

# The Effect of Instructional Quality on Vocational Students' Academic Achievement and Career Optimism

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Indonesian governments give greater attention to vocational education in the secondary and tertiary levels because of their crucial role in economic and infrastructure sustainability development. Therefore, this study purported to identify the correlation and causal effects of instructional quality for the vocational school student's self-efficacy, academic achievement, and career optimism. Data were collected using three validated instruments and student's academic achievement report from 253 students of a public vocational school in Indonesia. A Pearson's correlation and structural equation modelling were conducted to analyse the four variables relationships and causal effects. The findings revealed that students' perceptions on the teaching quality positively and significantly related to their self-efficacy, academic achievement, and career optimism. Furthermore, the better vocational teachers deliver their material in the classroom activities, the higher students' belief to perform a specific task which simultaneously facilitates them to reach higher academic achievement and career optimism. Based on the findings of this study, several practical implications and suggestions were proposed.

**Key words:** *Academic achievement • Career optimism • Instructional quality • Self-efficacy • Vocational education.*

## Introduction

Education plays a crucial role in a country's social and economic development (Stromquist & Monkman, 2013). In 2014, the Indonesian government introduced some policies to support economic development including in the educational sectors. The ministry of education and culture enhanced the number of vocational high schools from senior high schools to 60:40 in 2019 (Barliana, Maknun, & Herman, 2017). Since then, the Indonesian government has paid close attention to the development of vocational education, including at the secondary and tertiary level (Usman & Raharjo, 2012). Numerous vocational schools were established to provide youngsters the opportunity to learn and train themselves with a specific skill. But ironically, the highest unemployment rate (12.65%) has come from graduates of secondary vocational schools (Statistics Indonesia, 2017). Factors influencing alumni from vocational schools on getting an appropriate job include their competency and career maturity (Rochmadi, 2016; Setiawati & Sudira, 2015).

The contemporary global situation fosters technological advances, job restructuring, and increasing global workforce by enabling individuals' impetus to be more flexible and adaptable in their careers (Greenhaus, Callanan, & Godshalk, 2009). Individual careers need to be more flexible, but this is contrary to the theory of vocational education that expects vocational education graduates to be mature and have career choices that suit their interests and needs (Billet, 2011; Savickas, 2005). Therefore, vocational education students must be able to adapt to their careers to compete in this challenging situation. Good technical skills are necessary, but the students also need to master non-technical skills (e.g. self-efficacy, conscientiousness, and resilience) that help individuals survive in the face of uncertainty (Richardson, Abraham, & Bond, 2012). Scholars (e.g. Garcia, Restubog, Bordia, Bordia, & Roxas, 2015; McIlveen, Beccaria, & Burton, 2013; Rottinghaus, Day, & Borgen, 2005) believe that one non-technical skill that is important and can influence the success of individual career adaptations is career optimism.

People with high career optimism are satisfied with their career and occupation choices (McIlveen, Beccaria, & Burton, 2013), leading them to enthusiastically engage with the proper path for career realisation. Individuals who are optimistic about their career also positively influence their career attainment (Spurk, Kauffeld, Barthauer, & Heinemann, 2015). Career optimism is fostering individuals to be more flexible when responding to uncertain situations (Aspinwall, Richter, & Hoffman, 2001) because he or she know that they have competency and the ability to control the work that suits them.

Although there have been many studies that discuss the importance of career optimism, it is still unclear, and not many have explored the essential antecedents (personal and situational aspects) that shape the career optimism of vocational students. Referring to the database in

previous studies it can be understood that forming career optimism needs to consider personal and situational antecedents (Bandura, 1986; Lent & Brown, 2006). The situational aspect is believed to be a vital factor for preparing individuals to be prepared for their career choices namely instructional quality (Koutrouba, Markarian, & Sardianou, 2018; Spanjaard, Hall, & Stegemann, 2018; Tran, Williams, Mitre, Walker, & Carter, 2017). A good instructional quality that can assist students' learning experiences is to achieve their self-efficacy, achievement, and career optimism. Thus, the role of the teacher's ability becomes important to motivate students and manage their classroom activities, facilitating students closer to their career choices.

