Asian Journal of Management Entrepreneurship and Social Science
ISSN: 2808 7399
https://ajmesc.com/index.php/ajmesc Volume 03 Issue 03

The Modelling of ICT Literacy, Work Engagement, and Personal Knowledge Management to Enhance Teacher Creativity

Lisa Chandrasari Desianti*[1], Soewarto Hardhienata[2], Sri Setyaningsih[3]

[1,2,3] Department of Education Management, Postgraduate School, Pakuan University

Coresponding author-email: [1]1chandrasari.lisa@gmail.com

abstract

This quantitative research is a continuation of the qualitative research conducted on 205 private high school teachers on how teacher creativity can be influenced and enhanced. The purpose of this quantitative research is to build a model and prove whether ICT literacy, work engagement, and personal knowledge management can influence directly or indirectly increasing teacher creativity. The sampling technique uses a proportional random sampling method and determines the amount of sample based on the Taro Yamane formula. The data was collected using a questionnaire by distributing instruments to teachers in 20 private high school schools in Bogor city with data analysis techniques using Partial Least Square–Structural Equation Modeling (PLS–SEM) with the help using SmartPLS 3.0 software. The results of this study indicate that: (1) the whole variable exogenous ICT literacy, work engagement, and personal knowledge management has a positive effect on teacher creativity, either directly or indirectly; (2) work engagement and personal knowledge management have a significant effect on teacher creativity, while ICT literacy will have a significant effect on teacher creativity if through the intervening variables work engagement and/or through personal knowledge management; (3) ICT literacy has a direct and significant positive effect on work engagement and personal knowledge management; (4) the intervening variables of personal knowledge management and work engagement are proven to be able to play a full mediation role in increasing the influence of ICT literacy on creativity.

Keywords: ICT Literacy, Work Engagement, Personal Knowledge Management, Teacher Creativity.

1. INTRODUCTİON

In carrying out the "Merdeka Belajar" curriculum policy, one of the episodes implemented was the Mover Teacher Program. Through this program, teachers are expected to be able to create a learning process that encourages students' competence in critical thinking, collaboration, and creativity. The orientation of the mover teacher program is to increase the competence of teachers to become learning leaders so that the role of the teacher as a facilitator and inspirer is truly realized in the learning process in the classroom. Mover teachers are a solution to answer the global challenges of education that can create true learning leaders so that they have an impact on student learning outcomes (Desianti, et al., 2022; Sibagariang, et al., 2021; Wijaya, et al., 2020; Saleh, et al., 2020). To answer all these challenges teachers are required to work more creatively.

Based on qualitative research conducted by Desianti, et al. (2022) in Bogor City towards private high school teachers concluded that there are still problems with the creative behavior of teachers which is an indication of the ability creativity teachers based on daily behavior, namely: (1) 26.7% of teachers are not brave in making decisions independently when they have to choose several existing solutions, and teachers are not prepared to accept risks for decisions taken; (2) 43.3% of teachers are less interested and interested in complex matters; (3) 43.4% of teachers are less open in accepting new ideas, thoughts, and experiences from other people; (4) 23.3% of teachers are less intelligent in finding opportunities and solutions to problems they face; (5) 23.4% of teachers lack effort and persistence in finding solutions and developing new ideas. Based on these findings, exploratory research was carried out on private high school principals to find out the phenomena that occur in everyday teachers which are thought to affect their creative abilities.

Furthermore, the results of exploratory research by Desianti, et al. (2022) through interviews with 11 private high school principals in the city of Bogor obtained 10 dominant variables that affect teachers' creative abilities, namely: (1) ICT Literacy, (2) Work Engagement, (3) Interpersonal Relationship, (4) Personal Knowledge Management; (5) Team Work, (6) Knowledge Improvement, (7) Professional Commitment, (8) Work Motivation (9) Reward and Compensation, and (10) Adaptability. In this follow-up research, through a focus discussion group (FDG) with informants, three exogenous variables were determined which were the most dominant and had the most role in influencing and increasing teacher creativity, namely: (1) ICT Literacy, because nowadays in the digital era technological advances information very rapidly and during the pandemic it was evident that

students and teachers needed ICT facilities to support the learning process so that ICT literacy competence became an obligation for teachers to improve; (2) Work Engagement, from interviews with informants explained that the main obstacle hindering teacher creativity was the lack of willingness on the part of teachers to find solutions, investigate possibilities for new ways to teach, and open insights by learning new knowledge, especially in the field of information technology. This lack of interest is due to the teacher's low sense of engagement with his work; (3) Personal Knowledge Management is still a weakness of teachers and school organizations today. There have been many trainings for teachers but they are less able to develop and utilize the new knowledge they have acquired. Managing, storing, and utilizing new knowledge in new solutions and creativity still needs to be investigated. Hence, the quantitative research aims to build a model of teacher creativity and prove whether these variables have a positive and significant effect on increasing teacher creativity, both directly and indirectly. The results of this study will be used by teachers and school principals or foundation owners for decision-making and developing what steps can be taken next to optimize teachers' creative abilities through the design of effective teacher training and work programs.

2. LİTERATURE REVİEW

2.1 Creative Behavior

Creativity can be measured in various ways, namely (1) through the creative products it produces; (2) through individual behavior in solving problems, being interested in new and complex things, and being open in accepting new ideas (creative behavior); (3) through ideas and ideas that emerge from his thoughts (creative thinking) (Adair, 2007; Amabile & Pratt, M. G. (2016; Runco, 2014). The main variable in creativity is the mindset towards thinking in finding new, surprising, and interesting ways, and this mindset can be taught to students (Kaufman & Sternberg, 2019). Creative people are not only intellectually capable of generating new ideas, but they are also people who have a creative attitude toward life and approach problems in depth. They are motivated to solve problems in creative ways.

James (2015), in his research, explained that creativity involves the process of observing, seeing possibilities, finding problems, taking risks, making mistakes, failing, then thinking, rethinking, trying new things, solving problems, and sharing processes and products. 3 main interrelated elements are the key variables of individual and organizational creativity, namely: (1) skills that are relevant to the work domain, including technical skills, talents, and special knowledge; (2) Processes that are relevant to wider creativity, such as

tolerance for ambiguity and courage to face risks; (3) Motivation, consisting of intrinsic and extrinsic motivation, that is, intrinsic motivation comes from internal motivation, such as a sense of fun or meaning; whereas extrinsic motivation is encouragement that comes from outside oneself (Amabile & Pratt, 2016).

The characteristics of creative people are (1) being able to define problems, (2) taking risks, (3) selling ideas that others may not accept at first, (4) surviving in the face of obstacles and (5) re-examining their creative process. In addition, creativity is influenced by several aspects, namely: (1) Intellectual ability; (2) Knowledge; (3) Thinking style; (4) Personality; (5) Motivation, especially intrinsic motivation; and (6) Environment (Sternberg, 2006). Furthermore, a person's creativity will appear if a person is accustomed to creative behaviors, where the characteristics of someone who is accustomed to creative behavior are: (1) Having confidence and independent habits in solving the problems they face (Colquitt et al., 2019; Gibson et al. al., 2012); (2) Accustomed to observing and studying complex things (Kreitner and Kinicki, 2010; James, M.A, 2015); (3) Openness to other people's ideas, experiences, and new things (Colquitt, et al., 2019; Kinicki and Fugate, 2016); (4) Have intelligent, rational, divergent and logical thinking patterns and cognitive abilities (Colquitt, et al., 2019; Sternberg & Grigorenko, 2001; Mc Shane & Von Glinow, 2018; Kinicki and Fugate, 2016; Sawyer, 2012) ; (5) Persistence in trying to find solutions to problems and develop new ideas (Colquitt et al., 2019; James, M.A, 2015; Sawyer, 2012); and (6) Originality in producing something new and different (Hennessey and Amabile, 2010; Sternberg, 2006; Loveless, 2006; Sawyer, 2012).

