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Encourage Teacher Innovative Behavior : The Interaction Role of Cognitive Flexibility and Teacher Self-Efficacy

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Abstract: This study aims to analyze the interaction role of cognitive flexibility and teacher self-efficacy in teacher innovative behavior in the context of curriculum change in Indonesian schools. This study used a quantitative survey method. Three instruments were used, namely the Teacher Innovative Behavior Scale, the Cognitive Flexibility Inventory, and the Teachers' Sense of Efficacy Scale. Data were collected from 322 teachers from three educational levels in Jabodetabek. Descriptive analyses, correlation analyses, and moderation analyses were conducted. The findings revealed that cognitive flexibility, as a whole construct, and each dimension (the control and alternative dimension), positively predicts teacher innovative behavior. Specifically, only the alternative dimension that significantly interacts with teacher self-efficacy positively predicts teacher innovative behavior. In other words, teacher self-efficacy is significant as a moderator. The findings highlight the importance of addressing cognitive flexibility and teacher self-efficacy, which were not extensively researched before, in enhancing teachers' innovative behavior. Innovative behavior is crucial for teachers, especially in the current era of change.

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Introduction

In an era of rapid change, innovation is essential for educational institutions to ensure their effectiveness and competitive advantage (Baskaran & Rajarathinam, 2018; Hashim et al., 2019; Kwon & Kim, 2020). Specifically in Indonesia, one of the main efforts made is the implementation of a new curriculum at all levels of education called "Kurikulum Merdeka" (the Freedom Curriculum). This curriculum was implemented with the aim of providing opportunities for students and teachers to develop varied, dynamic, and effective learning to develop higher-order skills (Ananiadoui & Claro, 2009; Geisinger, 2016; Ministry of Education, Culture, Research, and Technology, 2023).

On the other hand, the Freedom Curriculum places new demands on teachers. Based on the results of our preliminary study using interviews method with eight teachers in different schools, all agreed that implementing the new curriculum requires teachers to demonstrate innovative behavior. For example, the learning method is shifting from teacher-centered to student-centered, so teachers must develop learning methods to encourage student engagement. Teachers also need to differentiate specific learning methods for students because the Freedom Curriculum focuses on individually improving students' abilities based on their previous skills. In addition, teachers must also facilitate students' development of ideas for projects as a new form of assessment at the end of the semester, considering that the Freedom Curriculum no longer only relies on standardized exams.

However, teachers need to demonstrate innovative behavior so that educational institutions can also exhibit high levels of innovation. This is crucial because organizational

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innovation relies significantly on the innovative behavior of each individual involved (Azeem et al., 2021; Hsu & Chen, 2017). Teachers' innovative behavior also impacts their teaching practices and students' creation of novel and original ideas (Milfayetty, 2017; Nemeržitski et al., 2013). Thus, in turn, teachers are required to show innovative behavior. Especially in situations where changes are occurring, such as curriculum reform, teacher innovative behavior can help teachers catch up with these changes so that they can adapt more quickly and focus on maximizing available resources to benefit from the changes (Balkar, 2020; Liu et al., 2022; Yu et al., 2021).

Innovative work behavior itself is a concept initially developed in industrial and organizational psychology based on the creativity and innovation model (Amabile, 1988; Anderson et al., 2004; Newell et al., 1962). According to Messmann and Mulder (2012), innovative work behavior refers to employees' contributions to all work activities to accomplish innovation development in their work environment. Innovative work behavior is a highly dynamic and context-bound construct (Zhou & Shalley, 2003). Measurement of innovative work behavior must consider the context in which work activities are conducted (Janssen, 2005; Messmann & Mulder, 2012; Scott & Bruce, 1994). Therefore, the concept of teacher innovative behavior was developed.

Teachers' innovative behavior refers to the same definition as innovative work behavior but specifically relates to the educational setting. Four tasks relate to teachers' innovative behavior: opportunity exploration, idea generation, idea promotion, and idea realization (Messmann & Mulder, 2012). Opportunity exploration refers to identifying and understanding the needs and issues in one's workplace that present a chance for improvement and change. Idea generation involves generating and proposing novel concepts, products, or procedures to tackle the identified possibilities. Idea promotion refers to promoting the concepts by persuading the social environment of the envisioned innovation and building a coalition of allies that take over responsibility and provide necessary information, resources, and support. Idea realization encompasses the process of experimenting with ideas, creating intellectual or physical prototypes for innovations, evaluating and enhancing their viability, and strategically integrating them into organizational practices. These tasks are not sequential but partly build on each other, so the teacher needs to master all of the tasks to be considered to have highly innovative behavior (Dorenbosch et al., 2005; Messmann & Mulder, 2012). The four dimensions of teacher innovative behavior are also iteratively connected by feedback loops, where, for instance, promoting an idea can result in new opportunities, and the implementation process may lead to the generation of further new ideas (Messmann & Mulder, 2012).