In addition, other scholars (e.g. Boehm & Lyubomirsky, 2008; Garcia et al., 2015; Lent & Brown, 2006) also believe that personal aspects are known to be more proximal and influential in individual careers. Therefore, a study to explore joint effects involving personal factors (e.g. self-efficacy and achievement) and situational factors (instructional quality) for vocational students' career optimism is an important agenda. Thus, this study purports to identify the correlation and structural models among instructional quality, self-efficacy, academic achievement, and career optimism. It is designed to add to the robust literature on relationships and causal effects of teaching quality, self-efficacy, educational attainment, and vocational students' optimism for their future career development.

### **Instructional Quality**

Teaching quality expresses how a teacher is able to develop effective learning activities and create higher acquisition of the knowledge and skills for the students (Felder & Brent, 1999). It facilitates the learners in schools to achieve new understanding and abilities, and apply their competency to the real world (Henard & Leprince-Rinquet, 2008).

Holzberger, Philipp, and Kunter (2013) described three dimensions of instructional quality including classroom management, supportive climate, and cognitive activation. Classroom management involves how a teacher is able to manage the time, minimise disruption or interpersonal conflicts, and deliver a high level of instructions' with clarity for the educational activities (Kunter, Klusmann, Baumert, Richter, Voss, & Hachfeld, 2013). Support for students' learning refers to teacher-student interactions including overall teachers' attentive behaviours, caring, constructive feedback, and fairness on students (Cornelius-White, 2007). Furthermore, cognitive activation represents teachers' ability to provide a challenging task, various solutions, and innovative problem solving in their classroom, attracting student' interest and facilitating them to construct new knowledge (Baumert, Kunter, Blum, Brunner, Voss, Jordan, & Tsai, 2010; Lazarides & Ittel, 2012).



Furthermore, there are some crucial issues on how to measure teaching quality. Generally, three data sources are utilised to identify the classroom activities quality including students, teachers, and external observers (Wagner, Göllner, Helmke, Trautwein, & Lüdtke, 2013). Frenzel, Pekrun, and Goetz (2007) claimed that employing student ratings of instructors' teaching quality is the most efficient way to investigate instructional activities because it can be conducted in a simple way through questionnaire and is fairly accurate in describing teaching quality based on a large amount of students' experiences with various teachers. In addition, to improve the efficiency of learning attention must be paid to the learning process between teachers and students (Dulamă & Ilovan, 2016).

A high level of teaching quality is considered as a major factor for students' learning outcomes (Kanadlı, 2016; Hattie, 2009; Lazarides & Ittel, 2012). Ellis, Burke, Lomire, and McCormack (2003) study revealed that there is a significant positive correlation between instructional quality and the educational achievement of students. Teachers' ability to deliver a good quality of teaching encourages students to be more enthusiastic, motivates them to learn more and attain a better result. Furthermore, perceived instructional quality was positively related to students' self-efficacy, and significantly predicted students' overall satisfaction (Artino, 2008).

### **Self-Efficacy**

Self-efficacy was first introduced by Bandura in 1986. Since then, it has received greater attention and is studied in many fields such as psychology, education, health, sport, and other social sciences. Self-efficacy is defined as an individual's belief to successfully perform a specific task (Jansen, Scherer, & Schroeders, 2015; Nguyen, Jefferies, & Rojas, 2018). In the educational setting, previous studies revealed that self-efficacy is positively associated with students' GPA (Wu, Siswanto, & Ko, 2017), career optimism (Garcia et al., 2015), and outcome expectations of career exploration (Lent, Ireland, Penn, Morris, & Sappington, 2017).

### **Career Optimism**

Career optimism is defined as an individual's feeling of positive expectation for their future career development (Garcia et al., 2015; McLennan, McIlveen, & Perera, 2017; Rottinghaus et al., 2005; Tolentino, Garcia, Lu, Restubog, Bordia, & Plewa, 2014). It also represents a person's ability to imagine and feel satisfied with the possible career path and its outcome (McIlveen, Beccaria, & Burton, 2013). This optimistic emotion facilitates individuals to enthusiastically set their career planning and remain confident when career impediments are encountered (Tolentino et al., 2014).

