. One of the three antecedent factors directly influences the mastery of career adaptability skills of polytechnic students, namely the career self-efficacy factor. Meanwhile, teaching quality factors and social support indirectly influence career adaptability skills through the career self-efficacy of polytechnic students. This means that the mastery of career adaptability skills for polytechnic students starts with improving the quality of teaching and social support. Furthermore, these two factors will strengthen students' career self-efficacy and, in the end, will encourage mastery of polytechnic students' career adaptability skills. The results of this study provide important implications for vocational education practitioners, especially in designing learning that leads to strengthening career self-efficacy and career adaptability skills for both vocational students and polytechnic students. Further research is necessary to develop a vocational learning model that aims to inculcate career adaptability skills for vocational and polytechnic students.



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Submitted 06.09.2021; approved after reviewing 08.12.2021; accepted for publication 15.12.2021.
Поступила 06.09.2021; одобрена после рецензирования 08.12.2021; принята к публикации 15.12.2021.

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Заявленный вклад авторов:

T. Махфуд – разработка плана исследования и инструментария; анализ данных; подача рукописи.

Ю. Муляни – анализ данных; написание рукописи.

Р. Сетьявати – сбор данных и визуализация/представление данных в тексте.

Н. Холифах – сбор и доказательство данных; ввод данных; набор текста; доработка статьи.

Все авторы прочитали и одобрили окончательный вариант рукописи.