Teachers' innovative behavior itself depends on several factors such as organizational climate, leader characteristics, leader support or leadership characteristics, teacher experience, and personal characteristics (Bednall et al., 2018; Catio, 2019). Of these many factors, a teacher's innovative behavior highly depends on individual characteristics and thinking styles because innovative behavior includes rethinking and changing (Messmann & Mulder, 2015; Runhaar et al., 2016). Environments such as organizational climate and culture that support innovative behavior still require internal factors from individuals involved in the organization to maximize the positive culture that already exists (Braem & Egner, 2018; Vermeulen et al., 2022). Therefore, it is crucial to see how teachers think flexibly about various situations they face and solutions related to those situations.

According to Dennis and Vander Wall (2010), cognitive flexibility can be defined as the ability to switch cognitive sets to adapt to environmental demands. Two dimensions consistently shape cognitive flexibility namely control and alternative. Control refers to the

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tendency to perceive difficult situations as controllable; alternative refers to the tendency to perceive and generate multiple alternative solutions for difficult situations. As a general construct, cognitive flexibility contributes to how people perceive the task or problem and how people represent their knowledge to find possible strategies to solve the task (Kalia et al., 2019; Krems, 2014; Laureiro-Martínez & Brusoni, 2018). People with high cognitive flexibility are inclined to engage more in innovative behavior (Mumford et al., 1997), given that two of the four main aspects of innovative behavior are alternative ways of thinking and generating new ideas. On the other hand, people with low cognitive flexibility are likely to exhibit a more rigid approach, hindering their ability to generate new alternative ideas and fail in the execution of innovative behavior (Canas et al., 2006; Uddin, 2021; Zuo et al., 2019). Specifically, people with a high level of control, as one of the dimensions of cognitive flexibility, tend to focus more on the problem and perceive that the problem can be overcome. Thus, consideration and exploration of alternative solutions will arise (Aston-Jones & Cohen, 2005; Laureiro-Martínez et al., 2009). However, a high level of control is not necessarily followed by a high level of alternative because the situations in which control and alternatives arise differ (Algharaibeh, 2020; Chung et al., 2023). behavior can be considered risky, so individuals may assess themselves as being able to overcome the difficult situation but not necessarily be able to get to the stage of thinking of various alternative solutions and end up committing to habitual solutions (Klaeijsen et al., 2018; Runhaar et al., 2016).

Extensive research has documented positive outcomes of cognitive flexibility on employee innovative behavior in general (Jeong et al., 2016), but no previous research has been found that directly proves the significant relationship between cognitive flexibility and teacher innovative behavior. Meanwhile, according to Messmann and Mulder (2012), teacher innovative behavior addresses different innovative behaviors where the intended context is specific to the educational context. Teacher innovative behavior includes behaviors that are uniquely performed only by teachers, such as encouraging the application of new solutions in teaching and learning activities, being aware of the latest concepts related to the teaching profession, and being knowledgeable of other schools' development programs (Messmann et al., 2018; Messmann & Mulder, 2012; Zhou & Shalley, 2003).

However, teacher innovative behavior is a wide range of individual behavior, including generating and transforming ideas into concrete innovations (Devloo et al., 2015). Teachers' ability to bring those new ideas into behavior is not only determined by the flexibility of their thinking style but also by their sense of efficacy (Nemeržitski et al., 2013; Pyhältö et al., 2012). According to Thurlings et al. (2015), involving teachers' self-efficacy as one of the most salient factors influencing teacher innovative behavior in exploring the other factors' role is crucial.

Teacher self-efficacy is developed based on the construct of efficacy expectations from Banduras' Social Cognitive Theory (Bandura, 1977, 1982), which refers to an individual's belief that they can orchestrate the necessary actions to perform a given task. However, the most widely used theory of teacher self-efficacy to explain the dimensions of that construct is Tschannen-Moran and Hoy (2001), who define teacher self-efficacy as a judgment of their capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult. Teacher self-efficacy is a multidimensional construct of three dimensions: efficacy for student engagement, efficacy for instructional strategies, and efficacy for classroom management (Tschannen-Moran & Hoy, 2001). Efficacy for classroom management refers to teachers' perceptions of their ability to conduct and maintain classroom management. Efficacy for instructional strategies refers to teachers' perceptions of their ability to use various teaching and assessment methods.

