Analyzing the effect of knowledge management and teaching creativity on innovative work behavior: The organizational empowerment perspective

Robertus M. B. Gunawan[a] and W. Widodo[b*]

[a]*Pelita Harapan University, Jakarta, Indonesia*
[b]*Faculty of Education and Social Sciences, Indraprasta University, Jakarta, Indonesia*

C H R O N I C L E	A B S T R A C T
	This study analyzes the effect of organizational empowerment on innovative work behavior (IWB) mediated by knowledge management and teaching creativities. A questionnaire collected the research data. The sample of this research includes 386 teachers selected by accidental sampling. Data analysis uses path analysis supported by descriptive statistics and correlational. The results show that organizational empowerment had a positive and significant effect on IWB, directly and indirectly, mediating by knowledge management and teaching creativity. Thus, the teacher's IWB can be improved through organizational empowerment, knowledge management, and teaching creativity. A fit research model about the effect of organizational empowerment on IWB mediating by knowledge management and teaching creativity was found. This model can adopt as a reference by researchers and practitioners in developing IWB models in the future and multiple organizations context.

1. Introduction

The recent innovation existence is more important and crucial. Innovation has become a significant force of competition at the global, regional, domestic, organizational, group, and individual levels. For example, during the Covid-19 pandemic, innovation was needed for the medical community to find drugs, vaccines, and business practitioners to overcome the crisis that occurred due to the Covid-19 pandemic. In the education sector, education practitioners, especially teachers, are also busy looking for alternative solutions to effective online innovative learning models. This reality shows that innovation has a strategic position in the lives of individuals, groups, and organizations. Several studies also revealed that innovation is vital for the organization, effectiveness, and success (Yuan & Woodman, 2010; Anderson, Potočnik, & Zhou, 2014). Innovation strategy has determined an organization's effectiveness in managing its new product development processes is its openness to different types of knowledge sources (Gambardella & Panico, 2014; Laursen & Salter, 2014). In a particular context, innovation is reflected in innovative behavior or IWB affects job involvement (Hanif & Bukhari, 2015), organizational citizenship behavior, e-government (Hwang & Choi, 2017), and performance (Schuh, et al., 2018; Rizki, Parashakti, & Saragih (2019). Moreover, Damanpour and Schneider (2008) argue that an individual employee's IWB plays an essential role in contributing to the overall organizations' innovation. De Jong and Hartog (2008) also state that IWB is aligned with the idea generation, and requires behaviors to provide the ideas that ultimately achieve improvement in business performance (Dzulkifli & Md Noor, 2012). IWB is related to different phases of the innovation process; it focuses on something new (Kanter, 1988) and the development of useful ideas and implementation of those ideas into improved or new products or services (Shanker et al., 2017). IWB refers to individual behavior that aims to reach the stage of introduction or attempt to introduce, group or organization – ideas, processes, products or new and useful procedures (de Jong & Hartog, 2008). Moreover, IWB reflects a multiple-stage process in

* Corresponding author.

E-mail address: widmag@gmail.com (W. Widodo)

which an individual recognizes a problem for which she or he generates new (novel or adopted) ideas and solutions works to promote and build support for them, and produces an applicable prototype or model for the use and benefit of the organization or parts within it (Carmeli, Meitar, & Weisberg, 2006). IWB can measure through five indicators: opportunity exploration, generativity, informative investigation, championing, and application (Kleysen & Street, 2001). Based on studies in multiple countries, industrial, occupational sectors, and organizations, IWB, among others, affected organizational empowerment, knowledge management, and teaching creativity.

2. Literature Review and Hypothesis Development

2.1. Organizational Empowerment and IWB

Every employee, including a teacher in the school organization context, needs organizational empowerment through all organization member's activities. Hence, issues about organizational empowerment until now keep it interesting among scholars, researchers, and practitioners. Several scholars give various definitions of empowerment based on their perspective. For example, Rue, Byars and Ibrahim (2016) state that empowerment relates to decentralization, which involves giving subordinates substantial authority to make decisions. Meanwhile, Newstrom (2015) argues that empowerment refers to any process that provides greater autonomy to employees through relevant information and control over factors affecting job performance. From the psychological perspective, Robbins and Judge (2015) argue that empowerment is employees' belief in the degree to which they affect their work environment, their competence, the meaningfulness of their job, and their perceived autonomy in their work. In level the organizations, organizational empowerment is about organizational policies, practices, and structures that provide employees with greater freedom and discretion to make their own decisions and influence their work (Mills & Ungson, 2003). Organizational empowerment can measure through four indicators, namely: building a relationship, build communication, involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011). If in good condition, these indicators can increase IWB manifested in opportunity exploration, generativity, informative investigation, championing, and application (Kleysen & Street, 2001). Several studies carried out by Alkhodary (2016), Abukhait, Bani-Melhem, and Zeffane (2019), and Khan et al. (2019) also revealed that organizational empowerment influences IWB. Based on the statements and studies above, the first hypothesis in this study is:

H_1: Organizational empowerment has a direct effect on IWB.