2.2 ICT literacy

Technological literacy is a person's ability to use computers, computer programs, and other applications related to computers. Similarly, the definition of information and communication technology literacy focuses on the ability to collect, organize, analyze, and report information using technology. Furthermore, technological literacy is also an individual's ability to adopt, adapt, create, and evaluate technology to positively affect life, community, and environment (Hansen, 2003; Davies 2011).

ICT literacy in educational institutions has an important role in introducing and developing new and interesting learning concepts in the form of new ideas, such as e-learning, collaborative learning, learning portals, and action learning. The benefits of technology in the value dimension of the learning process in schools are to: (1) trigger student creativity, (2) support students to develop and explore ideas, (3) allow students to

create digital products, (4) scaffold students' creative thinking and production process, (5) increasing creative collaboration between students, and (6) facilitating the evaluation of student creativity results (Bereczki & Karpati, 2021; Park, et al., 2020; Duriawati, et al., 2020).

The urgency of using ICT literacy standards in the learning process in schools is due to: (1) Technological literacy allows people to develop knowledge and skills about human innovation in action; (2) The Technology Content Standard sets out the requirements for technological literacy for all students, from kindergarten to grade 12; (3) Technology Content Standards provide a qualitative expectation of excellence for all students; (4) Effective democracy depends on all citizens participating in the decision-making process. Because so many decisions involve technological issues, all citizens must be technologically literate; (5) A technologically literate population can assist the nation in maintaining and increasing economic progress. Furthermore, technology literacy standards are useful for ensuring that all students receive effective education about technology by establishing consistent content for technology studies and the need to further develop technology standards, such as assessment standards, program standards, and teacher development of professional standards. With ICT literacy, teachers are asked to evaluate their assessment techniques and are encouraged to develop new curricula based on Technological Content Standards (Standards for Technological Literacy, 2000; Setiawan et al., 2020; Prasolova, 2007).

Furthermore, technological literacy is a person's ability to use technology to access, evaluate, integrate, create, and communicate information effectively for: (1) improve the learning process through problem-solving and critical thinking; (2) improve the learning process through problem-solving and critical thinking; (3) critically evaluate the accuracy and information obtained and integrate it in the synthesis of new information; (4) be responsible for using technology in accessing, managing, integrating, evaluating, creating and communicating information; (5) assess, acquire, and communicate information in a fully digital environment; (6) able to use media, such as the internet to access and interact with information; and (7) able to access and use technology responsibly and effectively (Keengwe & Onchwari, 2020).

2.3 Personal Knowledge Management

Knowledge management in schools can be conceptualized as strategic management activities that support teachers to gather information or utilize organizational knowledge

resources to carry out their teaching and duties effectively. These knowledge management practices can help capture, encode and distribute knowledge in schools through the application of information and communication technology or human interaction so that it can be shared by all teachers. Therefore, knowledge management provides schools with adequate channels of communication for teachers to discuss school issues with management. Teachers can reflect on and review feedback from others and develop further strategies and plans to improve school-based policies and teaching effectiveness. School policies can be adjusted by paying attention to teacher feedback to maximize student learning (Cheng, 2015).

In an organization, employees learn two types of basic knowledge, both of which have important implications for the organization, namely explicit and tacit knowledge. Explicit knowledge is a type of information that comes from someone that is relatively easy to communicate. Such as knowledge that is teaching material or information taught by the company during training sessions. This type of knowledge is easy to talk about/communicate and write down in manual form to convey to others. On the other hand, tacit knowledge is knowledge that usually can only be known or learned by someone through experience. This knowledge is not easy to communicate but can be an important aspect to learn in organizations (Colquitt, et al. (2019).

Explicit knowledge and tacit knowledge each require different forms of management. Tacit knowledge lies at the heart of organizations, is highly personal, and is difficult to use effectively. It requires a special management approach and a thorough understanding of psychology. Tacit management focuses on understanding the dynamics and psychology of personal knowledge. Organizations need to have a method to exploit tacit knowledge into explicit knowledge because not all employees are willing to share their tacit knowledge. One of them is the method of conversation and informal meetings as a reliable way to exploit tacit knowledge (Sallis & Jones, 2012).

Furthermore, Sallis & Jones (2012) explained that knowledge management in educational institutions is structured to provide teachers and teaching staff working in the field of education with insight into how to manage knowledge and to prepare practical tools so that they can adapt the knowledge management process in their organization to meet their need knowledge development challenges. Knowledge management is the main thing as a survival strategy for organizations even as a means of strengthening organizational performance. Understanding how knowledge is created and managed in educational

organizations is critical, as it educates institutions to realize the potential for knowledge creation and the power of knowledge sharing to enhance learning.

The results of the study prove that an increase in the amount of information is not immediately changed by knowledge. This process requires management and skills to accumulate information through everyday experiences and behaviors that are systematically constructed by a person. This competency is referred to as Personal Knowledge Management (Wright, 2005). Personal knowledge management is linked to an effective learning process. It refers to a collection of processes that need to be carried out by individuals to collect, classify, store, search, retrieve knowledge, and share knowledge in one's daily activities. In educational organizations, teachers need to acquire knowledge by applying the principles of Personal Knowledge Management to support their teaching and learning activities. Teachers as teachers in schools are also required to master skills in knowledge management. Teachers who have high personal knowledge management will have higher competence in their tacit knowledge from various complex contexts. Improving teacher knowledge management competence is an effective way to support the process of converting information into pedagogical knowledge. Research shows that there is a relationship between personal knowledge management competence and learning effectiveness, student learning processes, increasing the capacity of teacher work planning, and its contribution to teachers' cognitive abilities (Grundspenkis, 2007).

2.4 Work Engagement

Work engagement is a positive, satisfying state of mind for employees, and is an affective-motivational condition of work related to employee welfare. Work engagement is closely related to one's work motivation, and affects work endurance, energy, and the final result (Bakker, et al., 2014; Schaufeli and Bakker, 2010). Characteristics that appear when a person workers experience work engagement, namely: (1) Vigor or enthusiasm is a characteristic of someone who has a high level of energy, mental resilience at work, willingness to give effort at work, and persistence in working even in the face of difficulties; (2) Dedication is an individual attitude towards his work with a very strong attachment and experiencing a significant sense of enthusiasm, inspiration, pride, and challenge; (3) Absorption is a characteristic of individuals who are fully concentrated and very happy, immersed in their work, then feel time passing quickly and find it difficult to separate themselves from work (Schaufeli and Bakker, 2010).