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Efficacy for student engagement refers to teachers' perceptions of their ability to build relationships with students and encourage student involvement in the learning process. These three dimensions are related to each other and should be fully mastered by the teacher.

Since innovation may be viewed as risky (Klaeijsen et al., 2018; Runhaar et al., 2016), self-efficacy is viewed as the crucial factor of innovative behavior because a strong sense of efficacy enables teachers to cope with these risks (Nemeržitski et al., 2013; Runhaar et al., 2016). Teachers possessing high cognitive flexibility can evaluate each situation from diverse viewpoints and offer a range of solutions. However, the results of these thoughts will be difficult to implement if the teachers are not confident that they can realize these ideas and face various negative consequences that may arise from efforts to implement new ideas. Therefore, this study also proposes teacher self-efficacy as a moderator to strengthen the link between cognitive flexibility and teacher innovative behavior. Based on that, our research will be able to fill the literature gap about the interaction role of cognitive flexibility and teacher self-efficacy to predict teacher innovative behavior and become the baseline for any intervention to improve teacher capabilities in innovation behavior.

Research Method

This study used a quantitative survey method. The online questionnaire was administered through social media and groups of the teacher community. Participants were previously informed about the study's aims, as well as the assurance of data confidentiality and the delimitation of the use of the information collected only for research purposes. The final participants comprised 322 teachers aged from three educational levels in Jabodetabek. Teachers ranged in age from 23 to 58 (M = 35.80, SD = 7.81). The male participants represented 48.4% (n = 156), whereas female participants represented 51.6% (n = 166) of the study. About 41% of participants were teaching at the elementary school level, 32,3% of participants were teaching at the secondary school level, and 26,7% of participants were teaching at the high school level. Regarding the experiences, participants' average teaching experience is 12 years, with twice the curriculum changes. Lastly, the average number of students in the participants' classes is 35 students.

Three instruments were used in this study. First, the Teacher Innovative Behavior Scale, developed by Messmann and Mulder (2015) and adapted by Hidayat et al. (2022), was used to measure the degree of innovative behavior by teachers. The scale contains 30 items for measuring four important tasks of innovative behavior: opportunity exploration, idea generation, idea promotion, and idea realization. Second, the Cognitive Flexibility Inventory (CFI) was developed by Dennis and Vander Wal (2010) to assess people's perceived capabilities to be flexible in their thinking styles. This instrument is adapted to the Indonesian version by Indrasari (n.d.). CFI includes 20 items for measuring two dimensions of cognitive flexibility: control and alternative. Third, the Teachers' Sense of Efficacy Scale (TSES) was developed by Tschannen-Moran and Hoy (2001) with 24 items to assess teachers' sense of efficacy in classroom management, provide excellent instruction strategies, and encourage student engagement. This study used the adapted TSES by Handayani (2022), consisting of 20 final items. All the questionnaires were analyzed using Statistical Package for Social Sciences (SPSS) and R Studio version 2023.06.2+561. First, we calculated descriptive statistics and correlations between the variables. Then, we conducted correlation and moderation analysis to test the hypothesis of this study.

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Results and Discussion

Preliminary Analysis

Table 2 provides the relationship between all research variables (cognitive flexibility, control dimension of cognitive flexibility, alternative dimension of cognitive flexibility, teacher innovative behavior, and teacher self-efficacy).

Table 1. Pearson Correlation Matrix

		M	*SD*	1	2	3	4	5	6	7	8	9
1.	Age	35.80	7.81									
2.	Experience	12.16	6.37	.81**								
3.	Curriculum Change	2.95	1.60	.43**	.55**							
4.	Class Size	35.69	9.59	-.088	-.03	-.03						
5.	TIB	140.04	13.43	.049	.10	.15**	.10					
6.	CF	83.51	7.41	-.081	-.03	-.11*	.01	.29**				
7.	Control	22.87	5.83	-.219**	-.15**	-.16**	.06	-.17**	.56**			
8.	Alternatives	60.64	6.40	.105	.09	.02	-.05	.49**	.65**	-.27**		
9.	TSE	78.31	6.11	.018	.02	-.00	.05	.32**	.10	-.05	.16**	