2.2. Knowledge Management and IWB

Knowledge management has become a critical issue in today's highly competitive, uncertain, and rapidly changing organizations, including educational organizations. According to Palacios *et al.* (2008), knowledge management is a management tool characterized by a set of principles and a series of practices and techniques through which the principles are introduced, creating, converting, disseminate and utilizing knowledge. Knowledge management also refers to a knowledge process comprising knowledge creation, sharing, acquisition, transfer, and application with infrastructures, skills, and top management support that encourage and enhance knowledge management processes (Gold, & Malhotra, 2001; Lee & Choi, 2003). Davenport and Horton (2007) state that knowledge management is not concerned with data or process, or exploiting knowledge assets; it is the manipulation and control of what gets to count as knowledge. While Gloet and Terziovski (2004) defined knowledge management as the formalization of and access to experience, knowledge, and expertise that creates new capabilities, enables superior performance, encourages innovation, and enhances customer value. Knowledge management concerned with storing and sharing the wisdom, understanding, and expertise accumulated in an organization about its processes, techniques, and operations (Armstrong, 2009), and making sure that knowledge from employees, teams, and units in an organization is capture, remembered, stored, and shared with others (Jackson, Schuler, & Werner, 2009). Knowledge management involves recognizing, generating, documenting, distributing, and transferring among persons useful information, know-how, and expertise to improve organizational effectiveness (Slocum, Jackson, & Hellriegel, 2008), hence requires developing a system for collecting and maintaining data, information, experiences, and lessons, as well as improving communication (Rooney, Hearn, & Ninan, 2006). Moreover, knowledge management is a process of enhancing company performance by using tools, processes, systems, and cultures to improve the creation, sharing, and use of knowledge (Noe et al., 2015). In a broader context, knowledge management is a core field of society based on information and knowledge resources, and the library has emerged as a significant part of this field (Asogwa, 2012). Therefore, knowledge management is very crucial for school organizations, especially for building IWB. Davenport (1997) identifies ten principles of knowledge in which he emphasizes the people, processes, and conceptual aspects of knowledge management. People related to the implementation of knowledge management are inherent in one's need to be an organizational knowledge manager, the use of knowledge and sharing is not easy or natural, and knowledge management requires human and technological hybrid solutions. Process related to the urgency that knowledge management involves enhancing or transforming existing knowledge work processes, giving someone access to knowledge is only the beginning of knowledge management, and knowledge management is never finished because knowledge is continually changing and developing. Conceptually related to the fact that knowledge management is very expensive, knowledge management requires a knowledge contract and inherent recognition of intellectual property the thorny concept. These principles, if can realize in practice, potentially stimulates IWB among members of the organization, including teachers as part of the school members. The recent studies concluded that knowledge management influences IWB (e.g., Obeidat et al., 2016; Schweisfurth & Raasch, 2018; Camisón-Haba, Clemente-Almendros, & Gonzalez-Cruz, 2019). Based on argues and studies above, the second hypothesis in this study is:

H_2: Knowledge management has a direct effect on IWB.

2.3. Teaching Creativity and IWB

Like IWB, creativity also consistently becomes a crucial issue among scholars, researchers, and practitioners. Beghetto and Kaufman (2007) define creativity in several ways, such as big-c versus little-c creativity. Creativity also reflects the ability to reformulate what

we know, generally in light of new information, and develop a new concept or an original idea (Carter, 2014) or something that arises from the conscious human intervention (Ashton, 2015). Bessant and Tidd (2018) identify several kinds of creativities, which are: 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. Studies from Baum and Newbill (2010), Dobbins (2009), and Rinkevich (2011) highlighted that creativity is essential to teaching creatively. Meanwhile, the other studies revealed that teaching creativity creates more learning opportunities for students (Dobbins, 2009), makes learning more interesting and meaningful (e.g., Rinkevich, 2011; Schacter, Thum, & Zifkin, 2006). Teaching creative may offer students more learning opportunities for students to develop creativity than routine teaching (Simonton, 2013). According to Cheng (2018), creativity in teaching refers to the creativity required or demonstrated in teaching. In this study, teaching creativity is the teacher's ability to reformulate new or original ideas related to methods, approaches, technics, style, and material of teaching tasks. Teaching creativity can measure through five characteristics abilities of creativity: fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). In practice, if these indicators at a high level can develop IWB. As has been shown in several studies, for example, Slåtten (2014) and Neto, Filipe, and Caleiro (2019) that teaching creativity influences IWB. Based on the statements and studies above, the third hypothesis in this study is:

H3: Teaching creativity has a direct effect on IWB.

