

Enhancing teachers' professional competence through grit, personality, and creativity

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ABSTRACT

This study aims to explore the power of grit, personality, and creativity to enhance teacher's professional competence with teaching efficacy mediation. A questionnaire collected the research data through the survey method. This research participant is 386 mathematics, and natural science teachers in Indonesia spread across four provinces (Jakarta, Banten, West Java, Riau) determined by accidental sampling. Data analysis uses path analysis supported by descriptive statistics. The results show that grit, personality, and creativity, had a significant effect on teacher's professional competence, either directly or indirectly, mediating by teaching efficacy. Personality has a more dominant direct effect on teaching efficacy and professional competence than grit and creativity. Even personality also has an indirect impact on professional competence mediating by teaching efficacy better than grit and creativity. That means the existence of personality more critical than grit and creativity. Therefore, a fit research model about grit, personality, and creativity on teacher's professional competence mediating by teaching efficacy was found based on data from teachers in Indonesia. This model can be discussed as a reference or discuss by researchers and practitioners in developing professional competence models.

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1. Introduction

Professional competence is vital for the organization since it has a significant contribution to the organization. For example, in the industry sector, employees' professional competency can increase career commitment and work performance (Zhang, Zhang, & Li, 2018). Then, in an educational organization context, professional competence proves to affect the teacher's performance (Amalia & Saraswati, 2018; Jie, Mansor, & Widarman, 2020) and student achievement (Andriani, Asriati, & Syahrudin (2018). As evidence, based on the assessment of The Program for International Student Assessment (PISA), the mathematical achievements of Indonesian students declined. In 2015 the mathematics score was 386, whereas, in 2018, it was only 379. This achievement was below the average rating of 79 participating countries in PISA at 489. This indicates that professional competence largely determines the performance of school organizations, including student academic achievement. Hence, in practice, for developing the organization, schools need teachers' professional competence as the main actors of learning activities in schools. Competence refers to an interrelated cluster of knowledge, skills, and abilities needed by an individual, team, or organization for effective performance (Hellriegel & Slocum, 2011). Gonczi and Athanasou, as quoted by Dante and Ignacio (2012) state, competences can be categorized into three groups: competences as a list of tasks, competences as a collection of attributes, and competences as a holistic or integrated relationship. According to Mansfield and Eraut, as quoted by Lester (2014:2), it also can be approached from two broad perspectives. An individual, internal, attributes-based aspect is concerned with the properties or competencies (skills, knowledge, behaviors, attitudes, motivations, and so forth) that a person has, enabling him or her to act competently in various situations. A social, external, activity – or outcomes-based perspective considers what the person does to produce a result that can be regarded as competent, whether in a study context,

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social situation, or more commonly at work. Meanwhile, professionalism is reflection an ideal that becomes the goal of individuals and group work aspiring to distinguish themselves from other workers (Pratte & Rury, 1991).

Grady, Helbling, and Lubeck (2008) argue that a professional exercises wisdom in making decisions within the scope of his expertise, and takes some authority for his professional development. A professional is competent when he/she acts responsibly and effectively according to given standards of performance. One can also say that this professional possesses sufficient competence (Mulder, 2014). According to Glickman, Gordon, and Ross-Gordon (2010), professional development stages involve three steps of learning: orientation, integration, and refinement. In reality, a person's ability to function professionally depends on the level of cognitive/moral development (Duncan-Hewitt, 2005). In line with argues above, Mulder (2014) states that professional competence is seen as the generic, integrated and internalized capability to deliver sustainable, effective (worthy) performance (including problem-solving, realizing innovation, and creating transformation) in a particular professional domain, job, role, organizational context, and task situation. In the educational setting, Rulandari (2017) states that professional teachers must have the following requirements: teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability. Based on several research and studies in various countries, industrial, occupational sectors, and organizations, professional performance, among others influenced by grit, personality, creativity, and teaching efficacy.