Work engagement is a fundamental trait of one's personality. This view contrasts with those who view work engagement as a temporary state that fluctuates over time. The development of several subsequent studies has concluded that engagement is a stable personality trait that represents a person's tendency to live and work with enthusiasm (Macey & Schneider, 2008). In contrast to the definition of a trait, a large number of researchers point out that engagement is not a stable trait, but rather a momentary state of motivation that includes both psychological arousal and physical effort. Those who view engagement as a condition see it as the alignment of a person's cognitive, emotional, and physical resources in a focused effort to achieve organizational goals (Byrne, Z. S. (2015). It is further explained that the cognitive elements of engagement cannot be observed directly, but the level of engagement can be concluded by observing the behavioral energy that is brought into the work role. Employees who are physically engaged are engaged in their tasks, either alone or with others. They are cognitively alert, and they are emotionally connected to the work they are doing, and the other people they are collaborating with, even positive influence and emotional connection with one's work are identified as a passion; creating a passion for work (Whittington, et al., 2017).

The results of Colquitt research, et al. (2019) show that a person's work engagement can be interpreted as a high level of intensity and persistence to complete his work. Engagement employees fully invest themselves and their energies into their work. Outwardly, engaged employees put a lot of energy into their work, going out of their way to take the initiative and get the job done. Inside, engaged employees focus so much attention, are fully concentrated, absorbed in their work, and so interested in their tasks that they lose track of time. Furthermore, research results prove that an increase in work pressure (increased emphasis on engagement levels) to increase employee work engagement is very much needed and is one of the important things because it turns out that low levels of engagement can be transmitted from one employee to another so that it will affect organizational performance (O 'Boyle and Harter, 2013).

Employees who have work engagement will work all out. Further studies identified the components of employee engagement as consisting of 4 feelings, namely (1) Urgency; (2) Focus; (3) intensity; (4) Enthusiasm (Khan (2010). While important things contribute to the level of employee engagement at work, namely (1) positive or optimistic personality, (2) proactive personality, (3) awareness, (4) environmental characteristics, (5) job characteristics, (6) leadership, and (7) stressors. All of these things provide potential motivation for tasks to be completed at work. In addition, other things also motivate

employee engagement at the organizational level, namely (1) career opportunities; (2) performance management; (3) organizational reputation; (4) communication; and (5) acknowledgment (Merry, 2013).

3. RESEARCH METHOD

This research approach was carried out using a quantitative method, which began with the distribution of instruments to respondents to obtain empirical data used to measure the independent and dependent variables. Respondents to this study were 205 private high school teachers in Bogor City with permanent foundation teacher status from 20 schools. Teacher status is determined to obtain homogeneity accuracy in sample research. The sampling technique uses a proportional random sampling method and determines the amount of sample based on the Taro Yamane formula from a total population of 423 teachers from 45 private high schools in Bogor City.

The research instrument is measured using each indicator as presented in Table 1. The measurement scale is carried out using a behavior rating scale for the variables of teacher creativity (Y) and personal knowledge management (X2), while the work engagement variable (X3) was measured by a Likert scale. Furthermore, the ICT literacy variable (X1) was measured through testability in the form of multiple-choice questions. Furthermore, the data analysis technique uses the partial least squares – sequential equation modeling (PLS-SEM) method using the SmartPLS version 3.0 application. The following are the formative indicators used to measure each variable.

Table 1. Variables Measures

Variables	Measures Formative Indicators	Framework Theory
Creativity	Habit	Colquitt, J.A., LePine, J.A., Wesson, M.J. (2019); Mc. Shane, S.L. and Von Glinow, M.A. (2018); Fugate, M. and A. Kinicki. (2016); Runco, A.M. (2014); J.L. Gibson, J.M. Ivancevich, J.H. Donnely & R. Konopaske. (2012); Sawyer, R.K. (2012); Sallis, E. & Jones, G. (2012); Hennessey, B. A. & Amabile, T. M. (2010); Kreitner, R and Kinicki, A (2003); Kaufman, C.J
	Interest	
	Openness	
	Original	
	Persistent	
	Smart	

		and Sternberg, J.R. (2019); Glăveanu, V. P. (2013); James, M. A. (2015); Amabile, T. M. & Pratt, M. G. (2016); Sternberg, R. J. (2006); Tierney, P., & Farmer, S. M. (2011); Adair, John. (2007); Loveless, A. M. (2006); Sternberg, R. J., & Grigorenko, E. L. (2001)
ICT Literacy	Hardware Dimension	Bereczki, E.O., &Karpati, A. (2021); Keengwe, J. and Onchwari, G. (2020); Setiawan, I.A. (2018); Fugate, M. and A. Kinicki (2016); Syarifuddin (2014); Doyle, M. A. (2013); Hey, N. D., A. Lahad, Ab. Rahim N. (2012); Davies, R.S. (2011). Maryland State Department of Education. (2005); Mary, A.R. (2007); Hansen, J. W. (2003); Standards for Technological Literacy. (2000);
	Software Dimension Value Dimension	
Personal	Acquisition	Ta'amnha, M.A, Bwaliez, O.M., and Mahableh. I.K. (2021); Turner, P. (2020); Colquitt, J.A., LePine, J.A., Wesson, M.J. (2019); Whittington, J.Lee, Simone Meskelis, Enoch Asare, Sri Beldona. (2017); Fugate, M. and A. Kinicki. (2016); Byrne, Z. S. (2015); 'Boyle, E., and J. Harter. (2013); Schaufeli, W.B. and Bakker, A.B (2010); Macey, W. H. & Schneider, B. (2008);
Knowledge	Apply	
Manageme nt	Collect	
	Management	
	Save Share	
Work	Absorption	J.L. Gibson, J.M. Ivancevich, J.H. Donnely & R. Konopaske. (2012); Cheng Eric C.K. (2015); Cheng Eric C.K. (2015); Sallis , E. & Jones , G. (2012); Leung , C. H. (2010); Uriarte, Jr. FAR. (2008); Sheridan, William (2008); Grundspenkis. (2007); Dalkir, K. (2005); Wright, Kirby. (2005); Rastogi, P. N. (2000);
Engagemen t	Dedication	
	Passion Vigor	

Furthermore, the hypothesis that is built is as follows:

H1 = It is suspected that ICT Literacy has a direct positive effect on teacher creativity

H2 = It is suspected that ICT Literacy has a direct positive effect on personal knowledge management

H3 = It is suspected that ICT Literacy has a direct positive effect on work engagement

H4 = It is suspected that personal knowledge management has a direct positive effect on teacher creativity

H5 = It is suspected that work engagement has a direct positive effect on teacher creativity

H6 = It is suspected that the effect of ICT Literacy on teacher creativity increases after going through personal knowledge management

H7 = It is suspected that the effect of ICT Literacy on teacher creativity increases after going through work engagement

H8 = It is suspected that the total influence of ICT Literacy on teacher creativity increases after going through management personal knowledge and work engagement.

4. RESULT AND DISCUSION

41. Structural Model Estimation

Estimation of the structural model was determined based on FDG with informants, namely 11 private high school principals in the city of Bogor (Desianti, et al., 2022) namely, ICT literacy as an exogenous variable which is the main variable for teachers to improve their creative abilities; work engagement, and personal knowledge management as intervening variables are needed to support and enhance the role of ICT literacy on teacher creativity so that an estimate of the structural model is obtained as presented in Figure 1.