2.4. Organizational Empowerment and Teaching Creativity

Organizational empowerment also affects teaching creativity. In practice, the indicators of organizational empowerment, such as, building a relationship, build communication, involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011) need by teachers in teaching tasks, so if in good condition and conducive for teachers can increase teaching creativity manifested in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). Several studies carried out by Al Rahamnah (2016), Aslam (2017), Knezovic and Musrati (2018), Rafiee and Khorasgani (2018) also shows that organizational empowerment affects teaching creativity. Based on the argues and studies above, the fourth hypothesis in this study is:

H4: Organizational empowerment has a direct effect on teaching creativity.

2.5. Knowledge Management and Teaching Creativity

Knowledge management is crucial for organizations and individuals as members of organizations so that its existence, besides influencing IWB, also affect teaching creativity in the context of school organization. The principles of knowledge management, such as the implementation of knowledge management require human and technological hybrid solutions, knowledge management enhances or transforms existing knowledge work processes, and knowledge management requires knowledge contracts (Davenport (1997) if well maintained and managed can stimulate teaching creativity manifested in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). The research result by scholars also approved that knowledge management affects teaching creativity (e.g., Rafiee & Khorasgani, 2018; Mazhar & Akhtar, 2018). Referred to the argues and studies above, so the fifth hypothesis in this study is:

H5: Knowledge management has a direct effect on teaching creativity.

2.6. Organizational Empowerment and Knowledge Management

Knowledge management, influences IWB and is also affected by organizational empowerment. When the indicators of organizational empowerment, such as building a relationship, build communication, involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011) in good condition, can enhance knowledge management emphasizes the people, processes, and conceptual aspects. For example, people related to the implementation that knowledge management requires human and technological hybrid solutions, process related to the urgency that knowledge management involves enhancing or transforming existing knowledge work processes, and conceptually related to the fact that knowledge management is costly and requires a knowledge contract (Davenport (1997). The research result conducted by Asgari et al. (2013), Almaghaslah and Alsaglab (2016), and Abualoush et al. (2018) also indicate that organizational empowerment influences knowledge management. Based on the argues and studies above, the sixth hypothesis in this study is:

H6: Organizational empowerment has a direct effect on knowledge management.

2.7. Organizational Empowerment and IWB Mediating by Teaching Creativity

From the various results of the research above, teaching creativity besides influencing IWB also mediates the organizational empowerment effect on IWB. In practice, when the indicators of organizational empowerment, for example, building a relationship, build communication, involved in problem-solving (Dubois & Miley, 2011) in right conditions for a long time, can stimulate teaching creativity among teachers, particularly, fluency, flexibility, elaboration, and redefinition (Guilford, 1950). It then positively impacts teacher's IWB reflected in opportunity exploration, generativity, informative investigation, championing, and application (Kleysen & Street, 2001). The studies by Zhang and Bartol (2010), Slatten, Svensson, and Svari (2011), and Sun et al. (2012) show that organizational empowerment influences teaching creativity, while the investigation by Neto, Filipe, and Caleiro (2019) proves that teaching creativity affects IWB. Based on argues and studies above, the seventh hypothesis in this study is:

H_7: Organizational empowerment has an indirect effect on IWB mediating by teaching creativity.

2.8. Knowledge Management and IWB Mediating by Teaching Creativity

Teaching creativity also mediates the knowledge management effect on IWB. Indicators of knowledge management, particularly, implementation of knowledge management require human and technological hybrid solutions and enhances or transforms existing knowledge work processes (Davenport (1997) well maintained and managed and they can stimulate teaching creativity manifested in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). It then contributes to enhancing IWB reflected in opportunity exploration, generativity, informative investigation, championing, and application (Kleysen & Street, 2001). The research results conducted by Giampaoli and Ciambotti (2016) and Lee (2018) show that knowledge management influences teaching creativity, while the studies from Obeidat et al. (2016) and Schweisfurth and Raasch (2018) proved that knowledge management affects IWB. Based on argues and studies above, the eighth hypothesis in this study is:

H_8: Knowledge management has an indirect effect on IWB mediating by teaching creativity.

2.9. Organizational Empowerment and IWB Mediating by Knowledge Management

According to studies above, knowledge management mediates organizational empowerment effect on IWB. In practice, the indicators of organizational empowerment, for example, building communication and involved in problem-solving (Dubois & Miley, 2011) in the right conditions for a long time, can realize knowledge management practice, especially transforms existing knowledge work processes (Davenport (1997). It then implicates to IWB reflected in opportunity exploration, generativity, informative investigation, championing, and application (Kleysen & Street, 2001). The investigation by Salajeghe et al. (2013) and Abualoush et al. (2018) showed that organizational empowerment influences knowledge management, while the studies from Obeidat et al. (2016) and Schweisfurth and Raasch (2018) revealed that knowledge management affects IWB. Based on argues and studies above, the ninth hypothesis in this study is:

H_9: Organizational empowerment has an indirect effect on IWB mediating by knowledge management.