2. Literature Review and Hypothesis Development

2.1. *Grit and Professional Competence*

Everyone has grit even at different levels. In reality, grit is very useful for individuals in various contexts of life. For example, grit predicts important life outcomes, explaining a unique, although minor variance in academic success or job retention (e.g., Duckworth & Eskreis-Winkler, 2013; Eskreis-Winkler et al., 2014). Grit is also associated with adaptive outcomes among youth and adults, such as work satisfaction, career performance, emotional outcomes, and motivation (Credé, Tynan, & Harms, 2017; Guo, Tang, & Xu, 2019), and student academic achievement (Hagger & Hamilton, 2019). Besides, grit scores were predictive of associated college and graduate school grade point averages and achievement (Duckworth & Quinn, 2009; Duckworth, 2016; Duckworth, & Gross, 2014). Grit demonstrated hard work in dealing with challenges, sustaining effort, and interest over the years despite being faced with failure, resilience, and difficulties in achieving it (Duckworth et al., 2007). Grit is one way to determine where someone can put his/her efforts to survive in facing life's challenges (Hochanadel & Finamore, 2015) and reflects a psychological variable that prioritized the persistence as an indicator of long-term success and associated with achieving high-level goals for a very long time (Von Culin, Tsukayama, & Duckworth, 2014; Duckworth, 2016). Hence, grit is the tendency to pursue challenging long-term goals with perseverance and passion (Duckworth et al., 2011: 175). Grit consists two indicators, namely: consistency of interests, reflects an individual's tendency to maintain commitment and maintain focus on achieving goals/tasks over a long period time; and persistence of effort, demonstrates an individual's tendency to pursue long-term goals with sustained efforts despite obstacles and setbacks (Duckworth & Quinn, 2009). If these indicators are adequate and consistent for a long time, potentially we may expect an increase on professional competence. The recent studies by Jachimowicz et al. (2018), Holdan et al. (2018), Cosgrove, Chen, & Castelli (2018), and Saleh et al. (2019) show that grit influences professional competence. Based on argues and studies above, the first hypothesis in this study is:

H₁: Grit has a direct effect on professional competence.

2.2. *Personality and Professional Competence*

Personality is an individual factor that determines life. Personality can be relied on build integrity (Cohen et al., 2009; Takeuchi et al., 2010). Personality can also stimulate increasing commitment (Mensah, Agyapong, & Nuerter, 2017; Kim et al., 2018) and motivation (Richardson & Abraham, 2009). Moreover, personality is positively correlated with job satisfaction (Smith, Patmos, & Pitts, 2015; Widodo & Damayanti, 2020) and encourages performance improvement (Richardson & Abraham, 2009). Personality can be described as the characteristics of someone act in a certain way (Ghani, Yunus, & Bahry, 2016). Personality is also the distinctive and relatively enduring ways of thinking, feeling or emotions, and acting or behavior that characterize a person's responses to a life situation throughout life and to motivate an individual to adapt to the world (Ciccarelli & Meyer, 2006; Passer & Smith, 2007; Santrock, 2008). McKenna (2006) also states that personality contains the physical, mental, moral, and social qualities of individuals that are dynamic and integrated and can be observed by others in everyday life. Personality can be measured through five indicators: extraversion, agreeableness, conscientiousness, openness, and neuroticism. Extraversion is a tendency to seek stimulation and to enjoy the company of other people. Agreeableness refers to a tendency to be compassionate toward others, such as ranges from good-natured, cooperative, trusting, and helpful at one end, to irritable, suspicious, and uncooperative at the other. Conscientiousness reflects a tendency to show self-discipline, to strive for competence and achievement. Openness to experience is a tendency to enjoy new experiences and new ideas. Neuroticism refers to a tendency to experience unpleasant emotions easily (Costa & McCrae, 1992). Suppose these indicators in good condition and stable for a long time can be stimulated professional competence.

The studies by the researchers also concluded that personality influences professional competence (e.g., Aydın, Bavlı, & Alcı, 2013; Scheepers et al., 2014; Nieß & Zacher, 2015). Based on the statements and studies above, the second hypothesis in this study is:

H₂: Personality has a direct effect on professional competence.