In addition, career optimism is positively related to career adaptability (Tolentino et al., 2014), academic satisfaction (McIlveen, Beccaria, & Burton, 2013), job satisfaction and performance (Kluemper, Little, & DeGroot, 2009). Considering its important role for an individual's career success, Garcia et al. (2015) investigated the influential factors and antecedents of university students' career optimism. Their study revealed that social support from parents and teachers significantly influences students' career optimism through career decision where self-efficacy is a mediator.

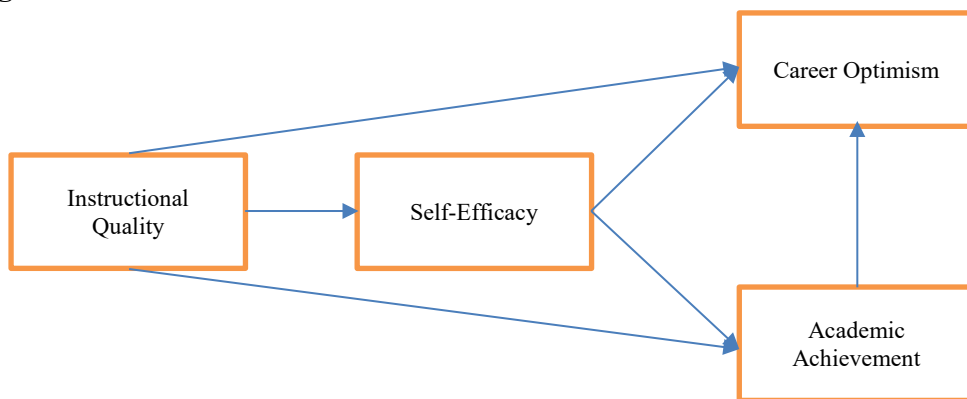
### **Academic Achievement**

Academic achievement represents students' performance in a specific course or field. It indicates progress of students individually and collectively in their educational activities (Sanjaya & Sumarsih, 2013). Previous studies revealed that there were external and internal factors influencing students' academic attainment including family factors, school factors, and an individual's personality and talents (Ahmad, Pervaiz, & Aleem, 2010; Farooq, Chaudhry, Shafiq, & Berhanu, 2011).

### **Theoretical Foundation**

Career optimism is an important study in vocational education to prepare students to be able to compete in their careers (Garcia et al., 2015; McIlveen et al., 2013; Rottinghaus et al., 2005). Theoretically, the theory of social cognitive approach is one of the bases for building career optimism in vocational education students (Bandura, 1971, 1986). Learning is conceptualised as a constructive and self-regulated process of knowledge, skills, and attitude development which is maintained by students' perceptions of teaching and shaped by dynamic interactions among personal, behavioural, and environmental factors (Lazarides & Ittel, 2012). Studies to investigate collaborative interactions between personal dimensions (e.g. self-efficacy and achievement) and situational dimensions (e.g. instructional quality) on career optimism are important agendas in the study of vocational education (Ismail, Don, Husin, & Khalid, 2018; Koutrouba et al., 2018; Spanjaard et al., 2018; Zahed Zahedani et al., 2016). Therefore, the purpose of this study is to explore the relationships between instructional quality, self-efficacy, student achievement, and career optimism. It develops and tests the structural models that facilitate the vocational students' career optimism by involving three crucial factors: instructional quality, self-efficacy, and academic achievement (refer to Figure 1).

**Figure 1.** Research Framework



## Method

### *Participants*

The participants in this research were vocational high school students in Indonesia. These populations were selected because of the increasing attention by Indonesian government on vocational education due to a country's economic development, fostering the need of middle skilled workers for manufacturing and infrastructure industry. A total of 253 students participated in this study, of which 136 were male (54%) and 117 were female (46%); 139 were in the second grade (55%) and 114 were in the third grade (45%). There were no participants from the first grade because the data was collected in the beginning of the school year and this made it impossible to get their academic achievement report from the previous semester.