2.10. Organizational Empowerment and Teaching Creativity Mediating by Knowledge Management

Knowledge management also mediates organizational empowerment effect on teaching creativity. The indicators of organizational empowerment are building a relationship, communication, involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011) if sufficient conditions and well maintained for a long time can realize for stimulating knowledge management who reflected in the implementation of knowledge management require human and technological hybrid solutions, knowledge management enhances or transforms existing knowledge work processes, and knowledge management requires knowledge contracts (Davenport, 1997) and then implicates to the teaching creativity reflected in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950). The scholar's studies by Salajeghe, Rashidi and Moosaei (2013) and Abualoush et al. (2018) showed that organizational empowerment influences knowledge management, while the studies conducted by Ahmed et al. (2016) and Shahraki and Khestegar (2016) indicate that knowledge management affects teaching creativity. Based on argues and studies above, the tenth hypothesis in this study is:

H_{10}: *Organizational empowerment* has an indirect effect on teaching creativity mediating by *knowledge management.*

3. Research Methods

This research conducted with uses a quantitative approach to the survey method conducted by a questionnaire in the form of a Likert scale with five alternative 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 organizational empowerment are building a relationship, build communication, involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011); indicators of knowledge management include need to be an organizational knowledge manager, knowledge and sharing is not easy or natural, requires human and technological hybrid solutions, involves enhancing or transforming existing knowledge work processes, giving someone access to knowledge, continually changing and developing, very expensive, requires a knowledge contract, and recognition of intellectual property (Davenport,1997); indicators of teaching creativity are fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950); and indicators of IWB consist of opportunity exploration, generativity, informative investigation, championing, and application (Kleysen dan Street, 2001). The organizational empowerment consisted of 10 items with alpha coefficients = .936, knowledge management questionnaire consisting of 10 items with alpha coefficients = .938, teaching creativity questionnaire consisting of 10 items with alpha coefficients = .936, and IWB consists of 10 items with alpha coefficients = .911. The participants of research were 386 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, 2017).
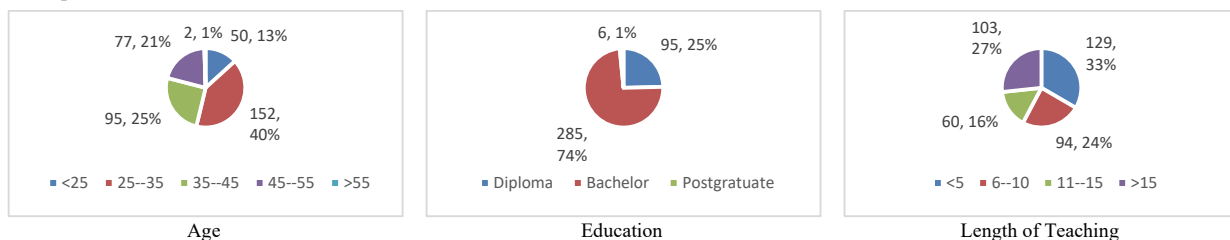

Fig. 1. Personal characteristics of the participants

In our survey, 35.75% of the participants were male, and 64.25% were female. Besides, 75.90% of them were married. Fig. 1 shows the other personal characteristics of the participants. Data analysis was performed using path analysis supporting by descriptive statistics and correlation. Path analysis was performed by Lisrel 8.80, while descriptive and correlation analyzes by SPSS.

4. Result and Discussion

4.1. Result

The results of the descriptive statistical analysis for the four research variables are presented in Table 1. The mean values of the four variables from the lowest to the highest in succession are knowledge management (40.92), IWB (42.65), teaching creativity (42.89), and organizational empowerment (43.33). Meanwhile, the standard deviation values of the five variables from the lowest to the highest in succession are organizational empowerment (3.404), knowledge management (4.367), teaching creativity (4.837), and IWB (5.275). 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 in this study had a mutual relationship with each other.

Table 1
Descriptive Statistics and Correlation Matrics

Variables	Mean	Std. Deviation	1	2	3	4
Organizational Empowerment	43.33	3.404	1.00			
Knowledge Management	40.92	4.367	.509*	1.00		
Teaching Creativity	42.89	4.837	.464*	.551*	1.00	
IWB	42.65	5.275	.383*	.406*	.380*	1.00

* = p < .01

The results of hypothesis testing with path analysis of the effects of organizational empowerment, knowledge management, and teaching creativity on IWB are summarized in Table 2 and visualized in Fig. 2 and Fig. 3.