2.3. Creativity and Professional Competence

Creativity is also an individual factor that determines life, both individual, group, or organization. For example, creativity can drive innovative behavior (Zocche, de Paula, & Kunrath, 2018; Neto, Filipe, & Caleiro, 2019) and organizational citizenship behavior (Obiora & Okpu, 2015; Deng & Guan, 2017). Creativity is the ability to reformulate what we know, generally in light of new information, and develop a new concept or an original idea (Carter, 2014). Creativity also reflects something that arises from conscious human intervention (Ashton, 2015). Bessant and Tidd (2018) state four kinds of creativity, namely: associations – that the brain is involved in making associations, often between hitherto unconnected things; incremental and radical – creativity is about breaking through to radically new ideas, framing the problem differently; and finding new directions for solving it; divergent and convergent thinking – convergent thinking is about focus, homing in on a single “best” answer, while divergent thinking is about making associations, often exploring around the edges of a problem; and pattern recognition – particularly about patterns and our ability to see them. Guilford (1950) identified five characteristics of abilities of creativity: fluency, flexibility, originality, elaboration, and redefinition. In practice, if these indicators at a high level can be realized to improve professional competence, as has been shown in several studies that creativity influences professional competence, for example, Rohmaniyah and Nurhayati (2017), Bundu and Patta (2019), Vaganova et al. (2019). Based on the statements and studies above, the third hypothesis in this study is:

H₃: Creativity has a direct effect on professional competence.

2.4 Teaching Efficacy and Professional Competence

In the general context, self-efficacy is a multidimensional construct that varies according to the domain of demands. Therefore, it must be evaluated at a level that is specific to the outcome domain (Zimmerman, Bandura, & Pajares, 1992), and the belief that someone has the skills needed to demonstrate the behavior needed for the success of a task (Colquitt, Lepine & Wesson, 2015). In the specific context of teachers, self-efficacy can be viewed from a teaching efficacy perspective. Teaching efficacy is a teacher’s perception of his or her abilities positively impact on student learning. This includes perceptions of one’s own teaching ability and the belief that teaching can impact student learning (Zimmerman et al., 2016). Bandura (1995) noted a positive relationship between teaching efficacy and classroom atmosphere. Teaching efficacy also crucial in teacher education as it impacts teachers’ behaviors (e.g., Tschannen-Moran, Hoy, & Hoy, 1998; Tschannen-Moran & Hoy, 2001). Teacher efficacy also predicted a teacher’s capacity for successfully engaging in a future task such as effectively using a new teaching strategy (Southerland et al., 2011). Guo et al. (2012) also found a positive relationship between teaching efficacy and students’ literacy skills. The teachers with higher levels of teaching efficacy had more positive classroom environments. Besides, teaching efficacy related to teacher burnout, teachers with higher teaching efficacy are less likely to experience burnout and leave the profession (Brouwers & Tomic, 2000; Skaalvik & Skaalvik 2010; Avanzi et al., 2013). Moreover, teachers’ self-efficacy beliefs are essential for educational reform enactment because teachers with a high sense of self-efficacy are more likely to implement teaching innovations (Duran et al., 2009; Evers, Brouwers, & Tomic, 2002). Bandura (1994) mentions three indicators of self-efficacy: generality, this aspect relates broadly to the field of duty or behavior; magnitude, this aspect is related to task difficulty; and strength, this aspect relates to the level of strength or stability of a person against his beliefs. The studies by scholars have also indicated that teaching efficacy affects professional competence (e.g., Zimmerman et al., 2016; Toran, 2017; Keppens, Consuegra, & Vanderlinde, 2019). Based on the argues and studies above, the fourth hypothesis in this study is:

H₄: Teaching efficacy has a direct effect on professional competence.

2.5. Grit and Teaching Efficacy

Teaching efficacy besides affecting professional competence, is also influenced by the grit. The indicators of grit which is manifested in the consistency of interests (an individual’s tendency to maintain commitment and maintain focus on achieving goals/tasks over a long period time) and persistence of effort (an individual’s tendency to pursue long-term goals with sustained efforts despite obstacles and setbacks) (Duckworth & Quinn, 2009). These indicators, if adequate conditions and consistent for a long time, can be realized for stimulating teaching efficacy reflected in generality, magnitude, and strength (Bandura, 1994). The scholar’s studies by Hollearn and Domingo (2017), Alhadabi and Karpinski (2019), and Jose and Manikandan (2019) show that grit influences teaching efficacy. Based on the studies and statements above, the fifth hypothesis in this study is:

H₅: Personality has a direct effect on teaching efficacy.