### *Instruments*

This study employed instructional quality assessment adapted from Wagner et al. (2013) and the fairness scale adapted from Mitchell and Bradshaw (2013). The students rated their vocational teachers' classroom activities, including motivation (e.g. my vocational teacher can turn an uninspiring topic into an interesting one), understandableness (e.g. when my vocational teachers explains something, he/she uses clear examples), student involvement (e.g. my vocational teachers responds to our suggestions), structure (e.g. at the beginning of a lesson, my vocational teachers outlines what we are to cover), classroom management (e.g. my vocational teachers get students to pay attention throughout the lesson), and fairness (e.g. Everyone is treated equally well at my school). The internal consistency of the overall scale and its constructs were ranged from 0.77 – 0.89. In the present study, the reliability for the overall scale is .90 and for its constructs: motivation, understandableness, student involvement, structure, classroom management, and fairness are 0.72, 0.76, 0.84, 0.72, 0.76, and 0.76 respectively.

Students' belief of their competency to perform well in vocational courses was measured using self-efficacy scale adapted from Usher and Pajares (2009). The instrument was reworded to assess students' self-efficacy, which has 24 items and 4 constructs: mastery experience (6 items, e.g. I make excellent grades on my vocational courses test), vicarious experience (6 items, e.g. When I see how my vocational teachers solve a problem, I can picture myself solving the problem in the same way), verbal/social persuasion (6 items, e.g. People have told me that I have a talent in this field), and physiological state (6 items, e.g. I start to feel stressed-out as soon as I begin my vocational courses assignments/homework). Each sub-variable has a high reliability (0.94, 0.94, 0.95, and 0.85 respectively). In the current study, the Cronbach's alpha for the overall scale is high (0.85) and for each sub-variable: mastery experiences, vicarious experiences, social persuasion, and psychological states are acceptable (0.74, 0.81, 0.84, and 0.83 respectively).

Vocational students' expectations of the best possible outcome for their future career development were measured using career optimism scale developed by Rottinghaus, Day, and Borgen (2005). This unidimensional scale consists of 11 items (e.g. I get excited when I think about my career, it is difficult for me to set career goals, and I understand my work-related interest). Each item of the instrument has an acceptable factor loading ranged from .46 to .66; and its internal consistency is high (0.87). In the present study, this instrument also possessed a high reliability (0.82).

In addition, a five-point Likert scale was used to rate the students' responses on the three measurement tools (from 1 = never to 5 = always). Students' academic achievement was measured based on the academic report from the previous semester. Their learning attainment was divided into three levels: low, middle, and high.

### ***Procedures***

Participants completed a paper-based survey consisting of the perceived of instructional quality, self-efficacy, and career optimism. Students' academic achievement was rated based on their academic report from the last semester. The researcher assured the school and participants of the confidentiality of students' responses, emphasising the academic purpose of the present study.

### ***Data Analysis***

Descriptive statistical analysis of the students' responses was firstly computed, then, the Pearson correlation and Cronbach alpha test were conducted to test-retest the validity and reliability of the instruments. Furthermore, the bivariate relationships among the variables were analysed; and the SEM procedure was conducted to investigate the causal effects among

students' perceptions of vocational teachers' instructional quality, self-efficacy, career optimism, and academic achievement.

## Result

### *Correlational Analysis*

The Pearson correlation analysis results revealed that there are significant relationships among the variables (Table 1). Students' perceptions of vocational teachers' instructional quality positively related to their self-efficacy, academic achievement, and career optimism.

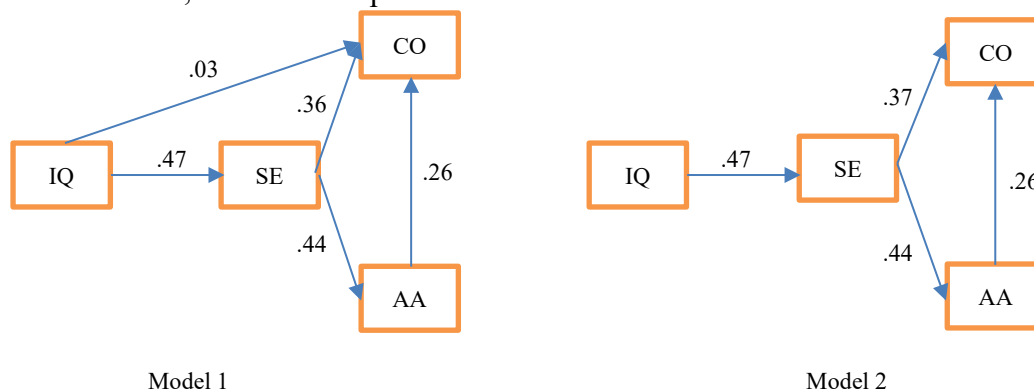
**Table 1:** Pearson Correlation Coefficient among the Variables