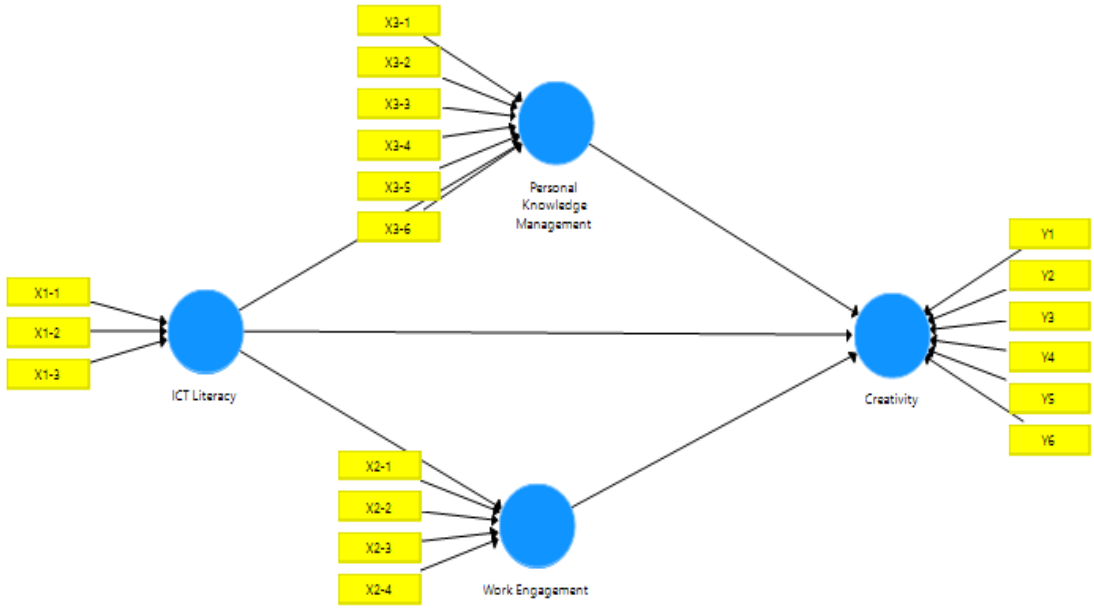

Figure 1. Structural Model Estimation with Formative Indicators

4.2 Measurement Model Analysis (Outer Model)

The convergent validity test for the outer model is carried out by examining the loading factor value on each manifest indicator which measures the indicators of each exogenous and endogenous variable so that the correlation between the two can be identified. This measure provides information on how much the manifest indicator is capable of measuring its indicators. The loading factor value > 0.7 is said to be ideal, meaning that the indicator is said to be valid in measuring the construct. In empirical data research or exploratory research, a loading factor value of > 0.5 is still acceptable for use as a measuring tool for indicators/dimensions of latent variables to be constructed (Chin, 1998). The following is the measurement of the outer model for formative indicators.

Asian Journal of Management Entrepreneurship and Social Science
ISSN: 2808 7399
https://ajmesc.com/index.php/ajmesc Volume 03 Issue 03

Table 2. Convergent Validity Test: Loading factors and Signification, and Multicollinearity test result

Variables	Indicators	Loading Factors	P-Value	Outer VIF
Creativity	Habit	0.704	0.000	
	Interest	0.869	0.000	1.718
	Openness	0.602	0.000	1.562
	Original	0.744	0.000	1.597
	Persistent	0.820	0.000	1.878
	Smart	0.465	0.000	2.131 1.297
ICT Literacy	Hardware Dimension	0.426	0.114	1.333
	Software Dimension	0.971	0.000	1.064
	Value Dimension	0.381	0.327	1.316
Personal Knowledge Management	Acquisition	0.708	0.000	
	Apply	0.713	0.000	1.619
	Collect	0.694	0.000	2.415
	Management	0.823	0.000	1.648
	Save	0.800	0.000	2.429
	Share	0.601	0.000	1.807 1.313
Work Engagement	Absorption	0.497	0.001	
	Dedication	0.528	0.001	1.040
	Passion	0.939	0.000	1.617
	Vigor	0.324	0.029	1.595 1.296

The results of convergent validity calculations show that a loading factor value below 0.5 is an indicator of intelligence in creativity, an indicator of hardware and values in ICT literacy, and an indicator of enthusiasm in work engagement. Based on Hair's explanation (2017), formative indicators that have convergent validity below 0.5 can be maintained if

they have significant weight factor values (p-values) and multicollinearity tests by examining the outer VIF (Variance Inflation Factor) value. If the outer VIF values are all below 3, then there is no multicollinear problem in the model. Table 2 above shows that the weight factor is not significant for hardware and value indicators, but the multicollinearity test results show the values of all variables below 3, meaning that there is no collinearity problem in the outer model. So that all indicators can be maintained including hardware dimensions and value dimensions.

4.3 Structural Model Analysis (Inner Model)

Test Multicollinearity for the inner model, we re-examine whether there are multicollinear problems between exogenous variables in the structural model construction in the regression model. The collinearity test is carried out using the VIF statistic which must be greater than 0.2 but less than 5. If the value obtained is less than 0.2 and/or greater than 5, then the exogenous construct variable must be considered to be eliminated or eliminated from the model structural or combined in one other construct (Hair, 2017). Following are the results of the VIF inner test.

Table 3. Inner VIF Value

Variables	Creativity	Personal KM	Work Engagement
ICT Lieraticy	1.190	1.000	1.000
Personal K. Management	1.369		
Work Engagement	1.523		

All results of the VIF inner test in Table 3 show a value above 0.2 and less than 5, meaning there is no problem with multicollinearity on models structural built so that model testing can proceed.

Furthermore, to see the quality of the model built, it is carried out inspection inner model by using the pls-algorithm calculation and the resulting model output is as presented in Figure 2 below.

Asian Journal of Management Entrepreneurship and Social Science
ISSN: 2808 7399
https://ajmesc.com/index.php/ajmesc Volume 03 Issue 03