2.6. *Personality and Teaching Efficacy*

Teaching efficacy is also affected by personality. The indicators of personality, such as extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism (Costa & McCrae, 1992) if in an adequate condition and stable for a long time, can increase teaching efficacy reflected in generality, magnitude, and strength (Bandura, 1994). Several studies, for example, by Murugesan and Jayavelu (2017), Abood et al. (2020), and Chandrawaty and Widodo (2020) concluded that personality affects teaching efficacy. Based on argues and studies above, the sixth hypothesis in this study is:

H₆: Personality has a direct effect on teaching efficacy.

2.7. *Creativity and Teaching Efficacy*

Teaching efficacy is also influenced by creativity. The indicators of creativity are reflected in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950) if adequate conditions can realize for stimulating teaching efficacy who manifested in generality, magnitude, and strength (Bandura, 1994). Several studies conducted by Vally et al. (2019), Regier and Savic (2019), Pachler, Kuonath, and Frey (2019), and Haase et al. (2018) show that creativity has a direct effect on teaching efficacy. Based on the studies and statements above, the seventh hypothesis in this study is:

H₇: Creativity has a direct effect on teaching efficacy.

2.8. *Grit and Professional Competence Mediating by Teaching Efficacy*

From the various results of the research above, teaching efficacy mediates grit effect on professional competence. The indicators of grit: the consistency of interests (an individual's tendency to maintain commitment and maintain focus on achieving goals/tasks over a long period time) and persistence of effort (an individual's tendency to pursue long-term goals with sustained efforts despite obstacles and setbacks) (Duckworth & Quinn, 2009), if sufficient conditions and consistent for a long time can realize for stimulating teaching efficacy who reflected in generality, magnitude, and strength (Bandura, 1994) and then implicate to the professional competence reflected in teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability (Rulandari, 2017). The scholar's studies by Alhadabi and Karpinski (2019) and Jose and Manikandan (2019) show that grit influences teaching efficacy, while the studies conducted by Toran (2017) and Keppens, Consuegra, and Vanderlinde (2019) show that teaching efficacy affects professional competence. Based on argues and studies above, the eighth hypothesis in this study is:

H₈: Grit has an indirect effect on professional competence mediating by teaching efficacy.

2.9. *Personality and Professional Competence Mediating by Teaching Efficacy*

Teaching efficacy also mediates the effect of personality on professional competence. The indicators of personality, such as extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism (Costa & McCrae, 1992), if adequate conditions and stable for a long time potentially stimulating teaching efficacy manifested in generality, magnitude, and strength (Bandura, 1994). Then implicate to the professional competence reflected in teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability (Rulandari, 2017). The studies carried out by Abood et al. (2020), and Murugesan and Jayavelu (2017) indicated that personality affects teaching efficacy, while the studies conducted by Toran (2017) and Keppens, Consuegra, and Vanderlinde (2019) show that teaching efficacy affects professional competence. Based on argues and studies above, the sixth hypothesis in this study is:

H₉: Personality has an indirect effect on professional competence mediated by teaching efficacy.

2.10. *Creativity and Professional Competence Mediating by Teaching Efficacy*

Teaching efficacy also mediates the effect of creativity on professional competence. The indicators of creativity, such as fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950) if adequate conditions were potentially stimulating teaching efficacy manifested in generality, magnitude, and strength (Bandura, 1994) and then implicate to the professional competence reflected in teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability (Has-been, in Rulandari, 2017). The studies carried out by Vally et al. (2019) and Pachler, Kuonath, and Frey (2019) proved that creativity affects teaching efficacy, while the studies conducted by Zimmerman et al. (2016) and Keppens, Consuegra, and Vanderlinde (2019) show that teaching efficacy affects professional competence. Based on argues and studies above, the sixth hypothesis in this study is:

H₁₀: Creativity has an indirect effect on professional competence mediating by teaching efficacy.