Note: TIB = Teacher Innovative Behavior, CF = Cognitive Flexibility, TSE = Teacher Self-Efficacy
** p < .01

The result indicates that cognitive flexibility as a general construct and alternative dimension was positively related to teachers' innovative behavior. Similarly, teacher self-efficacy is also positively associated with teacher innovative behavior. In contrast, the control dimension was negatively associated with teacher innovative behavior, which means that the more teachers perceived they could control the difficult situation, the less likely they perform innovative behavior. Regarding demographic factors, out of the four factors, only the curriculum change was found to be significantly positively associated with teacher innovative behavior, which means that the more frequently teachers experience curriculum changes, the more likely they perform innovative behavior during teaching activities.

Regression and Moderation Analysis

We conducted a series of linear regression analyses to investigate predictors of teacher innovative behavior. Table 3 shows the regression results. The proposed predictors are significantly related to teachers' innovative behavior with moderate effect. General cognitive flexibility and the alternative dimension of cognitive flexibility positively predict teachers' innovative behavior, whereas contrary to our hypothesis, the control dimension negatively predicts teachers' innovative behavior.

Table 2. Direct and Moderating Relationships

Hypothesis	Path coefficient	P-value	Standard error	Effect size
Direct Effects				
H1a. CF → TIB	0.285	<0.001	0.097	0.081
H1b. Control → TIB	-0.173	<0.01	0.127	0.030
H1c. Alternative → TIB	0.488	<0.001	0.103	0.238
Moderating Effects				
H2. TSE*Control → TIB	0.016	0.155	0.011	0.134
H3. TSE*Alternative → TIB	0.021	<0.01	0.006	0.280

Note: TIB = Teacher Innovative Behavior, CF = Cognitive Flexibility, TSE = Teacher Self-Efficacy

Regarding the moderation effect, this study proposed that teacher self-efficacy would moderate the relationship between each dimension of cognitive flexibility and teacher innovative behavior. Table 3 also describes the moderation effect of teacher self-efficacy. Unlike our hypothesis, the moderation effect of teacher self-efficacy on the relationship between control and teacher innovative behavior was insignificant (b = 0.016, SE = 0.011, p = 0.155). On the other hand, as Figure 1 shows, the moderation effect of teacher self-efficacy

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on the relationship between alternative and teacher innovative behavior was significant (b = 0.021, SE = 0.001, P < 0.01). This result indicates that the alternative dimension of cognitive flexibility is more effective in predicting teacher innovative behavior with high teacher self-efficacy. In other words, the relationship between alternative cognitive flexibility and teacher innovative behavior is stronger in teachers with high self-efficacy.

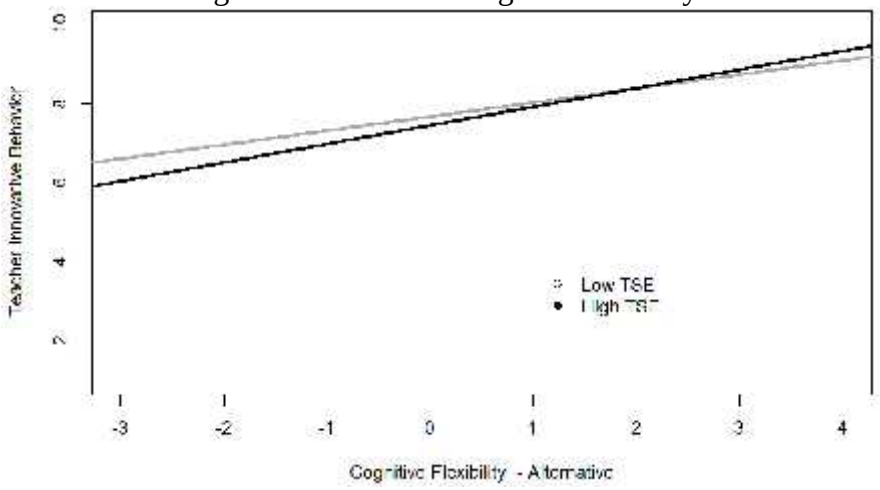

Figure 1. Interaction of Alternative Cognitive Flexibility and Teacher Self-Efficacy

Discussion

While previous studies have examined the relationship between cognitive flexibility and innovative behavior, further studies are required to specifically investigate the impact of cognitive flexibility on the innovative behavior of teachers, particularly within the context of teaching. This is due to the innovative behavior typically displayed by organizational employees might differ from the innovative behavior demonstrated by teachers in their specific educational settings (Messmann & Mulder, 2012). In addition, the mechanism underlying this association remains unknown. Therefore, the current research was conducted to achieve two main objectives. First, to address the predicting role of cognitive flexibility as a general construct and each dimension (control and alternative) of teacher innovative behavior. Second, to investigate the moderating role of teacher self-efficacy on the relationship between the two dimensions of cognitive flexibility and teacher innovative behavior.