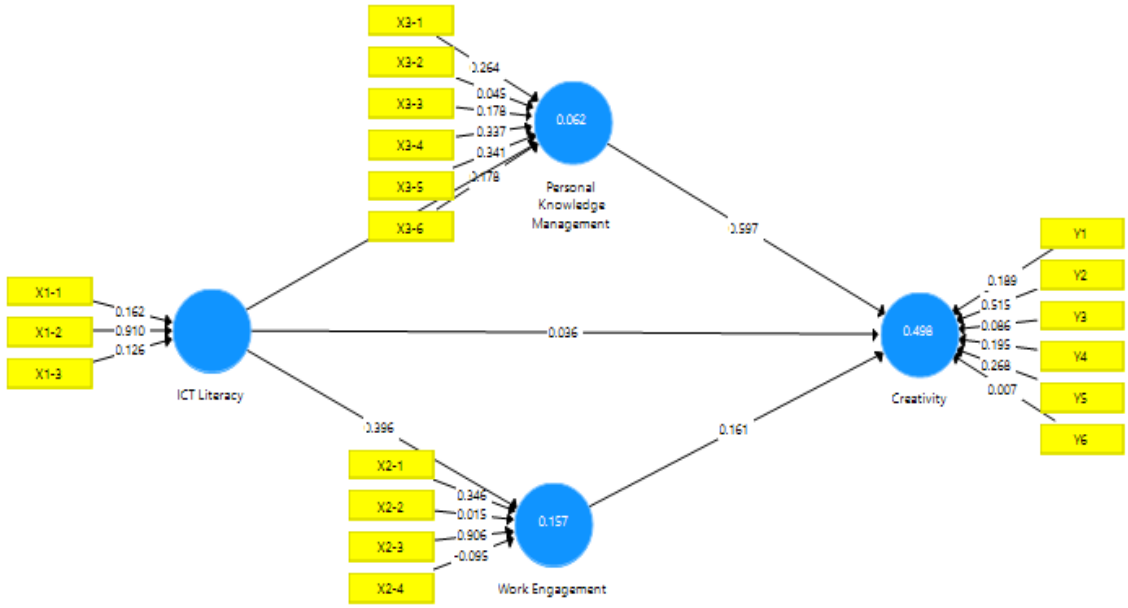

Figure 2. Creativity Inner Model with Formative Indicators

The magnitude of the path coefficient value of all exogenous variables in the structural model shows a value above 0 or shows a positive influence between exogenous variables on teacher creativity performance. This means that if the exogenous variable is ICT literacy, personal knowledge management, and increased work engagement will have a positive effect on teacher creativity. Based on the magnitude of the path coefficient value, it shows that the greatest influence comes from the personal knowledge management path variable (0.597- high), followed by work engagement (0.161-low), and ICT literacy (0.036 - very low). Likewise, the effect of ICT literacy on personal knowledge management and work engagement is positive, namely 0.249 and 0.396. This influence is included in the moderate category. The path coefficient value has a value range of -1 to +1. The path coefficient value that is close to +1 indicates a strong positive relationship, while a value close to -1 indicates a strong negative relationship. All path coefficient values in the inner model are shown in Table 4 below.

Table 4. Path Coefficient Inner Model Creativity

Direct effects	Creativity	Personal KM	Work Engagement
ICT Literacy	0.036	0.249	0.396
Personal KM	0.597		
Work Engagement	0.161		
Indirect effects			
ICT Literacy	0.213		
Total effects			
ICT Literacy	0.249	0.249	0.396
Personal KM	0.597		
Work Engagement	0.161		

The quality of the structural model built can also be seen from the magnitude of the coefficient of determination or R-square. In this model, the R-square value is 0.498, meaning that the effect is at a moderate level. This means that 49.8 percent of changes in teacher creativity are caused by the influence of ICT literacy, personal knowledge management, and work engagement, while the remaining 50.2 percent influenced by other variables outside this model.

Furthermore, the Goodness of fit (GOF) evaluation showed quite high results, namely the Normed Fit Index (NFI) value of 0.784 (close to 1) and the Standardized Root Mean Square Residual (SRMR) value of 0.08 (below 0.1). This means that there is a match between the observed variable correlations or relationships (Hu & Bentler, 1998; Desianti, 2021). While the results of evaluating the strength of the model are measured through predictive relevance (Q-square), which is a criterion that shows how good or good the value of the observations produced from this study is and how accurate the predictions of the model built are. Mark Observation is said to be good if it has a Q-square value greater than zero, meaning that it shows that exogenous variables have predictive relevance to the built endogenous variables (Hair, 2017). In this model, the Q-square value is 0.239 which means it is quite moderate. According to Chin (1998), Q-square has a value range of $0 < Q^2 < 1$, where closer to 1 means the model is better.

Size Effect (of-square) is an effective measure to measure how much influence exogenous latent variables have on endogenous variables at the structural level. In this model, the biggest influence is from the personal knowledge management variable, with an f-square value of 0.518 (big effect). Then followed by work engagement of 0.34 (moderate effect) and ICT literacy of 0.002 (very low effect). The criteria for the effect size value in Hair, et. al (2019) and Henseler (2009) is 0.02 has a small effect, between 0.15 and 0.35 has a moderate effect, and more than 0.35 has a large effect. All the above model quality assessments are displayed Table in the following.

Table 5. Inner Quality of Teacher Creativity Model

Variable	F square	R Square	Q Square	SRMR	NFI
Creativity	0.002	0.498	0.239	0.08	0.784
ICT Literacy					
Personal KM	0.518	0.062	0.032		
Work Engagement	0.034	0.157	0.033		

4.4 Hypothesis Test

Hypothesis testing on Smart PLS is done by running the bootstrapping menu, so the following results are obtained:

Direct Effects	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
ICT Literacy -> Creativity	0.036	0.030	0.105	0.345	0.730
ICT Literacy -> Personal KM	0.249	0.270	0.124	2.012	0.044
ICT Literacy -> Work Eng.	0.396	0.399	0.106	3.734	0.000
Personal KM -> Creativity	0.597	0.600	0.069	8.665	0.000
Work Engagement -> Creativity	0.161	0.185	0.083	1.961	0.050

Specific Indirect Effects					
ICT Literacy -> Personal KM-> Creativity	0.149	0.162	0.074	2.014	0.044
ICT Literacy -> Work Eng. -> Creativity_	0.064	0.070	0.035	2.846	0.045
Total Indirect Effects					
ICT Literacy -> Creativity	0.213	0.232	0.080	2.643	0.008
Total effects					
ICT Literacy -> Creativity	0.249	0.263	0.124	1.999	0.046
ICT Literacy -> Personal KM	0.249	0.270	0.124	2.012	0.044
ICT Literacy -> Work Eng.	0.396	0.399	0.106	3.734	0.000
Personal KM -> Creativity	0.597	0.600	0.069	8.665	0.000
Work Engagement -> Creativity	0.161	0.185	0.083	1.961	0.050

The results of the hypothesis test show that all paths of the teacher's creativity model are significant except for the direct path of ICT literacy on teacher creativity. However, through the mediation variables, work engagement and personal knowledge management, the influence of ICT literacy on teacher creativity becomes significant.

5. DISCUSSION

5.1 Effects of ICT Literacy

Creativity is a challenge for teachers to continue to be improved and developed. High creative teaching abilities will emerge in limited conditions such as those that occurred during the 2019-2022 pandemic. Teacher creativity is needed to develop learning methods and new resources that are integrated into teaching planning in the categories of (a) process (b), development of soft skills, (c) reason/thinking, and (d) use of technology (Ramírez et al., 2021). While other studies have found that proactive behavior and constructivist thinking are indicators of creative teachers, and one of the inspirations that encourage teacher creativity is a culture that values teacher expertise, collaboration, and unique curriculum delivery. These findings indicate that the teaching environment is a source of inspiration for fostering teacher creativity (Lawrence, 2016).

Based on surveys theoretical and ICT literacy research studies indicate that a person's ICT competence includes a person's ability to use computers, computer programs, and other applications related to computers, starting from the process of adopting, adapting, creating, and evaluating technology. This is useful to be able to save costs, increase productivity, and improve competitiveness, and quality of service within an organization. (Hansen, 2003; Davies 2011; Kinicki and Fugate, 2016; Keengwe & Onchwari, 2020; Bereczki & Karpati, 2021).

In this study, teachers' ICT literacy competence was quite high. Of a total of 41 valid multiple-choice items, the highest score is 39, the lowest score is 26, the range of the lowest and highest scores is 13, the average score is 32.8, the middle value is 33, and the score that occurs most often is 34. Respondents who managed to score an average of 114 respondents (55.6%) and respondents who scored below the average of 91 respondents (44.4%). Furthermore, in the assessment of ICT literacy convergent validity, the biggest dimension that influences and contributes greatly to the development variable ICT literacy is the software dimension, which is equal to 0.971, while the hardware and value dimensions are below 0.5. This is understandable, because teachers as users only use technology computer in the form of a software application, not as an ICT developer or developer.

