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Strengthening Teacher Creativity Models through Empirical Studies in High Schools

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Abstract

This study explores the creativity of teachers in schools. What are the things that affect the creativity of teachers in teaching in schools, both from the teacher's internal environment and the external environment? Teacher creativity is needed to motivate students to be more enthusiastic in learning so as to improve learning achievement. On the other hand, boring, teacher-oriented learning methods are no longer appropriate today. This study aims to build a model of teacher creativity by empirically examining what variables are thought to have an effect on strengthening teacher creativity. This research was conducted using a qualitative method through the process of interviewing and observing the principal of a private high school in the city of Bogor, West Java, Indonesia. Qualitative methods are carried out to obtain novelty in building models at the research locus. From the results of qualitative research the model of teacher creativity obtained.

Keywords: creativity, teacher, qualitative, high school.

INTRODUCTION

Departing from concerns over the results of the 2018 PISA (Program for International Student Assessment) survey published by OECD 2019 (The Organization for Economic Co-operation and Development) where Indonesia's score is at 74th out of 79 countries. This shows that there are serious problems with the quality of Indonesian education. Even based on data published by the OECD from 2009-2015, Indonesia consistently ranks in the bottom 10 countries (OECD, 2019). To spur the improvement of the quality and competitiveness of Indonesian people, the Ministry of Education and Culture issued a policy of *Merdeka Belajar* which remodelled learning methods in schools to be more flexible, oriented to student needs, fun, innovative and creative. The ultimate goal of *Merdeka Belajar* is to create a *Pancasila* Student Profile who believes in one God and has noble character, global diversity, mutual cooperation, independence, critical reasoning, and creativity (Kemendikbud, 2021).

To make this policy a success, teachers are required to be able to develop creative teaching methods, namely learning models that can improve students' reasoning, critical thinking, and creative abilities. In addition, teachers are also required to be able to develop 6 student competencies (6C), namely (1) Critical Thinking and Problem Solving; (2) Creativity; (3) Communication Skills; (4) Collaboratively; (5) Computational logic/thinking; and (6) Compassion (Saputri et al., 2019). Furthermore, the method of Differentiated Learning (Differentiated Instruction) is also encouraged to be applied in teaching in the classroom. This method requires the creativity of the teacher to recognize the characteristics and learning

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needs of each student and then adapt it to the appropriate learning method for students (student oriented) (Hanover Research, 2019).

Based on the description above, it is urgently needed research on strengthening teacher creativity, especially teachers at the high school. Because at that age students have high social sensitivity, are very concerned about their identity, and their thinking insight has expanded widely supported by the current development of information technology. Intellectually high school students have logical thinking skills, scientific reasoning skills, critical thinking skills, and high adaptability to digital developments (information and communication technology). If in the learning process at school the teacher is not able to keep up with the cognitive development of the student, it will be difficult for the teacher to improve the student's 6C competence as expected.

This study aims to build a model of teacher creativity by empirically examining what variables have an effect on increasing teacher creativity. The development of teacher creativity models will play a major role in improving the quality of teacher teaching. With the new teacher creativity model, it is hoped that the learning process will be interesting, effective, and innovative, increase student interest in learning, and make students more interactive, communicative and creative, so that the quality and achievement of student learning can be improved.

LITERATURE REVIEW

Creativity is the activity of developing something new or unique. It was further explained that developing unique ideas means different from existing ones, which can be verbal (suggestions), processes, (methods), or finished products that are beneficial to the environment (organization). The dimension of creativity is arising from an inner drive (intrinsic motivation), using knowledge and self-competence, and enjoying challenging activities or problem solving (R. Kreitner and A. Kinicki, 2010). According to James, M. A. (2015), in his research explains 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 the process. and products. In his research, James divides creativity maps in the form of 4Cs, namely Big-c creativity: extraordinary creativity whose thoughts have an impact on the field of expertise; Professional creativity: creativity that occurs in the profession; Little-c creativity: daily life creativity; and Mini-c creativity: creativity experienced by students when they interact with new information and experiences.

Creativity can also be seen as the result of a creative self-concept. People who have high self-efficacy will more easily express their ideas. The dimensions of self-concept are (1) belief, (2) perspective or perception, and (3) self-evaluation. The creative self-concept consists of (1) creative self-efficacy; (2) creative role identity; (3) creative self-esteem (Tierney, P., & Farmer, S. M. (2011). Creativity is the ability to interpret the context of the problem at hand into a new idea, new behaviour, or new product. Then the dimensions of creativity are: (1) new ideas, (2) new behaviour, (3) individual thinking; and (4) socio-cultural. (Kim, Min Kyeong, et al., 2015). Meanwhile, according to Anderson et al. (2014) a stage of creativity starts from a process that refers to the creation of ideas. While the innovation stage implements ideas towards better work procedures and products. The dimensions of creativity are affective, cognitive, and motivational.