The finding of this study revealed that cognitive flexibility as a general construct and alternative dimension positively predicts teacher innovative behavior. The findings are consistent with the previous research (Braem & Egner, 2018; Canas et al., 2006; Mumford et al., 1997; Uddin, 2021), which explained that people with high cognitive flexibility tend to be more flexible in perceiving the task or problem and more accessible to find divergent solutions to solve the task. On the other hand, the current research also found that control negatively predicts teacher innovative behavior. This finding contradicts the previous research (Aston-Jones & Cohen, 2005), which explained that people who believe they have the capability and control to surmount difficult situations are more likely to perform innovative behavior in their work. The possible explanation for the negative relationship between control and teacher innovative behavior is the role of other control-related factors. People with high control only sometimes exhibit innovative behavior because it also depends on their overconfidence and feeling of superiority that occurs as the result of control. People who have overconfidence and a superiority complex are inclined to believe they can overcome any situation without having to put more effort into developing new strategies as their solutions (Li et al., 2017; Z. Li & Zhang, 2022; Wong et al., 2017). However, future

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research still needs to explore the empirical effect of overconfidence and feelings of superiority to innovative behavior. Regarding the demographic factors, only curriculum change is significantly related to teachers' innovative behavior. According to previous research, teachers who have experienced curriculum changes in school will already have a script for the situation and what innovation strategies should be used to deal with these changes (Thurlings et al., 2015).

Further, the study's second aim was to explore the moderating role of teacher self-efficacy on the link between dimensions of cognitive flexibility and teacher innovative behavior. The result shows that teacher self-efficacy only positively moderates the link between the alternative dimension of cognitive flexibility and teacher innovative behavior. Specifically, when teachers have more teacher self-efficacy, alternative dimensions of cognitive flexibility are more likely to predict teacher innovative behavior. On the other hand, no interaction effect was found between teacher self-efficacy and the control dimension of cognitive flexibility. This finding was in line with previous research, which highlighted that teacher innovative behavior may be considered risky, as it implies uncertainty, the risk of failure, and colleague criticism (Klaeijsen et al., 2018; Runhaar et al., 2016). Thus, teacher self-efficacy is required because teachers' ability to generate alternative ways of thinking and divergent new solutions for one situation is not necessarily enough to encourage teachers to perform innovative behavior and overcome risk (Laureiro-Martínez & Brusoni, 2018; Nemeržitski et al., 2013; Runhaar et al., 2016). On the other hand, control might not be related to the risks that arise from innovation, such as alternatives. The control dimension of cognitive flexibility is more about the teacher's ability to perceive that difficult situations are still within their control and will always be able to be overcome (Kalia et al., 2019; Krems, 2014; Laureiro-Martínez & Brusoni, 2018). This ability might be viewed as less risky than the demand for teachers to think of alternative ideas and strategies to implement them; the role of teacher self-efficacy becomes less significant.

This research has several important implications, both theoretically and practically. Firstly, the findings enrich the foundational literature explaining the relationship between cognitive flexibility, teacher innovative behavior, and teacher self-efficacy. The results of this study also indicate that each dimension of cognitive flexibility may have different directions and types of relationships with teacher innovative behavior. Therefore, it is important to consider cognitive flexibility not only as a general construct but also as a multidimensional construct consisting of an individual's tendency to perceive internal control and the tendency to generate alternative solutions for one situation or problem. Secondly, this study also broadens the explanation that teacher innovative behavior is a complex behavior that can be elucidated not only through thinking style or cognitive style but also through self-efficacy in actualizing the outcomes of these thinking styles. Thirdly, this finding suggests that government and policymakers should consider several methods to improve teachers' cognitive flexibility and teacher self-efficacy so that teachers' innovative behavior will also increase. Not only focusing on external factors such as an environment that supports innovation and a supportive organizational climate but the government and policymakers also need to consider internal factors that the teachers themselves can develop to encourage the emergence of innovative behavior, especially in teaching.