During the Covid-19 pandemic, the role of ICT has become very important and most important. Learning activities cannot be carried out without the role of computer technology, so teacher competency in the ICT field is an unavoidable necessity. ICT literacy in education functions as a learning medium, introducing and developing new learning concepts that are more efficient and interesting, such as e-learning, collaborative learning, learning portals, and action learning (Bereczki and Karpati, 2021). Furthermore Artacho, et al. (2021), in his research proved that the level of teacher digital competence is influenced by age factors, teacher training, and the type of development of teacher digital competence in schools. Therefore there is a need for permanent training for teachers to update their knowledge according to current educational trends and challenges.

While Schiavio, et al. (2021) evaluated the learning process during the Covid-19 pandemic. Research results prove that the main role of using ICT for the success of the distance learning process requires mastery of ICT Literacy from both parties, namely teachers and students so that learning objectives are achieved. The availability and smoothness of digital facilities is often an obstacle and hinders the distance learning process, so an easy and effective solution is needed for students to continue learning if it means constrained digitally.

This study proves that mastery of ICT literacy for teachers has a positive effect on increasing creativity. Even though the model tested results in the effect of ICT literacy being low and insignificant, this effect can be increased through strengthening work engagement and teacher personal knowledge management. This proves that the work engagement and personal knowledge management variables play a full role (full mediation) in increasing the influence of ICT Literacy. The implication of this finding is that if teachers' ICT literacy is to be improved, it is necessary to strengthen personal knowledge management and teacher work engagement which will have an impact on teacher creativity.

These results are in accordance with research from: (1) Bereczki & Karpati (2021), their research proving that teachers who have expertise and achievements in the IT field are able to integrate ICT and their experience to bring out creativity; (2) Chang, et al. (2019), proves the creativity of the work design creative students in Taipei increases with the use of 3-dimensional computers (3D-CAD); (3) Khamchareon, et al. (2022), proving that students' creative problem-solving skills (CPSS) increase by utilizing digital media; (4) Porat, et al. (2018) proved that students' digital literacy competencies had a significant effect on students' ability to complete relevant tasks and increase their self-confidence; (5) Sinay, et al. (2018), proves that teachers can develop learning innovation and creativity for students through encouragement, teaching inquiry, and making the classroom a place for experimentation by utilizing digital literacy.

This study also proves that there is a positive and direct influence between ICT Literacy and personal knowledge management and between ICT literacy and work engagement. This indicates that if teacher ICT literacy is increased it will have an impact on teacher morale (vigor), dedication, teacher endurance (absorption), and love of work (passion). Likewise, if the teacher's ICT literacy is increased, it will add to the teacher's skills in managing the knowledge they have.

5.2 The Effects of Personal Knowledge Management

Based on theoretical reviews and personal knowledge management research studies, it is concluded that personal knowledge management activities include the process of gathering information carried out by a person, starting from the acquisition, classifying, storing, searching, retrieving, and sharing of knowledge (Grundspenkis, 2007); organize and integrate important information so that it becomes part of the personal knowledge base (Cheng, 2015); is management and skills in accumulating information obtained from experiences and everyday behavior (Wright, 2005). Furthermore, the personal knowledge

management process requires and involves cognitive thinking, metacognitive competence, information, social, and learning (Sheridan, 2008). Meanwhile Jarrahi and Eshraghi (2020) in their research explained the relationship between personal knowledge management and organizational knowledge management, namely personal knowledge management emphasizing the ways in which a person's knowledge is involved with organizational knowledge. In the context of organizational knowledge management, personal knowledge management is a knowledge building activity among the personnel (human resources) of the organization.

The results of this study indicate a significant influence of personal knowledge management on increasing teacher creativity. Even personal knowledge management also plays a full mediation role in increasing the influence of ICT literacy on teacher creativity. This can be a finding that if strengthening ICT literacy is to have an effective impact on teacher creativity it must be supported by the teacher's skills in managing their knowledge.

In this study personal knowledge management variables were measured using indicators: (1) knowledge acquisition, including extraction, structuring, and organizational processes; (2) collection of knowledge, including the selection of sources and types of knowledge, methods of collection, and interest in collecting; (3) knowledge storage, including manual and digital storage; (4) knowledge processing, including observation, classification, measurement, inference, communicating, predicting, hypothesize, and experiment; (5) the use/application of knowledge includes tutorials, practices, simulations, games, and experiments; (6) sharing/distribution of knowledge, including making modules, textbooks, LKS, additional learning activities, and utilization of IT/internet media. Thus school principals or foundations can work with related parties such as the Bogor city education office to conduct training and training which includes strengthening the indicators above.

The results of previous studies that support the above findings are: (1) Nhu-Hang Ha (2017), in his research entitled The Impact of Personal Knowledge Management on Learning Outcome which proves that there is a significant relationship between personal knowledge management variables and student learning outcomes; (2) Stuart Garner (2010) in his research entitled Personal Knowledge Management and Student Learning proves that students who manage their personal knowledge well and effectively are more successful in their studies. Recommendations for the seven components of personal knowledge management from this study are information retrieval/acquisition, evaluating/appraising information, organizing and managing information, analyzing information, presenting

information, securing/storing information, and collaborating in utilizing and developing the information; (3) Jarrahi and Eshraghi (2020), proved that the practice of personal knowledge management provides a new understanding of new ways in which workers' personal knowledge is involved in organizational knowledge management, namely by building knowledge (knowledge building) among workers. Inductive analysis of the data reveals the emergence of informal ties such as "shadow information technology" among workers. This supports personal knowledge infrastructure and supports the development of Organizational Knowledge Management and Knowledge Building.

5.3 Effects of Work Engagement

Based on survey theoretical and work engagement research studies indicate that work engagement is interpreted as a relationship/engagement/attachment to the relationship between a person and his work and is a key factor that influences performance and one's productivity positively (Schaufeli & Bakker, 2010; Bakker, et al., 2012). Various studies have found that employees who are engaged work enthusiastically, are committed, passionate, are willing to work beyond the limits of the tasks and time assigned to them, are emotionally, physically and cognitively involved in their work (Turner, 2020; Macey and Schneider, 2008; Byrne , 2015; Kinicki and Fugate, 2016; Whittington, et al., 2017). Meanwhile, according to Colquitt, et al (2019), work engagement is a high level of intensity and persistence of a person to complete his work.

Factors driving a person's work engagement are related to the condition of the individual concerned, the condition of the organization in which it is located, career opportunities provided by the organization, job characteristics, job resources, and personal resources (Turner, 2020; Agrawal, et al., 2015; Schaufeli and Bakker 2010; Rosyanti, et al., 2021) proved that teacher work engagement is influenced by self-efficacy and organizational climate. While the characteristics that emerge from someone who has work engagement are vigor, dedication, absorption and passion, love and passion at work (Whittington, et al., 2017; Schaufeli, and Bakker, 2010). .

In this study, the work engagement variable was measured through vigor indicators, including enthusiasm, interest/will, resilience, intensity and energy at work; (2) dedication, including being proactive, enthusiastic, challenging, inspiring, and proud of their work (3) absorption, including enjoying / cool / immersed in work and focus/ fully concentrate on work; and (4) passion, including love (emotional) and passion for work.