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Runco (2014) explains that creative studies are interdisciplinary, because in it there are behavioural, clinical, cognitive, developmental, economic, educational, evolutionary, historical, organizational, personality, and social perspectives. So the definition of creativity can be expressed in various ways, as in art or science, and can involve different processes, such as cognitive or social. It is also influenced by various things, including personality, genetics, social and environmental regulations, and culture. So that creativity is a complex thing is the view that is most widely accepted by all parties to date. Creative teaching or creativity in teaching essentially consists of three interrelated components: (1) teaching about creativity; (2) teaching for creativity; and (3) teaching with creativity. All three are important to implement because teaching about creativity is aimed at (1) increasing knowledge about creativity and the field of creativity studies; (2) foster creative thinking and creative action in students; (3) teach any subject matter creatively (Beghetto, 2017).

METHOD

The research method is by qualitative approached to explore the factors that are considered to have a dominant influence on the resources to be strengthened. Qualitative methods are carried out to obtain novelty in building models at the research locus. The resource person for this research is the principal of a private high school in the city of Bogor, Indonesia. The research process by conducting interviews and observations at the schools studied. In the process of qualitative research, the researcher is the instrument and the resource person is called the informant. The requirements for the qualitative research interview process must be as pure as possible by not interfering with the answers of the informants. Qualitative research is constructivism which aims to build or develop a theory. Furthermore, the research process will be stopped if the researcher feels that the answers from the informants are saturated or no significant differences are found in the answers of the informants.

A model is a qualitative or quantitative description of the key components of a system and the relationships between those components. The qualitative method is a comprehensive research approach to obtain empirical data in the search for exogenous variables that are considered to have a positive effect on the theme variables. This is done because they want to get more information than other methods. These findings are then clarified to experts and practitioners in their fields to further build a constellation model and a mathematical model of the relevant constellation structure (Setyaningsih and Hardhienata, 2019).

According to Bandura (1986), human behaviour is mostly studied by observation through modelling. Social learning theory by Bandura suggests that modelling can provide cognitive and behavioural tools for innovation. A person's creative behaviour can be studied through relevant features, understanding subordinate rules, and visual demonstration of the behaviour. Several studies have used modelling methods to examine social factors associated with creative behaviour (Amabile, 1983; Amabile et al., 2011, 2016; Yi et al., 2015). Often demonstrations can be observed unintentionally, as the behaviour of others is observed to affect creative performance even when the other person is not aware that they are the source of influence (Amabile et al., 2016).

In this study, the principal was used as a resource to observe the creative behaviour of his teachers at school. How do teachers behave in dealing with problems that occur in the classroom? How do teachers take advantage of the limited learning facilities and infrastructure in schools, for example during the COVID-19 pandemic? How do teachers use information and communication technology? How the school climate and cooperation

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between teachers affect their creative behaviour, and so on.(Yi et al., 2015) In this creativity model the deliverable methodological assessment focuses mainly on models describing relationships between indirect and direct drivers. The Relational model technique is used to describe the different relationships between entities and there are different sets of relationships between entities such as one-to-one, one-to-many, many-to-one, and many-to-many. The steps of the qualitative method are to follow this diagram.