Variables	1	2	3	4
1. Instructional quality	1			
2. Self-efficacy	.472**	1		
3. Academic achievement	.289**	.444**	1	
4. Career optimism	.276**	.488**	.426**	1

### *Structural Model of Students' Perceptions of Instructional Quality, Self-Efficacy, Academic Achievement, and Career Optimism*

This study adopted a structural equation model to investigate the structural model of students' perception of vocational teachers' teaching quality, self-efficacy, academic achievement, and career optimism. A series of path analyses were conducted to explore the causal effects of instructional quality on the other three variables, and finally there are two structural models have an acceptable good of fitness.

**Figure 2.** The Structural Model of Instructional Quality, Self-Efficacy, Academic Achievement, and Career Optimism



**IQ=** Instructional Quality; **SE=** Self-Efficacy; **AA=** Academic Achievement; **CO=** Career Optimism



The two structural models have a good of fitness (table 2) because its RMSEA is lower than 0.08; CMIN/DF lower than 3; and GFI, AGFI, and NFI is higher than 0.90 (Hu & Bentler, 1999). It is indicated that the overall model is acceptable and the structural model is well-represented in the theory and relationships among those factors in the contextual settings. The findings of this study also revealed that self-efficacy fully mediated the relationship between students' perceptions of vocational teachers' instructional quality and the other two factors. The better teaching quality will increase students' self-efficacy and simultaneously enhance their academic achievement and career optimism.

**Table 2:** Good of Fitness of the Structural Model

Model	RMSEA	CMIN/DF	GFI	AGFI	NFI
1	0.079	2.590	.995	.949	.988
2	0.042	1.436	.994	.972	.986

Further analysis was conducted to identify the direct and indirect effect of the structural model. The results shown in table 3 reveal that students' perceived vocational teachers' instructional quality positively and significantly influences students self-efficacy and simultaneously influences their academic achievement and career optimism. Self-efficacy plays a crucial mediation role in the influence of teaching quality on the other two variables. Hence, students' belief to do well in their vocational course will significantly affect both their academic achievement and expectations for future career. Furthermore, this study also reveals that students' learning attainment partly mediated self-efficacy and career optimism.

**Table 3:** Direct and Indirect Effect

	Direct effect		Indirect effect		Total effect	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
IQ to SE	.47***	.47***	.00	.00	.47***	.47***
IQ to AA	.00	.00	.21***	.21***	.21***	.21***
IQ to CO	.03	.00	.22***	.23***	.25***	.23***
SE to CO	.36***	.37***	.11	.17	.47***	.49***

Note. **IQ**= Instructional Quality; **SE**= Self-Efficacy; **AA**= Academic Achievement; **CO**= Career Optimism; \*\*\*= significant;  $p < 0.01$

Secondary vocational schools in Indonesia purport to train the students to be ready for employment. Previous studies reveal that academic achievement and career optimism facilitate individuals to have a good career in their future. Educational attainment leads to the intrinsic and extrinsic career success of individuals (Converse, Pathak, DePaul-Haddock, Gotlib, & Merbedone, 2012). Tolentino et al. (2014) also reveal that career optimism

positively relates to career adaptation or one's willingness and adaptability to fit in with the changing conditions. Individuals with higher optimism also set higher goals, value themselves more positively, and finally, achieve greater career success (Boehm & Lyubomirsky, 2008). Hence, it is important to identify the structural mechanism of the vocational students' academic achievement and career optimism development.