Conclusion

The current study shows that cognitive flexibility is a significant predictor of teacher innovative behavior. Specifically, only the alternative dimension of cognitive flexibility is significant as a positive predictor for teacher innovative behavior, while the control

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dimension negatively predicts teacher innovative behavior. The possible explanations for this contradictory result could be overconfidence and a superiority complex, as both concepts are rarely discussed in terms of teacher innovative behavior. Therefore, this study serves as a good starting point, providing novelty and a foundation for further research to explore the role of the control dimension. Moreover, the relationship between the alternative dimension and teacher innovative behavior is stronger for teachers with high levels of self-efficacy. In other words, teacher self-efficacy plays a significant role as a moderator in the relationship between the alternative dimension of cognitive flexibility and teacher innovative behavior. In conclusion, this study provides a deeper understanding of the formation of teacher innovative behavior and the specific role of different dimensions of cognitive flexibility on teacher innovative behavior.

Recommendation

Based on the result of this study, the following recommendations are offered: (a) Future research is highly recommended to investigate further about the interaction of predictors for teacher innovative behavior (b) Teachers should exercise their cognitive flexibility and teacher self-efficacy to improve teacher innovative behavior because cognitive flexibility and their sense of efficacy are crucial factors for innovative behavior (c) The policymakers should take into account about various competence, such as cognitive style and sense of efficacy, for teachers to adapt with the changes in the education system.

References

Algharaibeh, S. A. S. (2020). Cognitive flexibility as a predictor of subjective vitality among university students. *Cypriot Journal of Educational Sciences*, 15(5), 923–936. https://doi.org/10.18844/CJES.V15I5.5122

Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10(1), 123–167

Ananiadoui, K., & Claro, M. (2009). *21st century skills and competences for new millennium learners in OECD countries* .OECD.

Anderson, N., De Dreu, C. K. W., & Nijstad, B. A. (2004). The routinization of innovation research: a constructively critical review of the state-of-the-science. *Journal of Organizational Behavior*, 25(2), 147–173.

Aston-Jones, G., & Cohen, J. D. (2005). An integrative theory of locus coeruleus-norepinephrine function: adaptive gain and optimal performance. *Annu. Rev. Neurosci*., 28, 403–45

Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, 66, 101635

Balkar, B. (2020). The relationships between organizational climate, innovative behavior and job performance of teachers. *International Online Journal of Educational Sciences*, 7(2). https://doi.org/10.15345/iojes.2015.02.007

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122.

Baskaran, K., & Rajarathinam, M. (2018). Innovative teaching practices in educational institutions (ITPEI). *International Journal of Educational Sciences*, 20(1–3), 72–76. DOI: 10.31901/24566322.2018/20.1-3.09

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E-ISSN: 2442-7667
pp. 314-324
Email: jklppm@undikma.ac.id

Bednall, T. C., E. Rafferty, A., Shipton, H., Sanders, K., & J. Jackson, C. (2018). Innovative behaviour: how much transformational leadership do you need? *British Journal of Management*, 29(4), 796–816. https://doi.org/10.1111/1467-8551.12275

Braem, S., & Egner, T. (2018). Getting a Grip on Cognitive Flexibility. *Current Directions in Psychological Science*, 27(6), 470–476. https://doi.org/10.1177/0963721418787475

Canas, J. J., Fajardo, I., & Salmeron, L. (2006). Cognitive flexibility. *International Encyclopedia of Ergonomics and Human Factors*, 1(3), 297–301.

Canas, J., Quesada, J., Antolí, A., & Fajardo, I. (2003). Cognitive flexibility and adaptability to environmental changes in dynamic complex problem-solving tasks. *Ergonomics*, 46(5), 482–501. DOI: 10.1080/0014013031000061640

Catio, M. (2019). Analyzing the competency of principals using the framework of the wales national standard for head teacher in boosting teacher's innovative behavior. *International Journal of Managerial Studies and Research*, 7(2), 1–6.