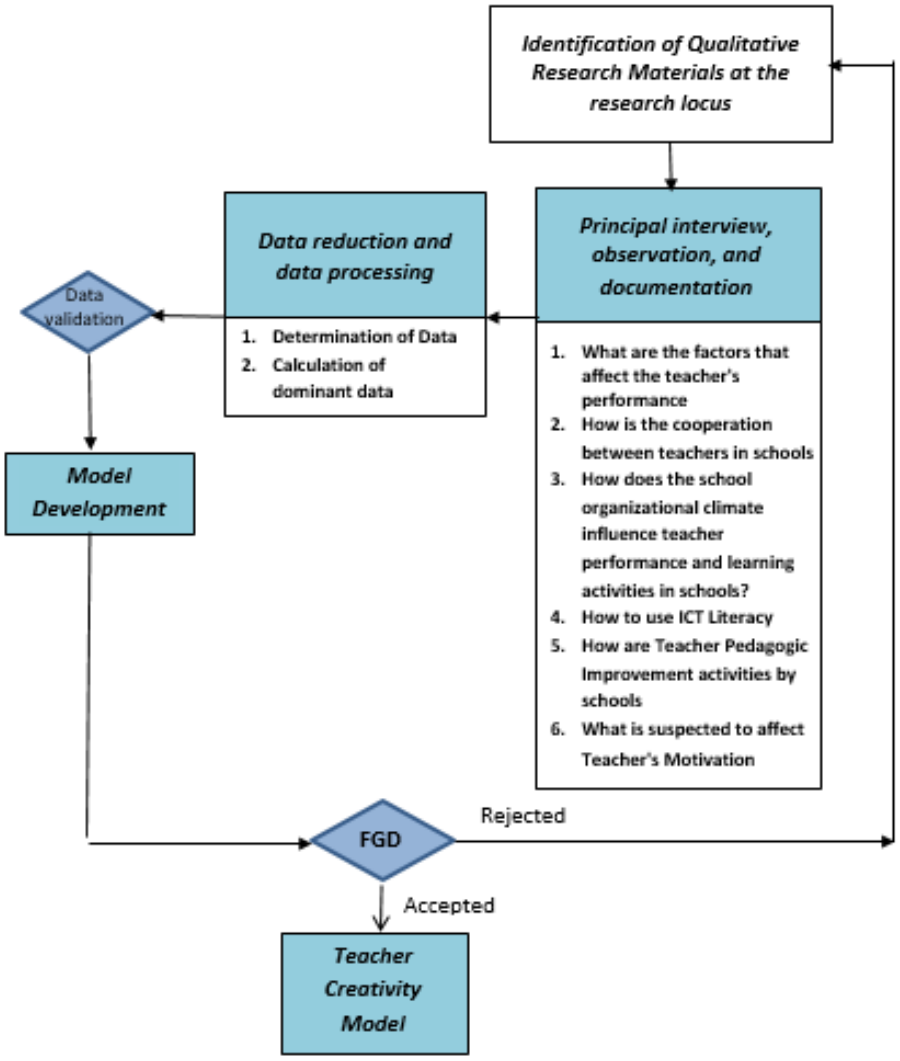

Fig 1: The Steps of Qualitative Research

The findings of these empirical variables were then discussed in FGDs with resource persons and experts to determine the relevance of the influence of each research variable which was further developed in the constellation of the influence model between variables on strengthening teacher creativity.

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RESULT AND DISCUSSION

Teacher creativity in teaching greatly affects the quality of graduates. Students who are happy with the teacher's teaching pattern will be more enthusiastic in learning so as to increase their learning achievement. On the other hand, boring, teacher-oriented learning methods are no longer appropriate today. Along with the rapid development of information technology, the entry of the era of disruption and the era of Education 4.0 has changed the pattern and style of student learning in absorbing knowledge. Even with the covid'19 outbreak, it requires teachers to be more creative in developing interesting and effective learning methods for teaching online and offline.

Creativity is something new and adapts to the task or field being developed (Hennessey and Amabile, 2010; Weiner, 2000; Simonton, 2012; Kaufman and Sternberg, 2019). Creativity is an action or process that is a key element of a novelty that is adapted to their respective fields. Discovery development involves an approach to originality or originality combined with something to find a solution, solve a problem or produce something new. In the creative process, a novelty will reflect one's imagination, experience and thoughts. Creative people are not only intellectually capable of generating new ideas, they also have a creative attitude towards life and approach problems in depth. They show to solve problems in creative ways. Although the average level of creativity can vary from one time or place to another, 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 and Sternberg, 2019).

Guilford, the founder of the Structure of Intelligence (SOI) model, explains individual differences in creativity. From many studies show that creativity is part of the thought process, as a personality, and creation by ideas or individual creations. So that creativity becomes part of the behaviour of each individual (Callahan, 2005). In addition, creative people are those who are open to new experiences or we call openness to experience. Furthermore tend to be easy to learn new things, this is in accordance with the profession as a teacher. Together with cognitive abilities, intelligent thinking, and based on experience are the main drivers of creative thinking or creative performance (Colquitt, et al., 2019). Furthermore, creative thinking will generate new ideas, create new approaches to solving problems, or suggest new innovations that can help improve performance in the workplace (Colquitt, et al., 2019). So it can be said that creativity is an activity that leads to behaviour to generate useful new ideas and solutions. The following are the results and discussion of this research.