The results of the study show a positive and significant effect between work engagement and increased teacher creativity. These results are in accordance with research from (1) Rais & Rubini (2022) which proves that there is a positive and real effect of 0.532 from the work engagement variable on teacher creativity in Madrasah Tsanawiyah Schools, Madiun city; (2) Compens, et al. (2020), proving that teacher work engagement increases students' understanding and mastery of the content provided by teachers in secondary schools, Flanders, Belgium; (3) Lie, et al. (2020) which explains that teacher engagement in the online learning process includes 5 factors, namely student processes, teacher exposure, technological knowledge, pedagogical knowledge, and support system. The five teacher engagement factors are proven to influence the success of online learning; (4)Villa and Castro, (2020), proved that the intensity of the collaborative role of leaders and employees through employee engagement as a mediating variable and job complexity as a moderating variable have an effect on increasing employee creativity.

6. CONCLUSION

The development of the teacher's creativity model was carried out based on empirical data by setting the variables of ICT literacy, personal knowledge management, and work involvement as exogenous variables that were examined quantitatively. The results of the evaluation of the outer and inner models have met the requirements for convergent validity, multicollinearity, goodness of fit, and other model quality criteria such as predictive relevance and size effects, so the model built has been proven to have accuracy in predicting.

Based on the path coefficient values, it shows that all exogenous variables, namely ICT literacy, work involvement, and personal knowledge management have a positive effect on teacher creativity, both directly and indirectly. The results of hypothesis testing prove that work engagement and personal knowledge management have a significant effect on teacher creativity, so if the strangeness of work engagement and personal knowledge management enhances will be effective in increasing teacher creativity. While ICT Literacy does not have a significant effect on teacher creativity, but ICT Literacy will have a significant effect if through the intervening variables of work engagement and personal knowledge management.

Furthermore, it is proven that ICT literacy has a direct, positive, and significant effect on teacher work engagement and personal knowledge management. The mediation test results show that the intervening personal knowledge management and work engagement variables are proven to be able to play a full role as mediation in increasing the influence of

ICT literacy on creativity.

The implications of the findings above can be used as a basis for planning ICT training and workshops for teachers to increase teacher creativity by utilizing indicators of work engagement and management of personal knowledge. Strengthening indicators of work engagement (enthusiasm, dedication, uptake, passion) and personal knowledge management indicators (knowledge acquisition, collection, storage, processing, application/utilization, and sharing of knowledge) have been shown to increase the effectiveness of teacher ICT training outcomes.

The limitation of this research is that this research is only limited to three exogenous variables related to teacher creativity, namely ICT Literacy, Personal Knowledge Management, and Work Engagement. While the results of exploratory research (Desianti, et al., 2022) found 10 dominant variables related to teacher creativity, to obtain more comprehensive results further research is needed on teacher creativity related to interpersonal relationships, teamwork, increased knowledge, professional commitment, work motivation, reward and compensation, and competence to adapt.

REFERENCES

Adair, J. (2007). *The Art of Creative Thinking: How to be Innovative and Develope Great Ideas.* Publisher: Kogan Page. ISBN: 9780749447991,0749447990

Agrawal, Soni & Sharma, B.. (2015). Factors Influencing Employee Engagement:An Exploratory Study of One of the Units of an IT Company. Indian Journal of Social Work, 74, 485-506.

Amabile & Pratt, M. G. (2016). The Dynamic Componential Model of Creativity and Innovation in Organizations: Making Progress, Making Meaning. Research in Organizational Behavior, 36, 157–183.

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), 1297–13.

Artacho, E., Tom_as Sola-Martínez, Jos_e-María Romero-Rodríguez, Gerardo G_omez-García. (2021). Teachers' Perceptions of Digital Competence at the Lifelong Learning Stage. Heliyon 7 (2021) e07513, https://doi.org/10.1016/j.heliyon.2021.e07513

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. I. (2014). Burnout and work engagement: The JD–R approach. Annu. Rev. Organ. Psychol. Organ. Behav., 1(1), 389-411.

Bakker, A.B., Demerouti, E., and Lieke, L. (2012). Work Engagement, Performance and Active Learning. The Role of Conscientiousness. Journal of Vocational Behavior, 80(2), 555-564.

Bereczki, E. O., & Kárpáti, A. (2021). Technology-enhanced creativity: A multiple case study of digital technology-integration expert teachers' beliefsand practices. Thinking Skills and Creativity, 39, 100791. https://doi.org/10.1016/J.TSC.2021.100791

Byrne, Z. S. (2015). Understanding employee engagement: Theory, research, and practice. New York: Routledge.

Cheng Eric C.K. (2015). Knowledge Management for School Education. Singapore: Springer.

Cheng, Y.-Y., Wang, W.-C., Liu, K.-S., & Chen, Y.-L. (2010). Effects of association instruction on fourth graders' poetic creativity in Taiwan.Creativity Research Journal, 22(2), 228-235.

Colquitt, J.A., LePine, J.A., Wesson, M.J. (2019). Organizational Behavior, Sixth Edition. New York: McGraw-Hill.

Compen, B., Witte, K. De, & Schelfhout, W. (2020). The impact of teacher engagement in an interactive webinar series on the effectiveness of financial literacy education. 0(0), 1–15. https://doi.org/10.1111/bjet.13013

Davies, R.S. (2011). Understanding Technology Literacy: A Framework for Evaluating Educational Technology Integration. Volume 55, Number 5 TechTrends , September/October 2011. DOI: 10.1007/s11528-011-0527-3

Desianti, L., Hardhienata, S., & Setyaningsih, S. (2022). Strengthening Teacher Creativity Models through Empirical Studies in High Schools. Journal of Industrial Engineering & Management Research, 3(4), 148-169. https://doi.org/10.7777/jiemar.v3i4.382

Desianti, L. C., Nurlaila, H., & Tukiran, M. (2021). Managing Customer Satisfaction in Educational Institution based on effect of Customer Expectation and Customer Perceived Value. Journal of Industrial Engineering & Management Research, 2(4), 251 - 265 (Agustus 2021).

Duriawati, A. D., Wasliman, I., Mulyanto, A., & Barlian, U. C. (2020). Implementation of Literation Based Learning Information Technology. International Journal of Nusantara Islam, 8(2), 240-253.

Grundspenkis. (2007). Agent Based Approach for Organizational and Personal Knowledge Modelling: Knowledge Management Perspective. Journal of Intelligent Manufacturing, 18(4):451-457, Doi:10.1007/s10845-007-0052-6

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of SEM-PLS", European Business Review,(31), 2-24. Structural Equation Modeling (SEM-PLS), Sage, ThousandOaks, CA.

Hair, J. F., Hult, G. T. M., & Ringle, C. M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). SAGE Publications,Inc. Printed. http://lccn.loc.gov/2016005380

Hansen, J. W. (2003) To Change Perceptions of Technology Programs. Journal of Technology Studies, 29, 16-19.

Hauser, L. (2014). Work motivation in organizational behavior. Economics, Management, and Financial Markets, 9(4), 239-246.

Heinz, M. (2015). Why choose teaching? An international review of empirical studies exploring student teachers' career motivations and levels of commitment to teaching. Educational Research and Evaluation, 21(3), 258e297. https:// doi.org/10.1080/138036 11.2015.1018278

Jarrahi, M.H., and Eshraghi, R. (2020). Personal knowledge management and enactment of personal knowledge infrastructures as shadow IT. Informationand Learning Sciences, November 2020, DOI: 10.1108/ILS-11-2019-0120.