Chung, J. J., Heakes, M., & Kaufman, E. A. (2023). The role of cognitive flexibility in self-injurious thoughts and behaviors: A systematic review. *Clinical Psychology: Science and Practice*. https://doi.org/10.1037/cps0000163

Dennis, J. P., & Vander Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive Therapy and Research*, 34, 241–253. https://doi.org/10.1007/s10608-009-9276-4

Devloo, T., Anseel, F., De Beuckelaer, A., & Salanova, M. (2015). Keep the fire burning: Reciprocal gains of basic need satisfaction, intrinsic motivation and innovative work behaviour. *European Journal of Work and Organizational Psychology*, 24(4), 491–504. https://doi.org/10.1080/1359432X.2014.931326

Dorenbosch, L., Engen, M. L. van, & Verhagen, M. (2005). On-the-job Innovation: The Impact of Job Design and Human Resource Management through Production Ownership. *Creativity and Innovation Management*, 14(2), 129–141. https://doi.org/10.1111/J.1476-8691.2005.00333.X

Geisinger, K. F. (2016). 21st century skills: What are they and how do we assess them? *Applied Measurement in Education*, 29(4), 245–249.

Hashim, N. H., Yaakob, M. F. M., Yusof, M. R., & Ibrahim, M. Y. (2019). Innovative behavior among teachers: Empirical evidence from high-performance schools. *International Journal of Innovative Technology and Exploring Engineering*, 8(10), 1395–1399.

Hidayat, R., & Patras, Y. E. (2022). The Effect of Principals' Leadership and Learning Organization on Teachers' Innovative Work Behavior During the COVID-19 Pandemic. *TADRIS: Jurnal Keguruan Dan Ilmu Tarbiyah*, 7(1), 161–175.

Hsu, M. L., & Chen, F. H. (2017). The cross-level mediating effect of psychological capital on the organizational innovation climate–employee innovative behavior relationship. *The Journal of Creative Behavior*, 51(2), 128-139.

Janssen, O. (2005). The joint impact of perceived influence and supervisor supportiveness on employee innovative behaviour. *Journal of Occupational and Organizational Psychology*, 78(4), 573–579. https://doi.org/10.1348/096317905X25823

Jeong, I., Gong, Y., & Ju, S. (2016). Relationships among incremental belief, cognitive flexibility, and innovative behavior. *Academy of Management Proceedings*, 2016(1), 15902.

Kalia, V., Fuesting, M., & Cody, M. (2019). Perseverance in solving Sudoku: role of grit and cognitive flexibility in problem solving. *Journal of Cognitive Psychology*, 31(3), 370–378. https://doi.org/10.1080/20445911.2019.1604527

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E-ISSN: 2442-7667
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Email: jklppm@undikma.ac.id

Klaeijsen, A., Vermeulen, M., & Martens, R. (2018). Teachers' innovative behaviour: The importance of basic psychological need satisfaction, intrinsic motivation, and occupational self-efficacy. *Scandinavian Journal of Educational Research*, 62(5), 769–782.

Krems, J. F. (2014). *Cognitive flexibility and complex problem solving. In Complex problem solving* (pp. 201–218). Psychology Press.

Kwon, K., & Kim, T. (2020). An integrative literature review of employee engagement and innovative behavior: Revisiting the JD-R model. *Human Resource Management Review*, 30(2), https://doi.org/10.1016/j.hrmr.2019.100704

Laureiro-Martínez, D., Brusoni, S., & Zollo, M. (2009). Cognitive flexibility in decision-making: A neurological model of learning and change. *CROMA-Center for Research in Organization and Management-Bocconi University*, 1, 1–43.

Li, M., Petruzzi, N. C., & Zhang, J. (2017). Overconfident competing newsvendors. *Management Science*, 63(8), 2637–2646. https://doi.org/10.1287/mnsc.2016.2469

Li, Z., & Zhang, Y. (2022). CEO Overconfidence and Corporate Innovation Outcomes: Evidence From China. *Frontiers in Psychology*, 13. https://doi.org/10.3389/fpsyg.2022.760102

Liu, S., Lu, J., & Yin, H. (2022). Can professional learning communities promote teacher innovation? A multilevel moderated mediation analysis. *Teaching and Teacher Education*, 109, 103571.

Messmann, G., & Mulder, R. H. (2012). Development of a measurement instrument for innovative work behaviour as a dynamic and context-bound construct. *Human Resource Development International*, 15(1), 43–59. https://doi.org/10.1080/13678868.2011.646894

Messmann, G., & Mulder, R. H. (2015). Reflection as a facilitator of teachers' innovative work behaviour. *International Journal of Training and Development*, 19(2), 125–137. https://doi.org/10.1111/ijtd.12052

Messmann, G., Mulder, R. H., & Palonen, T. (2018). Vocational education teachers' personal network at school as a resource for innovative work behaviour. *Journal of Workplace Learning*, 30(3), 174–185. https://doi.org/10.1108/JWL-08-2017-0069

Messmann, G., Stoffers, J., Van der Heijden, B., & Mulder, R. H. (2017). Joint effects of job demands and job resources on vocational teachers' innovative work behavior. *Personnel Review*, 46(8), 1948-1961.