A. Problem Identification on Theme Variables

Qualitative data mining begins with identifying the problems in the research theme, namely the creativity of teacher’s behaviour in high school. This is done by filling out questions from 30 respondents, namely high school teachers in the city of Bogor to find out whether there is a problem with the teacher's creative behaviour or not. The results obtained are:

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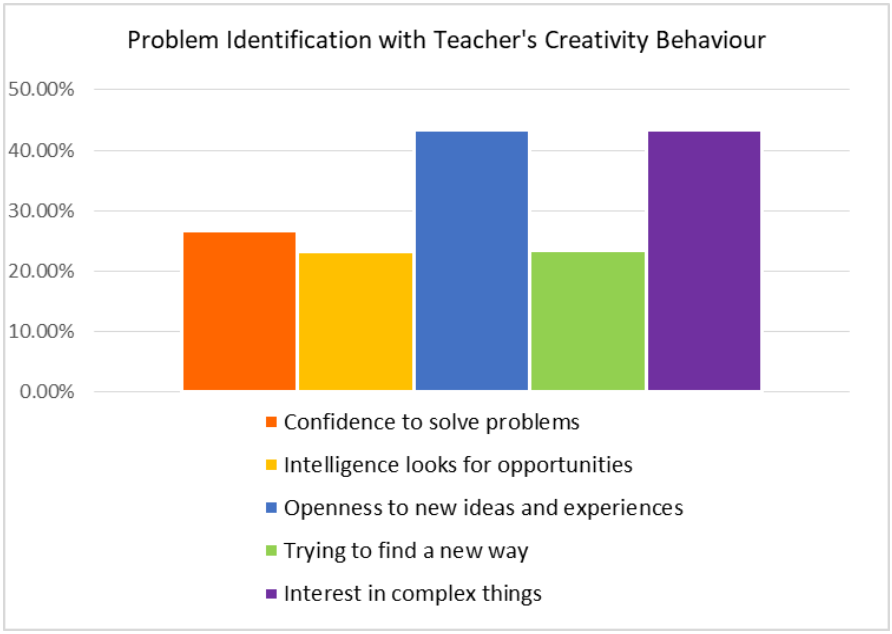

Fig 2. Problem Identification Diagram of Theme Variables

Preliminary research shows that:

1. There are 26.7% of teachers need to improve their own habits in solving problems and finding new ways. This can be seen from the teacher's behaviour in solving problems that occur, the teacher's courage in making decisions when having to choose several existing solutions, and the teacher's readiness to accept risks in every decision taken.
2. There are 23.3% of teachers need to improve their ingenuity in seeking opportunities and finding new ways. This can be seen from the teacher's behaviour in developing online teaching methods, developing interesting teaching skills, and building the intensity of my relationship with students.
3. There are 43.4% of teachers need to increase their openness to other people's ideas and new experiences. This can be seen from the teacher's behaviour in building discussions with colleagues, studying the development of today's science, and building cooperation with colleagues.
4. There are 23.4% of teachers need to improve their efforts in finding new opportunities and ideas. This can be seen from the teacher's behaviour in observing the behaviour of students in learning, thinking and trying to formulate new teaching methods, and their efforts in developing teaching methods to attract students' interest.
5. There are 43.3% of teachers need to increase their interest and interest in complex matters. This can be seen from the teacher's behaviour in observing new things in adolescent education, noting things related to the world of teenagers and all their problems, and studying things related to the development of adolescent intelligence.

B. Reduction of Interview Results and Selection of Dominant Variables.

Data reduction is done to find data or information that is really related to the theme variable. Data not related to the development and behavior of teachers' creativity were discarded. The following is the result of data reduction from the 11 high school principals.

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Table 1. Data Reduction and Data Codification Result

Information Submitted by the Principal		Appropriate Variable Name	Variable Coding
A. SMA PGRI 3 BOGOR			
1	Teachers must have intrinsic motivation	Work Motivation	WM
2	Teachers easily adapt to curriculum changes	Adaptability Competence	AC
3	Teachers master pedagogic competence	Professional Competence	PC
4	School regulations that require teachers to be creative and increase teacher competitiveness.	Policy of School/Stakeholder	PSS
5	Participated in competitions, such as teacher writing competitions.	Knowledge Improvement and Personal Knowledge Management	KI and PKM
6	Training/workshop/webinar/Internal training and apply.	Knowledge Improvement and Personal Knowledge Management	KI and PKM
7	Established a development team of Eight (8) National standards.	Professional Commitment	PC
8	Easy to work in a team and support them	Team Work and Interpersonal Relationship	TW and IR
9	Get satisfaction in work	Work Satisfaction	WS
10	Given good rewards, appreciation, career	Reward and Compensation	RC
11	Willingness, love and passion for work	Work Engagement	WE
12	Teacher self-efficacy development	Self-Efficacy	SE
13	Ability to use computer	Information and Communication Technology	ICT
14	Schools build performance that supports teacher creativity	Organizational Climate	OCL
B. SMA IT AT TAUFIQ			
1	Experience or number of teaching hours (love and passion for work)	Work Engagement	WE
2	Up-grading of teacher knowledge from institutions/schools and apply	Knowledge Improvement and Personal Knowledge Management	KI and PKM
3	At least once a year given training	Knowledge Improvement	KI
4	Given good rewards, appreciation, career	Reward and Compensation	RC
5	The model teacher gives an example of the video for other teachers to study	Information and Communication Technology	ICT