3. Research Methods

This research uses a quantitative approach to the survey method through a questionnaire in the form of a Likert scale model with five option answers: strongly disagree, disagree, neutral, agree, and strongly agree. The questionnaire was made by researchers themselves based on the theoretical dimensions or indicators of the experts. The indicators of grit are the consistency of interests and persistence of effort (Duckworth & Quinn, 2009). Personality consists of five dimensions: extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism (Costa & McCrae, 1992). The indicators of creativity, includes fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). Teaching efficacy consists of three indicators, namely, generality, magnitude, and strength (Bandura, 1994). Professional competence refers to six indicators: teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability (Rulandari, 2017). The questionnaire of grit consists of 8 items with an alpha coefficient = .906, personality consists of 10 items with an alpha coefficient = .885, creativity consists of 10 items with an alpha coefficient = .920, teaching efficacy consists of 9 items with an alpha coefficient = .880, and professional competence consists of 12 items with alpha coefficients = .889. All variables have a coefficient of alpha > .6, so it is reliable as a research instrument.

This research participant is 386 mathematics, and natural science teachers in Indonesia spread across four provinces (Jakarta, Banten, West Java, Riau) determined by accidental sampling based on participant willingness to fill in the questionnaire at the time the research was conducted (Widodo, 2019). Descriptions of the participants are shown in Fig. 1. The majority of participants aged 26 - 35 years (41.71%), bachelor education (74.61%), and length of teach ≤ five years (33.16%). Besides, 64.25% of the participants were female, and 75.91% of them were married.

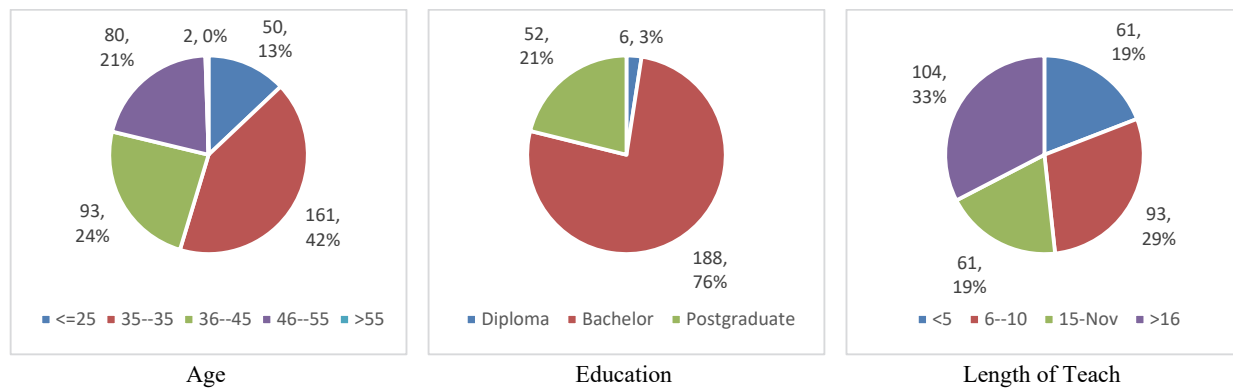


Fig. 1. Personal characteristics of the participants

Data analysis using the path analysis and the significance of the path coefficient uses a t-test supported by descriptive statistics and correlational.

4. Result and Discussion

4.1. Result

The results of the descriptive statistical analysis and correlations of the five research variables are presented in Table 1. The mean values of the five variables from the lowest to the highest in succession are grit (34.62), teaching efficacy (38.87), creativity (40.65), personality (43.21), and professional competence (52.21). Meanwhile, the standard deviation values of the five variables from the lowest to the highest in succession are teaching efficacy (3.516), personality (3.889), grit (4.364), creativity (4.742), and professional competence (5.218). The correlation analysis results in all variables had significant relationships with the other variables at level $p < .01$. This condition indicates that all the variables had a mutual relationship with each other.