Table 2
Summary of Path Coefficients and T-values/Z-values

Hypothesis	Path Coefficients	T-Value/Z-Value	Hypothesis Testing
H_1: Organizational Empowerment (X) on IWB (Y_3)	.20**	3.62	Supported
H_2: Knowledge Management (Y_1) on IWB (Y_3)	.21**	3.69	Supported
H_3: Teaching Creativity (Y_2) on IWB (Y_3)	.17**	3.11	Supported
H_4: Organizational Empowerment (X) on Teaching Creativity (Y_2)	.25**	5.18	Supported
H_5: Knowledge Management (Y_1) on Teaching Creativity (Y_2)	.42**	8.88	Supported
H_6: Organizational Empowerment (X) on Knowledge Management (Y_1)	.51**	11.59	Supported
H_7: Organizational Empowerment (X) on IWB (Y_3) mediating by Teaching Creativity (Y_2)	.05**	6.37	Supported
H_8: Knowledge Management (Y_1) on IWB (Y_3) mediating by Teaching Creativity (Y_2)	.07**	6.88	Supported
H_9: Organizational Empowerment (X) on IWB (Y_3) mediating by Knowledge Management (Y_1)	.11**	7.00	Supported
H_{10}: Organizational Empowerment (X) on Teaching Creativity (Y_2) mediating by Knowledge Management (Y_1)	.21**	8.68	Supported

** p < .01

The hypothesis testing results show that all hypotheses were supported (t-value/Z-value > t-table/Z-table at $\alpha = .01$). Therefore the finding of this study indicate that organizational empowerment, knowledge management, and teaching creativity had significant direct effects on IWB; organizational empowerment and knowledge management had significant direct effects on teaching creativity, and then organizational empowerment had a significant direct effect on knowledge management. Besides, the finding of this study also showed organizational empowerment and knowledge management had significant indirect effects on IWB mediating by teaching creativity, organizational empowerment had a significant indirect effect on IWB mediating by knowledge management, and organizational empowerment had a significant indirect effect on teaching creativity mediating by knowledge management. For a direct effect that has the greatest path coefficient is the direct effect of organizational empowerment on knowledge management (.51), while for the indirect effect that has the largest path coefficient is the indirect effect of organizational empowerment on teaching creativity mediating by knowledge management (.21). This condition indicates that organizational empowerment has a dominant impact on knowledge management, and then it makes a significant contribution to teaching creativity. As present in Fig. 2 and Fig. 3, the test results of the model with the goodness of fit statistics show the significant with Chi-Square = 0.000, df = 0, p-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.
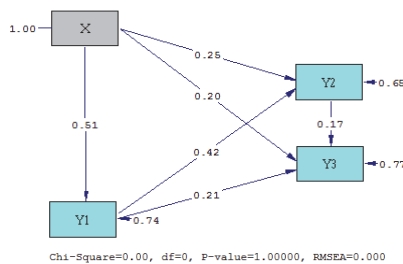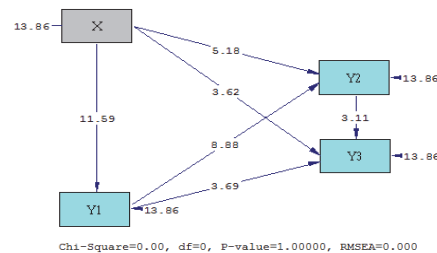

Fig. 2. Path Coefficients

Fig. 3. T Values

624

4.2. Discussion

The study has revealed that organizational empowerment could influence on knowledge management, teaching creativity, and IWB. Organizational empowerment also indicated a dominant direct effect on knowledge management, and adequate indirect effect on teaching creativity mediating by knowledge management. The results of the fittest of the structural model show the significance (fit). The finding shows vitality organizational empowerment for knowledge management, teaching creativity, and IWB. Therefore, the school principals need to develop organizational empowerment optimally through various approaches, methods, and strategic. For example, the school principals urgently need to produce a strategic policy that is feasible for developing school organizational empowerment. This evidence is consistent with other results of the research to develop this research hypothesis. However, in reality, organizational empowerment has a multiplier effects on various aspects of school organization, including teacher's knowledge management, teaching creativity, and IWB. The indicators or organizational empowerment, such as building a relationship and communication, are involved in problem-solving, and reflects the attitudes and values of the profession (Dubois & Miley, 2011) and if they are in good condition for a long time, they can increase teacher's knowledge management, teaching creativity, and IWB. For example, the teacher's teaching creativity, as reflected in fluency, flexibility, originality, elaboration, and redefinition (Guilford, 1950), increases. Studies conducted by Aslam (2017) and Knezovic and Musrati (2018) show that organizational empowerment positively impacts teaching creativity. Better organizational empowerment can also encourage IWB teachers to grow more optimally, reflecting opportunity exploration, generativity, informative investigation, championing, and application. The results of the research of Cekmecelioğlu and Ozbağ (2014), Abdullatif, Johari, and Adnan (2016), and Khan et al. (2019) also proved that organizational empowerment was positively correlated with IWB. Besides, conducive organizational empowerment can also encourage the growth of knowledge management in the schools, which is marked by the realization of the principles of knowledge management, such as the implementation of knowledge management which requires human and technological hybrid solutions, knowledge management enhances or transforms existing knowledge work processes, and knowledge management requires knowledge contracts. The scholars, including Almaghaslah and Alsaglab (2016) and Abualoush et al. (2018), also concluded that organizational empowerment influences knowledge management. This study also found that knowledge management and teaching creativity plays a significant role as a mediator of organizational empowerment on the teacher's IWB. This finding reveals empirical facts that knowledge management and teaching creativity need to be considered in the context of increasing teacher's IWB through organizational empowerment. Therefore, a kind of effort to enhance teacher's IWB will do better if it improves organizational empowerment with support increasing knowledge management and teaching creativity. In this case, knowledge management should be a priority since it has a dominant indirect effect on IWB than teaching creativity. It implies that the school principals need to develop knowledge management priority through various strategic policies. Finally, this study confirms the results of several such studies and finds a new empirical model of organizational empowerment on teachers' IWB mediating by knowledge management and teaching creativity based on the data from teacher's mathematics and natural science in Indonesia. This model can discuss or adopt as a conceptual IWB model by researchers and practitioners in the future and various contexts of organizations.