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6	Teachers are activated in MGMP (subject teacher consultations) throughout the city of Bogor	Knowledge Improvement and Personal Knowledge Management	KI and PKM
7	Teachers are quick to act on changes that occur during the pandemic	Adaptability Competence	AC
8	Enjoys discussing with colleagues, being open, and exchanging ideas.	Team Work and Interpersonal Relationship	TW and IR
9	School given space for teachers to develop creative abilities	Organizational Climate	OCL
10	Teachers work sincerely by prioritizing Islamic values	Organization Culture	OCR
11	Increase teacher confidence and self-efficacy through leadership training	Self-Efficacy	SE
C. SMA IT INSAN KAMIL			
1	Carry out new innovations	Professional Commitment	PC
2	Training with Google workspace and apply	Knowledge Improvement and Personal Knowledge Management	KI and PKM
3	Work meetings: *Kanva* work education training	Knowledge Improvement and Personal Knowledge Management	KI and PKN
4	Virtual laboratory application training	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
5	Teacher certification	Professional Commitment	PC
6	Train teachers to be more confident	Self-Efficacy	SE
6	Teacher intrinsic motivation	Work Motivation	WM
7	Willingness, love and passion for work	Work Engagement	WE
8	Teachers easily adapt to curriculum changes	Adaptability Competence	AC
9	Easy to work in a team and share	Team Work and Interpersonal Relationship	TW and IR
10	Get satisfaction in work	Work Satisfaction	WS
11	Given good rewards, appreciation, career	Reward and Compensation	RC
12	Teachers have an awareness of being committed to the school	Organizational Commitment	OC
13	Schools provide space for teachers to be creative in teaching	Organizational Climate	OCL
D. SMA ANANDA			
1	The teacher's desire/willingness/curiosity to	Work Engagement	WE

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	improve his/her abilities		
2	The school provides a curriculum guide, then the implementation of learning is handed over to the subject teacher.	Professional Commitment and Personal Knowledge Management	PC and PKM
3	Training on the use of learning media and apply	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
4	Improve teacher communication skills	Knowledge Improvement and Team Work	KI and TW
5	Willingness, love and passion for work	Work Engagement	WE
6	Increasing teacher entrepreneurship	Professional Commitment	PC
7	Get satisfaction in work	Work Satisfaction	WS
8	Given good rewards, appreciation, career	Reward and Compensation	RC
9	Teachers are quick to act on changes that occur during the pandemic	Adaptability Competence	AC
10	Love to discuss with colleagues, being open, and exchanging ideas.	Team Work and Interpersonal Relationship	TW and IR
11	Teachers work sincerely by prioritizing Islamic values	Organization Culture	OCR
12	Build a comfortable school atmosphere	Organization Climate	OCL
E. SMA KRISTEN TUNAS HARAPAN			
1	Teachers who master technology are more supportive of their teaching creativity.	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
2	The teacher environment, such as tutoring teachers, will be more creative because of the higher hours of online teaching.	Work Engagement and Work Motivation	WE and WM
3	Teachers are happy / have an interest in technology	Work Engagement and Information and Communication Technology	WE and ICT
4	School internal and external training	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM

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5	Willingness, love and passion for work	Work Engagement	WE
6	Get satisfaction in work	Work Satisfaction	WS
7	Teachers easily adapt to curriculum changes	Adaptability Competence	AC
8	Teachers are quick to act on changes that occur during the pandemic	Adaptability Competence	AC
9	Easy to work in Team and support them	Team Work and Interpersonal Relationship	TW and IR
10	Given good rewards, appreciation, career	Reward and Compensation	RC
11	Teachers are excited to advance the school	Organizational Commitment	OC
12	Supportive school atmosphere	Organizational Climate	OCL
13	Teachers follow the existing school culture	Organizational Culture	OCR
F. SMA IT UMUL QURO			
1	School give opportunities for teachers to be creative	Policy of School/Stakeholder	PSS
2	Teacher self-efficacy development	Self-Efficacy	SE
3	Atmosphere / given space for teachers to develop creative abilities	Organizational Climate	OCL
4	Given rewards, appreciation, career advancement or position.	Reward and Compensation;	RC
5	Teacher intrinsic motivation	Work Motivation	WM
6	Willingness, love and passion for work	Work Engagement	WE
7	Given the opportunity to study (S2), at least time support, some also support funds.	Policy of School and knowledge Improvement	PSS and KI
8	Teachers easily adapt to curriculum changes	Adaptability Competence	AC
9	Enjoys discussing with colleagues, being open, and exchanging ideas.	Team Work and Interpersonal Relationship	TW and IR
10	Teachers work sincerely by prioritizing Islamic values	Organization Culture	OCR
11	Ability to use computer and manage the ICT knowledge to teaching	Information and Communication Technology	ICT and PKM
12	The teacher completes his assignments on time	Professional Commitment	PC
G. SMA IT DAAR EN NISSA ISLAMIC BOARDING			
1	Assignments related to learning methods	Professional Commitment	PC

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2	Love working in a team and share	Team Work and Interpersonal Relationship	TW and IR
3	Given good rewards, appreciation, career	Reward and Compensation	RC
4	Have a passion for teaching from within	Work Engagement	WE
5	Communication technology and computers are needed online	Information and Communication Technology	ICT
6	Synchronous and asynchronous, between virtual meetings (zoom) and independent tasks in the worksheet space	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
7	Teacher's IT skills	Information and Communication Technology and Personal Knowledge Management	ICT and PKM
8	Supporting system of IT devices needed by teachers	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
9	To assess the effectiveness of the teacher's teaching mid-test, daily test, etc.	Professional Commitment	PC
10	Media used while online: power point, video, YouTube channel, and other applications.	Information and Communication Technology	ICT
11	Teachers are quick to act on changes that occur during the pandemic	Adaptability Competence	AC
12	Good Communication and open mind with others	Interpersonal Relationship	IR
13	Teachers work sincerely by prioritizing Islamic values	Organization Culture	OCR
14	Profession as a teacher is supported by family (especially from husband)	Work Motivation	WM
H. SMA YPHB BOGOR			
1	Use of ICT and internet skills.	Professional Commitment and Personal Knowledge Management	PC and PKM
2	Sharing Knowledge	Personal Knowledge Management and Team Work and Interpersonal Relationship	PKM, TW, IR
3	Subject Teacher Conference (MGMP)	Knowledge Improvement and Personal Knowledge Management	KI and PKM
4	The need for teachers to convey knowledge to students with various	Information and Communication Technology,	ICT, KI and PKM

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	methods	Knowledge Improvement and Personal Knowledge Management	
5	Sharing support between teachers (help each other)	Team Work and Interpersonal Relationship	TW and IR
6	School facilities	Policy of School/Stakeholder	PSS
7	Given good rewards, appreciation, career	Reward and Compensation	RC
8	Sharing knowledge from teachers who participated in the training to other teachers (dissemination)	Knowledge Improvement, Team Work and Personal Knowledge Management	KI, TW and PKM
9	Teachers are included in outside training and apply	Knowledge Improvement and Personal Knowledge Management	KI and PKM
10	UTBK based on android	Policy of School/Stakeholder	PSS
11	Love his job	Work Engagement	WE
12	The strategy for teaching creativity is to share knowledge with each other. The principle is who knows first teaches others.	Knowledge Improvement, Team Work and Personal Knowledge Management	KI, TW and PKM
13	Formed team work per subject to share with each other	Knowledge Improvement, Team Work and Personal Knowledge Management	KI, TW and PKM
14	Curriculum development team (in an emergency it plays a very important role)	Team Work	TW
15	Quickly adapt to existing changes, example because pandemic	Adaptability Competence	AC
16	Teachers feel proud of their profession	Work Motivation	WM
I. SMA KOSGORO BOGOR			
1	The pandemic spurs the creativity of teachers	Professional Commitment	PC
2	Quickly adapt to existing changes	Adaptability Competence	AC
3	Teacher Performance Assessment (PKG) and teacher capacity development	Professional Commitment	PC
4	IT Mastery	Information and Communication Technology, Personal Knowledge Management and Professional Commitment	ICT, PKM, PC
5	The image of the school must be maintained while online so that it is creativity	Professional Commitment	PC
6	Knowledge sharing	Knowledge Improvement and Personal Knowledge Management	KI and PKM