Table 1
Descriptive Statistics and Correlation Matrix of Variables

Variables	Mean	Std. Deviation	1	2	3	4	5
1. Grit	34.62	4.364	1.00				
2. Personality	43.21	3.889	.572**	1.00			
3. Creativity	40.65	4.742	.403**	.601**	1.00		
4. Teaching Efficacy	38.87	3.516	.454**	.635**	.508**	1.00	
5. Professional Competence	52.21	5.218	.503**	.662**	.580**	.545**	1.00

** $p < .01$

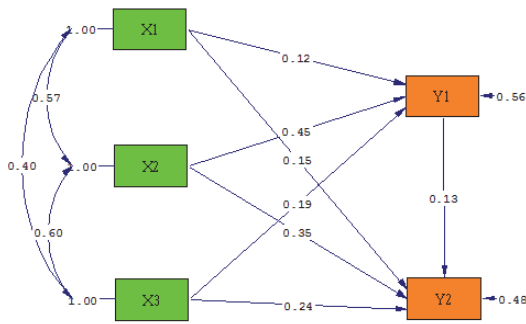
The results of hypothesis testing with path analysis of grit, personality, and creativity on teaching efficacy and professional competence are summarized in Table 2 and visualized in Fig. 2 and Fig. 3. As presented in Table 2, all the hypotheses were supported ($t\text{-value} > t\text{-table at } \alpha = .01 \text{ and } .05$). Therefore the result of this study are grit, personality, creativity, and teaching efficacy had significant direct effects on professional competence; then, grit, personality, and creativity had significant direct effects on teaching efficacy. Besides, the results of this study also showed grit, personality, and creativity had a significant indirect effect on professional competence mediating by teaching efficacy. Personality is proved to have a more dominant direct effect on teaching efficacy (.45) and professional competence (.35) than grit and creativity. Even personality also has an indirect effect on professional competence mediating by teaching efficacy (.06) better than grit (.02) and creativity (.03). That means the existence of personality more important than grit and creativity.

Table 2
Summary of Path Coefficients and T-values

Hypothesis	Path Coefficients	T Value	Hypothesis Testing
H ₁ : Grit (X ₁) on professional competence (Y ₂)	.15**	3.31	Supported
H ₂ : Personality (X ₂) on professional competence (Y ₂)	.35**	6.38	Supported
H ₃ : Creativity (X ₃) on professional competence (Y ₂)	.24**	5.38	Supported
H ₄ : Teaching efficacy (Y ₁) on professional competence (Y ₂)	.13**	2.85	Supported
H ₅ : Grit (X ₁) on teaching efficacy (Y ₁)	.12**	2.52	Supported
H ₆ : Personality (X ₂) on teaching efficacy (Y ₁)	.45**	8.46	Supported
H ₇ : Creativity (X ₃) on teaching efficacy (Y ₁)	.19**	3.88	Supported
H ₈ : Grit (X ₁) on professional competence (Y ₂) mediating by teaching efficacy (Y ₁)	.02*	1.89	Supported
H ₉ : Personality (X ₂) on professional competence (Y ₂) mediating by teaching efficacy (Y ₁)	.06**	2.70	Supported
H ₁₀ : Creativity (X ₃) on professional competence (Y ₂) mediating by teaching efficacy (Y ₁)	.03**	2.29	Supported

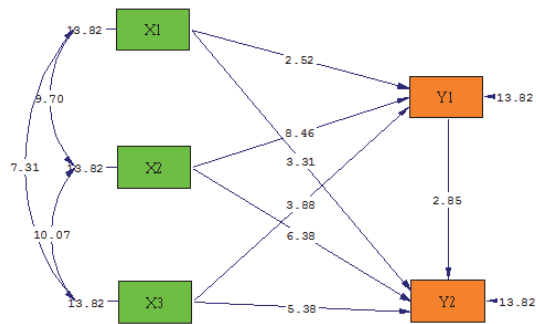
* $p < .05$
** $p < .01$

As shown in Fig. 2 and Fig. 3, the test results of the fittest of structural model are significant with Chi-Square = 0.000, $df = 0$, $p\text{-value} = 1.00000 > .05$ and $RMSEA = .000 < .08$, so that the model tested is fit. This result indicates that the theoretical model being tested is supported by empirical data from teacher’s mathematics and natural science in Indonesia.