Correlational analysis of the current study revealed that students' perceptions on the vocational teachers' instructional quality positively and significantly related to their self-efficacy, academic achievement, and career optimism. This finding was consistent with previous studies by Hattie (2009) and Lazarides and Ittel (2012) which claimed that teaching quality influences students' academic outcome and Artino (2008) which stated that instructional quality positively related to students' beliefs about their ability to perform a specific task and satisfaction. Moreover, good instructional quality provides a supportive environment for the teacher to the students, facilitating growth in students' career optimism (Garcia et al., 2015). The findings indicate that if the teachers are able to deliver high-quality teaching in the classroom, it will positively influence students' self-efficacy, academic achievement, and career optimism.

Furthermore, the further analysis of the causal effects among the students' perception of vocational instructional quality, self-efficacy, academic achievement, and career optimism reveal that self-efficacy plays a crucial role in mediating the relationships between teaching quality and the other two variables. The first path of instructional quality (self-efficacy and academic achievement) was significant. The second thing is that a significant path of instructional quality (self-efficacy career optimism) was obtained. The two paths indicate that better instructional quality will significantly improve students' belief that they are able to successfully perform a vocational skill and simultaneously facilitate them to achieve higher academic achievement and career optimism. These findings are in line with previous studies which reveal that teacher-student relationship quality, indicates good classroom management and support for students, influences students' self-efficacy (Hughes & Chen, 2011); and the implementation of a high-fidelity simulation for nursing students, creating good cognitive activation and a supportive environmental factor, enhancing learners' belief in their capabilities to provide an immediate response for a critical situation (Akhu-Zaheya, Gharaibeh, & Alostaz, 2013). Furthermore, it was found that adolescents' belief on a specific task is positively related to their educational attainment (Wu, Siswanto, & Ko, 2017) and positive emotion on the future career decision (Garcia et al., 2015). It seems that vocational student perceptions about their teacher's competency to deliver good teaching quality also creates the similar effects with those students from different majors/academic levels, significantly influencing their self-efficacy and simultaneously affecting both their academic achievement and career optimism.

The structural model also reveals that academic achievement partially mediates the relationship between students' self-efficacy and career optimism. This finding implies that students in vocational schools who believe that he/she able to perform well will have both high academic achievement and career optimism. Moreover, if the students attain higher academic achievement, it will facilitate them to have a higher optimism for their future career.

The overall study is in line with the social cognitive theory by Bandura (1986); and consistent with prior study that revealed self-efficacy is developed through some educational experiences (Bandura, 1997) and positively predict individual's positive expectancies (Lent, Sheu, Singley, Schmidt, Schmidt, & Gloster, 2008). The present study offers substantial insight of the relationships and causal effects among instructional quality, self-efficacy, academic achievement, and career optimism. These findings enrich a previously unidentified mechanism of the structural model of those factors, providing a valuable guidance to improve students' academic achievement and career optimism, particularly in a vocational education setting.

In practice, teachers in vocational schools need to pay greater attention to factors that facilitate students' self-efficacy development when developing their teaching plan. For instance, the instructors in vocational school design their learning activities which enable students to experience authentic successes in dealing with a specific problem related to their future job in industry. These experiences for successfully performing a task (which is called mastery experiences) is proven to facilitate a person's belief about their competency to perform subsequent activities (Van Dinther, Dochy, & Segers, 2011). Furthermore, if the educators in vocational school are able to demonstrate professional skills to solve a problem encountered, providing role models for the students, it will motivate the students to believe that they able to perform the same task. This factor is called vicarious experiences, which also confirmed as an individual source of self-efficacy by observing others (Van Dinther, Dochy, & Segers, 2011).

## **Conclusion**

The current study demonstrates that there are significant relationships among instructional quality, self-efficacy, academic achievement, and career optimism in the vocational education setting. Instructional quality is significantly affected by vocational students' academic achievement and career optimism through self-efficacy as a mediator. Students who perceive that their vocational teachers provide a good teaching quality will likely achieve greater belief to perform a specific task, which in turn facilitates them to attain higher educational achievement and optimism for their future career.



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