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7	Computer and network facilities	Policy of School/Stakeholder	PSS
8	Development of insight and knowledge	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
9	Teacher motivation (intrinsic)	Work Motivation	WM
10	Good cooperation between teachers	Interpersonal Relationship	IR
11	Dedicated team for online method development (team work)	Information and Communication Technology, Personal Knowledge Management and Professional Commitment	ICT, PKM, PC
12	Android based assessment	Information and Communication Technology, Personal Knowledge Management and Professional Commitment	ICT, PKM, PC
13	Given good rewards, appreciation, career	Reward and Compensation	RC
14	Love his job	Work Engagement	WE
15	Teacher intrinsic motivation	Work Motivation	WM
16	Able to work in team	Team Work	TW
17	School given space for teachers to develop creative abilities	Organizational Climate	OCL
J. SMA Bina Bangsa Sejahtera			
1	Ability to transmit creativity to students	Professional Commitment	PC
2	Passion to learn from the teacher	Work Engagement	WE
3	Teachers easily adapt to curriculum changes	Adaptability Competence	AC
4	Education for teacher self-development	Self-Efficacy and Emotional Intelligence	SE and EI
5	Teacher self-efficacy development	Self-Efficacy	SE
6	Training/training/workshop from inside and outside the school	Information and Communication Technology, Knowledge Improvement and Personal Knowledge Management	ICT, KI and PKM
7	Love to work in a team and share	Team Work and Interpersonal Relationship	TW and IR
8	School given space for teachers to develop creative abilities	Organizational Climate	OCL
9	Teachers have an awareness of being committed to the school	Organizational Commitment	OC
10	The compensation received by the teacher is in line with his expectations	Work Motivation	WM

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K. BINA INSANI			
1	Quickly adapt to existing changes	Adaptability Competence	AC
2	Striving to innovate	Work Motivation	WM
3	The urge from within to educate the students	Work Engagement	WE
4	Able to work in a team	Team Work	TW
5	Knowledge improvement	Knowledge Improvement and Personal Knowledge Management	KI and PKM
6	Teacher needs upgrading	Knowledge Improvement and Self Efficacy	KI and SE
8	Teacher competence is a source of strength for private schools	Professional Commitment and Organizational Commitment	PC and OC
9	School/ Stakeholder policies that are in line with the needs of the teachers likes infrastructures	Policy of School/Stakeholder	PSS
10	The teacher's character is active, and proactive, communicative, quick to complete tasks and solve problems in class.	Adaptability Competence, Emotional Intelligence, and Professional Competence	AC, EI and PC
11	Changes in regulations/policies adapted to pandemic conditions	Policy of School/Stakeholder	PSS
12	Workshops in school	Knowledge Improvement and Personal Knowledge Management	KI and PKM
13	Teacher intrinsic motivation	Work Motivation	WM
14	Given good rewards, appreciation, career	Reward and Compensation	RC
15	Get satisfaction in work	Work Satisfaction	WS
16	Good communication each other	Interpersonal Relationship	IR
17	The ability of teachers is updated according to the school program through training inside and outside the school.	Professional Commitment and Organizational Commitment	PC and OC
18	Teacher's IT skills	Information and Communication Technology and Personal Knowledge Management	ICT and PKM

From the data reduction above, we get 17 exogenous variables that are thought to be related in influencing the ability and behaviour of teachers' creativity in their work. Furthermore, from the 17 variables found, the dominant variables were selected as follows:

Table 2. Selection of Dominant Exogenous Variables

No	Variable Name	Variable	Sum of	Number of	Description

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		Code	Variable	Principals Mentioned	Categories Variable
1	Adaptability Competence	AC	13	11	Dominant
2	Emotional Intelligence	EI	2	2	Not Dominant
3	Literacy of Information and Communication Technology	ICT	20	11	Dominant
4	Interpersonal Relationship	IR	13	11	Dominant
5	Knowledge Improvement	KI	27	11	Dominant
6	Organizational Commitment	OC	5	4	Not Dominant
7	Organizational Climate	OCL	8	8	Not Dominant
8	Organizational Culture	OCR	5	5	Not Dominant
9	Professional Commitment	PC	20	9	Dominant
10	Personal Knowledge Management	PKM	31	11	Dominant
11	Policy of School/Stakeholder	PSS	8	5	Not Dominant
12	Self-Efficacy	SE	7	6	Not Dominant
13	Reward and Compensation	RC	10	10	Dominant
14	Team Work	TW	17	11	Dominant
15	Work Engagement	WE	14	11	Dominant
16	Work Motivation	WM	11	9	Dominant
17	Work Satisfaction	WS	5	5	Not Dominant

From the tabulation above, there are 10 dominant variables that support teacher creativity, namely: (1) Adaptability Competence, (2) Literacy of Information and Communication Technology (ICT), (3) Interpersonal Relationship, (4) Knowledge Improvement, (5) Professional Commitment, (6) Personal Knowledge Management, (7) Reward and Compensation, (8) Team Work, (9) Work Engagement, and (10) Work Motivation.