Chi-Square=0.00, df=0, P-value=1.00000, RMSEA=0.000

Fig. 2. Path Coefficients



Chi-Square=0.00, df=0, P-value=1.00000, RMSEA=0.000

Fig. 3. T Values

4.2. Discussion

This research has found that grit, personality, and creativity had significant effects on teacher’s professional competence mediating by teaching efficacy. The results of the fittest of the structural model show the significance (fit). This finding confirms that grit, personality, creativity, and teaching efficacy are essential determinants for teacher’s professional competence. Moreover, teaching efficacy plays a significant role as a mediator of grit, personality, and creativity on the teacher’s professional competence. This evidence is consistent with other results of the research to develop this research hypothesis. However, in reality, teachers who have the consistency of interests and persistence of effort tend to have good ability teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability. For example,

teachers with high consistency of interests tend to strive to have teaching skills, personality authority, and technical competence as capital to build professional competence. These findings are consistent with the research results by Jachimowicz et al. (2018) and Saleh et al. (2019), who indicate that grit influences professional competence.

In addition, teachers in an adequate personality characterized by extraversion, agreeableness, conscientiousness, openness, and neuroticism tend to maintain their teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability. For example, teachers in high conscientiousness reflect a tendency to show self-discipline and strive for competence and achievement to direct their thoughts, attitudes, and behavior to realize optimal teaching skills and technical competence. The research conducted by Scheepers et al. (2014) and Nieß and Zacher (2015) also prove that personality affects professional competence.

Teachers who have high creativity are reflected in fluency, flexibility, originality, elaboration, and redefinition also tend to have professional competence characteristics. Teachers with high flexibility and elaboration will not face difficulties in mastering teaching skills, communication skills, social skills, and technical competence. This empirical fact was similar to studies Bundu and Patta (2019) and Vaganova et al. (2019) which indicate creativity has a relationship with professional competence. Likewise, teachers who have high teaching efficacy also tend to master all aspects of professional competence: teaching skills, communication skills, personality authority, social skills, technical competence, and emotional stability. However, all indicators of teaching efficacy, such as generality, magnitude, and strength, will make it easier for teachers to master all aspects of professional competence, not only conceptually but also in practice. Several studies by scholars, such as Toran (2017) and Keppens, Consuegra, and Vanderlinde (2019), also revealed that teaching efficacy related to professional competence.

This study also found that teaching efficacy plays a significant role as a mediator of grit, personality, and creativity on the teacher's professional competence. This finding reveals empirical facts that the existence of teaching efficacy needs to be considered in the context of increasing teacher's professional competence through grit, personality, and creativity. That kind of effort to enhancing teacher's professional competence will be done better through improving grit, personality, and creativity with support increasing teaching efficacy. In this case, personality should be a priority because it has a dominant effect on teaching efficacy and professional competence than grit and creativity. It implies that teachers and school principals need to manage personality and teaching efficacy optimally through various possible approaches, methods, or strategies.

Finally, the results of this study confirm the results of several such studies and find a new empirical model of grit, personality, and creativity on teacher's professional competence mediated by teaching efficacy based on the data from teacher's mathematics and natural science in Indonesia. This model can adopt as a conceptual or theoretical model of the future research that can be utilized by researcher's concern on contemporary professional competence issues, not only limited to educational organizations (particularly school organizations) but more than that also includes public and business organizations. For the practitioners, the model can build better models to enhance professional competence in the future and various contexts of organizations.

5. Conclusion

This research has proven that grit, personality, and creativity, had significant effects on teacher's professional competence, either directly or indirectly, mediating by teaching efficacy. The research also found a new research model about the impact of grit, personality, and creativity on teacher's professional competence mediating by teaching efficacy with the research field of the teacher's mathematics and natural science in Indonesia. This model can be discussed as a discourse or reference among researchers and practitioners to build better professional competence in the future and various organizations' context. For the researchers, the model can be an application on educational organizations or other multiple organizations. Besides, the researchers also can develop and expand research more comprehensively, for example, adding new variables, other indicators, or an analytical approach. For practitioners, the model can use to increase the teacher's professional competence through the perspective of grit, personality, creativity, and teaching efficacy.

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