Milfayetty, S. (2017). Innovation in Teaching and Learning Through Creative Art Model. European *Journal of Social Science Education and Research*. https://doi.org/10.26417/ejser.v10i2.p119-12

Ministry of Education, Culture, Research, and Technology. (2023). *Kurikulum Merdeka*. Retrived from https://kurikulum.kemdikbud.go.id/kurikulum-merdeka/

Mumford, M. D., Baughman, W. A., Maher, M. A., Costanza, D. P., & Supinski, E. P. (1997). Process-based measures of creative problem-solving skills: IV. *Category combination. Creativity Research Journal*, 10(1), 59–71. https://doi.org/10.1207/s15326934crj1001_7

Nemeržitski, S., Loogma, K., Heinla, E., & Eisenschmidt, E. (2013). Constructing model of teachers innovative behaviour in school environment. *In Teachers and Teaching: Theory and Practice* (Vol. 19, Issue 4, pp. 398–418). https://doi.org/10.1080/13540602.2013.770230

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Newell, A., Shaw, J. C., & Simon, H. A. (1962). *The processes of creative thinking. In Contemporary Approaches to Creative Thinking*, 1958, University of Colorado, CO, US; This paper was presented at the aforementioned symposium.. Atherton Press.

Pyhältö, K., Pietarinen, J., & Soini, T. (2012). Do comprehensive school teachers perceive themselves as active professional agents in school reforms? *Journal of Educational Change*, 13(1), 95–116. https://doi.org/10.1007/s10833-011-9171-0

Runhaar, P., Bednall, T., Sanders, K., & Yang, H. (2016). Promoting VET teachers' innovative behaviour: exploring the roles of task interdependence, learning goal orientation and occupational self-efficacy. *Journal of Vocational Education & Training*, 68(4), 436–452. https://doi.org/10.1080/13636820.2016.1231215

Scott, S. G., & Bruce, R. A. (1994). Determinants of Innovative Behavior: A Path Model of Individual Innovation in the Workplace. *In Source: The Academy of Management Journal* (Vol. 37, Issue 3). https://about.jstor.org/terms

Indrasari, S. Y. (n.d.). *The Cognitive Flexibility Inventory: Indonesian Version.* (in press).

Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a Model of Explaining Teachers' Innovative Behavior: A Literature Review. *Review of Educational Research*, 85(3), 430–471. https://doi.org/10.3102/0034654314557949

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education*, 17(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Uddin, L. Q. (2021). Cognitive and behavioural flexibility: neural mechanisms and clinical considerations. *Nature Research*, 22(3), 167-179. https://doi.org/10.1038/s41583-021-00428-w

Putri, V. H. (2022). *Peran Efikasi Diri Guru dan Kreativitas Guru*. Universitas Indonesia.

Vermeulen, M., Kreijns, K., & Evers, A. T. (2022). Transformational leadership, leader–member exchange and school learning climate: Impact on teachers' innovative behaviour in the Netherlands. *Educational Management Administration & Leadership*, 50(3), 491–510. https://doi.org/10.1177/1741143220932582

Wong, Y.-J., Lee, C.-Y., & Chang, S.-C. (2017). CEO overconfidence and ambidextrous innovation. *Journal of Leadership & Organizational Studies*, 24(3), 414–430.

Yu, H., Liu, P., Huang, X., & Cao, Y. (2021). Teacher online informal learning as a means to innovative teaching during home quarantine in the COVID-19 pandemic. *Frontiers in Psychology*, 12, 596582.

Zhou, J., & Shalley, C. E. (2003). Research on employee creativity: A critical review and directions for future research. *Research in Personnel and Human Resources Management*, 165–217. https://doi.org/10.1016/S0742-7301(03)22004-1

Zuo, B., Wen, F., Wang, M., & Wang, Y. (2019). The mediating role of cognitive flexibility in the influence of counter-stereotypes on creativity. *Frontiers in Psychology*, 10, 105. https://doi.org/10.3389/fpsyg.2019.00105