5. Conclusion

This study found that organizational empowerment influences knowledge management, teaching creativity, and IWB. Besides, it also proves that organizational empowerment had a significant effect on teacher's IWB, either directly or indirectly, mediating by knowledge management and teaching creativity. Organizational empowerment has a dominant direct effect on knowledge management and an adequate indirect effect on teaching creativity mediating by knowledge management. This evidence introduces a new research model about the effect of organizational empowerment on teacher's IWB, mediating by knowledge management and teaching creativity with the research field of the teacher's mathematics and natural science in Indonesia. The model can discuss or adopt as a conceptual IWB model by researchers and practitioners in the future and various contexts of organizations. For the researcher, the model can be developed by adding new indicators or an analytical approach, such as SEM. For practitioners, especially in an educational organization, the model can enhance the teacher's IWB based on organizational empowerment, knowledge management, and teaching creativity.

References

Abdullatif, T. N., Johari, H., & Adnan, Z. (2016). The impact of psychological empowerment on innovative work behavior moderating by quality culture. *European Journal of Business and Management, 8*(17), 126-131.

Abualoush, S. H., Obeidat, A. M., Tarhini, A., Masa'deh, R., & Al-Badi, A. (2018). The role of employees' empowerment as an intermediary variable between knowledge management and information systems on employees' performance. *VINE Journal of Information and Knowledge Management Systems, 48*(2), 217-237.

Abukhait, R. M., Bani-Melhem, S., & Zeffane, R. (2018). Empowerment, knowledge sharing and innovative behaviours: Exploring gender differences. *International Journal of Innovation Management,* 1-28.

Ahmed, F., Shahzad, K., Aslam, H., Bajwa, S. U., & Bahoo, R. (2016). The role of collaborative culture in knowledge sharing and creativity among employees. *Pakistan Journal of Commerce and Social Sciences, 10*(2), 335-358.

Al Rahamnah, B. A. (2016). The impact of empowerment in enhancing creativity among employees: An empirical investigation. *International Journal of Academic Research in Business and Social Sciences, 6*(3), 158-165.

Alkhodary, D. (2016). The relationship between employees' empowerment and innovative work behavior. *International Journal of Managerial Studies and Research (IJMSR), 4*(2), 1-15.

Almaghaslah, A. M., & Alsaglab, W. (2016). Empowering knowledge management by human engagement. *Abu Dhabi International Petroleum Exhibition & Conference,* 1-9.

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, *40*(5), 1297–1333.

Armstrong, M. (2009). *A handbook of human resource management practice.* London: Kogan Page.

Asgari N., Kheirandish, M., Gholami, M., & Moazzam, M. K. (2013). The effect of psychological empowerment on enhancing the potential of knowledge creation in the organization. *Journal of Information Technology Management, 5*(1) 107-126.

Ashton, K. (2015). How to fly a horse: The secret history of creation, invention, and discovery. New York: Randon House LLC.

Aslam, S. (2017). Psychological empowerment on creativity among employees of it sector: the mediating role of creative process engagement and intrinsic motivation. *Canadian Social Science, 13*(6), 11-34.

Asogwa, B. E. (2012). Knowledge management in academic libraries: Librarians in the 21st century. *Journal of Knowledge Management Practice, 13*(2), 1-9.

Baum, L.M., & Newbill, P.L. (2010). Instructional design as critical and creative thinking: A journey through a Jamestown-Era native American village. *TechTrends*, 54, 27–37.

Beghetto, R.A., & Kaufman, J.C. (2007). Toward a broader conception of creativity: A case for "mini-c" creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1, 73–79.