Kahn, W. A. (2010). The essence of engagement: Lessons from the field. In Handbook of employee engagement. Edward Elgar Publishing

Kanfer, R., & Chen, G. (2016). Motivation in organizational behavior: History, advances and prospects. Organizational Behavior and Human Decision Processes, 136, 6-19.

Kaufman, C.J and Sternberg, J.R. (2019). The Cambridge Handbook of Creativity, Second Edition. United Kingdom: Cambridge University Press.

Keengwe, J. and Onchwari, G. (2020). Handbook of Research on Literacy and Digital Technology Integration in Teacher Education. IGI Global book series Advances in Educational Marketing, Administration, and Leadership(AEMAL) (ISSN: 2326-9022; eISSN: 2326-9030)

Khamcharoen, N., Kantathanawat, T., & Sukkamart, A. (2022). Developing Student Creative Problem-Solving Skills (CPSS) Using Online Digital Storytelling. International Journal of Emerging Technologies in Learning(IJET), 17(11), 17– 34. https://doi.org/10.3991/ijet.v17i11.29931

Kinicki, A. and Fugate, M. (2016). Organizational Behavior A Practical Problem Solving Approach. New York: McGraw-Hill

Kreitner, R and Kinicki, A (2003). Organizational Behavior. New York: Mc Graw- Hill, pp.205.

Lawrence, J. (2016). Creative Teacher , Creative Teaching : Identifying Indicators and Inspiration for Professional Innovation in the Teaching Environment. Association for Educational Communications and Technology, 64–69.

Lăzăroiu, G. (2015). Work motivation and organizational behavior. Contemporary Readings in Law and Social Justice, 7(2), 66-75.

Lie, A., Tamah, S. M., Gozali, I., Triwidayati, K. R., Utami, T. S. D., & Fransiskus Jemadi. (2020). SECONDARY SCHOOL LANGUAGE TEACHERS ' ONLINE L EARNING ENGAGEMENT DURING THE COVID-19. Journal of Information Technology Education, 19, 803–832. https://doi.org/10.28945/4626

Loveless, A. M. (2006). Literature Review in Creativity, New Technologies and Learning. Futurelab Series. 1-40.

Macey, W. H. & Schneider, B. (2008). The meaning of Employee Engagement. Industrial and Organizational Psychology, 1(1): 3–30.

Merry, J. (2013). Aon Hewitt 2013 Trends in Global Employee Engagement: "where do Organizations need to focus attention?" Strategic HR Review,vol. 13 no.1, pp 24-31. https//doi.org/10.1108/SHR-07-2013-0073

Nhu-Hang Ha . (2017). The Impact of Personal Knowledge Management on Learning Outcome. International Journal of Learning and Teaching Vol. 3,No. 2, June 2017. doi: 10.18178/ijlt.3.2.101-105

O'Boyle, E., and J.Harter. (2013). State of the American Workplace. Gallup, June29, 2013, http://www .gallup.com/strategic consulting/163007/ state- american workplace.aspx

Park, H., Kim, H. S., & Park, H. W. (2020). A scientometric study of digital literacy, ICT literacy, information literacy, and media literacy. Journal of Data and Information Science, 6(2), 116-138

Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: Junior high- school students' perceived competencies versus actual performance. In Computers and Education (Vol. 126). Elsevier Ltd. https://doi.org/10.1016/j.compedu.2018.06.030

Prasolova-Førland, E. (2007). Creative curriculum visualization in a 3D CVE. Journal of Advanced Technology for Learning, 4(3), 154-159.

Rais, S., Rubini, B., Herfina. (2022). Increasing Teacher Creativity through Strengthening Transformational Leadership, Teamwork, and Work Engagement. Pegem Journal of Education and Instruction, 12(1), 232-241.

Ramírez-Montoya, M. S., Loaiza-Aguirre, M. I., Zúñiga-Ojeda, A., & Portuguez- Castro, M. (2021). Characterization of the teaching profile within theframework ofeducation 4.0. Future Internet, 13(4), 1–17. https://doi.org/10.3390/fi13040091

Rosyanti, D. M., Armanu, A., & Ratnawati, K. (2021). Teacher Work Engagement in Inclusive School. Jurnal Aplikasi Manajemen, 19(1), 92-98.

Runco, A. M., 2014. Creativity Theories and Themes: Research, Development,and Practice. Second Edition. Torrance Center for Creativity and Talent Development, USA

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. Contemporary educational psychology, 61, 101860.

Saleh, M. (2020, May). Merdeka belajar di tengah pandemi Covid-19. In Prosiding Seminar Nasional Hardiknas (Vol. 1, pp. 51-56).

Sallis, E. & Jones, G. (2012). Knowledge Management In Education, Enhancing Learning & Education. New York: Routledge, p. 88-89.

Schaufeli, W.B. and Bakker, A.B. (2010). Work Engagement - A handbook of Essential Theory and Research. Edited by Bakker, A.B. and Leitter, M.P.New York: Psychology Press

Schiavio, A., Biasutti, M., & Philippe, R. A. (2021). Creative pedagogies in thetime of pandemic : A case study with conservatory Creative pedagogies inthe time of pandemic : a case study with conservatory students. Music Education Research, 0(0), 1–12. https://doi.org/10.1080/14613808.2021.1881054

Setiawan, R., Mardapi, D., & Karyanto, U. B. (2020). Multiple Intelligences-Based Creative Curriculum: The Best Practice. European Journal of Educational Research, 9(2), 611-627

Sheridan, William (2008). How to Think Like a Knowledge Worker. United Nations Public Administration Network.

Sibagariang, D., Sihotang, H., & Murniarti, E. (2021). Peran guru penggerak dalam pendidikan merdeka belajar di indonesia. Jurnal Dinamika Pendidikan, 14(2), 88-99.

Sinay, E., Nahornick, & Graikinis. (2018). Fostering global competencies anddeeper learning with digital technologies research series: Creativity and innovation in teaching and learning: A focus on innovative intelligence. Research Report, No.17/18-1(January)

Sternberg, R. J. (2006). The Nature of Creativity. Creativity Research Journal, 18(1), p. 87-98

Stuart Garner. (2010). Personal Knowledge Management and Student Learning. Journal of Business & Economics Research – December, 2010, Volume 8, Number 12.

Turner, P. (2020). Employee Engagement and the Experience. In: Employee Engagement in Contemporary Organization. Palgrave Macmillan, Cham. http://doi.org.10.1007/978-030-36871_1

Vila-v, G., & Castro-casal, C. (2020). From LMX to Individual Creativity :Interactive Effect of Engagement and Job Complexity. April. Business International Journal of Environmental Research and Public Health DOI:10.3390/ijerph17082626

Whittington, J.Lee, Simone Meskelis, Enoch Asare, Sri Beldona. (2017). Enhancing Employee Engagement An Evidence Based Approach. (1st ed.) Springer eBooks Cham: Springer International Publishing

Wijaya, A., Mustofa, M. S., & Husain, F. (2020). Sosialisasi Program Merdeka Belajar dan Guru Penggerak Bagi Guru SMPN 2 Kabupaten Maros. Jurnal Puruhita, 2(1), 46-50.

Wright, Kirby. (2005). Personal Knowledge Management: Supporting Individual Knowledge Worker Performance. Knowledge Management research and Practice, 3(3): 156- 165, Doi: 10.1057/palgrave.kmrp. 8500061