Bessant, J. R., & Tidd, J. (2018). *Innovation and entrepreneurship.* Chichester: Wiley.

Camisón-Haba, S., Clemente-Almendros, J.A., Gonzalez-Cruz, T. (2019). How technology-based firms become also highly innovative firms? The role of knowledge, technological and managerial capabilities, and entrepreneurs' background. *Journal of Innovation & Knowledge,* 4, 162–170

Carmeli, A., Meitar, R., & Weisberg, J. (2006). Self-leadership skills and innovative behavior at work. *International Journal of Manpower*, *27*(1), 75-90.

Carter, R. (2014). *The human brain book*. London: DK.

Cekmecelioğlu, H. G., & Ozbağ, G. K. (2014). Linking psychological empowerment, individual creativity and firm Innovativeness: A research on Turkish manufacturing industry. *Business Management Dynamics, 3*(10), 01-13.

Cheng, V.M.Y. (2018). Consensual assessment of creativity in teaching design by supportive peers — its validity, practicality, and benefit. *The Journal of Creative Behavior*, *52*(1), 5–20.

Damanpour, F., & Schneider, M. (2008). Characteristics of innovation and innovation adoption in public organizations: Assessing the role of managers. *Journal of public administration research and theory*, *19*(3), 495-522.

Davenport, E. and Horton, K. (2007). Where and when was knowledge managed?: Exploring multiple versions of KM in organizations. *Information Science and Knowledge Management*, 12, 171-185.

Davenport, T. H. (1997). Ten principles of knowledge management and four case studies. *Knowledge and Process Management*, *4*(3), 187-208.

De Jong, J. P. J., & Den Hartog, D. N. (2008). *Innovative work behavior: Measurement and validation. EIM Business and Policy Research*. Working paper. The Netherlands, University of Amsterdam. Amsterdam Business School.

Dobbins, K. (2009). Teacher creativity within the current education system: A case study of the perceptions of primary teachers. *Education, 37*, 95–104.

DuBois, B.L., & Miley, K. K. (2011). *Social work: An empowering profession.* 7th Edition. Boston: Pearson.

Dzulkifli, B. A., & Md Noor, H. (2012). Assessing the organizational climate towards developing innovative work behavior: A literature review. *3rd International Conference on Business And Economic Research, P*roceeding 12-13 March 2012. Golden Flower Hotel, Bandung, Indonesia.

Gambardella, A., & Panico, C. (2014). On the management of open innovation. *Research Policy, 43*, 903–913.

Giampaoli, D., & Ciambotti, M. (2016). The vital role of knowledge management and creativity for performance. *Conference: 17th European Conference on Knowledge Management, At Belfast,* 1-10.

Gloet, M., & Terziovski, M. (2004), "Exploring the relationship between knowledge management practices and innovation performance", *Journal of Manufacturing Technology Management*, *15*(5), 402-409.

Gold, A. H., & Malhotra, A. H. S. (2001). Knowledge management: An organizational capabilities perspective. *Journal of Management Information Systems*, *18*(1), 185-214.

Guilford, J.P. (1950). *Creativity*. New York: American Psychologist.

Hanif, A., & Bukhari, I. (2015). Relationship between innovative work behavior and job involvement among the employees of telecom sector. *Pakistan Journal of Social and Clinical Psychology, 13*(2), 23-29.

Hwang, K., & Choi, M. (2017). Effects of innovation-supportive culture and organizational citizenship behavior on e-government information system security stemming from mimetic isomorphism. *Journal International Elsevier Government Information Quarterly,* 1-16.

Jackson, S.E., Shculer, R.S., & Werner, S. (2009). *Managing human resource. 10th edition.* United States of America: South-Western Cengage Learning.

Kanter, R. M. (1988). When a thousand flowers bloom: structural, collective, and social conditions for innovation in organisations. In B. M. Staw & L. L. Cummings (Red.), *Research in Organizational Behavior* (10, 93–131). Greenwich: J.A.I. Press.

Khan, A.M., Jantan, A.H.B., Salleh, L.B. M., Mansor, Z.D., Islam,M.A., & Hosen, S. (2019). The impact of transformational leadership effects on innovative work behavior by the moderating role of psychological empowerment. *Journal of Reviews on Global Economics, 8,* 925-938.

Kleysen, R. F., & Street, C.T. (2001). Toward a multi-dimensional measure of individual innovative behavior. *Journal of Intelectual Capital, 2*(3), 284-296.

Knezovic, E., & Musrati, M. A. (2018). Empowering leadership, psychological empowerment and employees' creativity: A gender perspective. *International Journal of Innovation, Creativity and Change, 4*(2), 51-72.

Laursen, K., & Salter, A.J. (2014). The paradox of openness: Appropriability, external search, and collaboration. *Res. Policy*, 43, 867–878

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems, 20*(1), 179-228.

Lee, J. (2018). The effects of knowledge sharing on individual creativity in higher education institutions: Socio-technical view. *Administrative Sciences, 8*(21), 1-16.

Mazhar, S., & Akhtar, M. S. (2018). Relationship between knowledge management and creativity among teachers of public and private sector universities at Lahore. *Bulletin of Education and Research, 40*(2), 91-104.

Mills, P. K., & Ungson, G. R. (2003). Reassessing the limits of structural empowerment: Organizational constitution and trust as controls. *Academy of Management Review*, *28*(1), 143-153.

Neto, J.C., Filipe, J.A., & Caleiro, A.B. (2019). Creativity and innovation: A contribution of behavioral economics. *International Journal of Innovation Studies*, *3*, 12-21.

Newstrom, J.W. (2015). *Organizational behavior: Human behavior at work.* New York: McGraw-Hill Companies, Inc.

Noe, R.A., Hollenbeck, J.R., Gerhart, B., & Wright, P.M. (2015). *Human resource management. Global edition.* New York: McGraw-Hill.

Obeidat, B. Y., Al-Suradi, M. M., Masa'deh, R., & Tarhini, A. (2016). The impact of knowledge management on innovation: An empirical study on Jordanian consultancy firms. *Management Research Review*, *39*(10), 1214-1238.

Palacios, D., Gil, I. and Garrigos, F. (2008), The impact of knowledge management on innovation and entrepreneurship in the biotechnology and telecommunications industries. *Small Business Economics*, *32*(3), 291-301.

Rafiee, M., & Khorasgani, N. S. (2018). Relationship between knowledge management and psychological empowerment with teachers' creativity. *International Journal of Management, Innovation & Entrepreneurial Research, 4*(1), 05-11.

Rinkevich, J.L. (2011). Creative teaching: Why it matters and where to begin. *The Clearing House*, *84*, 219–223.

Rizki, M., Parashakti, R.D., & Saragih, L. (2019). The effect of transformational leadership and organizational culture towards employees' innovative behavior and performance. *International Journal of Economics and Business Administration, 7*(1)*, 227-239.

Robbins, S. P., & Judge, T. A. (2015). *Organizational behavior.* New Jersey: Pearson Education, Inc.

Rooney, D., Hearn, G., & Ninan (Eds). (2006). *Handbook on the knowledge economy*. Northampton, MA: Edward Elgar Publishing.

Rue, L.W., Byars, L.L., & Ibrahim, N.A. (2016). *Human resource management, 11th ed.,* New York: McGraw-Hill Education.

Salajeghe, S., Rashidi, R. P., & Moosaei, M. (2013). Analysis of psychological empowerment and its relationship with knowledge management (The case of jam petrochemical company locatedin south pars area, Iran). *International Business Management, 7*(6), 463-469.

Schacter, J., Thum, Y.M., & Zifkin, D. (2006). How much does creative teaching enhance elementary school students' achievement? *Journal of Creative Behavior*, *40*, 47–72.

Schuh, S. C., Zhang, X., Morgeson, F.P., Tian, P., & van Dick, R. (2018). Are you really doing good things in your boss's eyes? Interactive effects of employee innovative work behavior and leader-member exchange on supervisory performance ratings. *Hum Resour Manage. 57*(39), 7–409.

Schweisfurth, T.G., & Raasch, C. (2018). Absorptive capacity for need knowledge: Antecedents and effects for employee innovativeness. *Research Policy, 47*, 687–699*.

Shahraki, M., & Khestegar, A. (2016). The relationship between knowledge management with creativity and innovation. *The Social Science, 11*(6), 922-927.

Shanker, R., Bhanugopan, R., van der Heijden, B.I.J.M., & Farrell, M. (2017). Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior. *Journal of Vocational Behavior*, 100, 67–77.

Simonton, D.K. (2013). A potential user's personal perspective. In M.B. Gregerson, H.T. Snyder & J.C. Kaufman (Eds.), Teaching creatively and teaching creativity. Chapter 14 (185–190). New York: Springer Science

Slåtten, T., Svensson, G., & Svaeri, S. (2011). Empowering leadership and the influence of a humorous work climate on service employees' creativity and innovative behaviour in frontline service jobs. *International Journal of Quality and Service Sciences, 3*(3), 267-284.

Slocum, J.W., Jackson, S.E., & Hellriegel, D. (2008). *Competency-based management*. Mason: Thomson Higher Education.

Sun, L. Y., Zhang, Z., Qi, J., & Chen, Z. X. (2012). Empowerment and creativity: A cross-level investigation. *The Leadership Quarterly, 23,* 55-65.

Widodo. (2017). *Metodologi penelitian populer & praktis*. Jakarta: RajaGrafindo Persada.

Yuan, F., & Woodman, R. W. (2010). Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal*, *53*(2), 323–342.

Zhang, X & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal, 53*(1), 107-128.