C. Validation and Focus Discussion Group

The validation of qualitative data was carried out using the Triangulation method, namely (1) deepening theories related to the problem of teacher creativity, (2) extracting facts about the phenomena that occurred, and (3) collecting expert opinions. To execute triangulation process we make Focus Group Discussion between the principal and the expert. The theory in creativity behaviour is based on the concept of input - process - output. Input contains independent variables (exogenous) that affect the process and output. Meanwhile, the process level contains intervening variables and the output level contains the dependent variable which is the research theme that will be strengthened. Based on the factors or variables found in the field and the considerations of experts, a constellation model of the influence of these variables on teacher creativity will be arranged as follows:

1) The variables of teacher work engagement, compensation and awards, as well as variables of high professional commitment in carrying out their duties and roles as a teacher strongly encourage and motivate teachers to give their best in teaching and educating their students so that it will affect the teacher's creativity.

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Work engagement can be interpreted as someone who works all out so that he has emotional involvement with his work. As explained in Amabile's theory of creativity (Amabile, 1983; Amabile et al., 2011, 2016) that a person's creativity is influenced by intrinsic motivation variables, thus creating a sense of pleasure in working and being meaningful. Work engagement is also defined as the relationship between the individual and his work. Job engagement is seen as a positive, satisfying, and work-related state of mind characterized by passion and dedication to work (Schaufeli et al., 2010; Miawati et al., 2010). So that teachers who have high work involvement in their profession will find it easier to be creative, innovate, and generate ideas in their teaching methods.

In relation to work engagement, someone who is "involved" will fully invest themselves and their energy into their work (Colquitt, et al., 2019). So that the constellation model built on the work engagement variable will be directly related to one's work motivation. Work motivation is defined as a set of energetic forces that come from within and from outside the individual to initiate work-related efforts, determine its direction, intensity, and persistence.Several studies have shown that the performance results of motivated employees are faster in completing their tasks than unmotivated ones (Colquitt, et al., 2019; Kinicki and Fugate, 2016). Returning to Amabile's theory of creativity, a person will be easy to create if he has intrinsic and extrinsic motivation. The result of a creativity that is created optimally if intrinsic motivation is paired with extrinsic motivation synergistically, namely motivation. People are more creative when they do what they love, rather than just doing what they know or are told to do (Barroso-Tanoira, 2017). The more creative people, the better performance and higher productivity can be expected.The external motivation present was able to increase knowledge in their work and aspire to be consistent and their love for pursuing their profession as an educator. So that creativity as a process will be able to increase when a teacher finds meaning in his work (work engagement). The influence model between these variables is depicted in Figure 3 below:

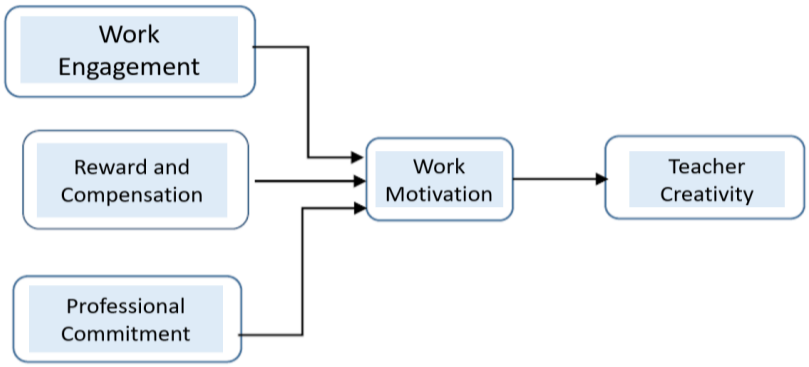

Fig 3. Part 1 Teacher Creativity Model

2) The consideration is in accordance with the demands of 21st century learning in the background of this research, where the digitalist era really requires mastery and proficiency of teachers in the field of computer technology. ICT literacy is the ability to understand and master the completeness of computer technology, including hardware

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(hardware), software (software), as well as ethics and etiquette in using technology (Doyle, 2013). Digital literacy or ICT literacy can be defined as the ability to use and utilize new media such as the internet to access, disseminate, and communicate information effectively. With indicators of technological literacy ability as follows: (1) Content: ability to understand hardware and software; (2) Process: the ability to use hardware and software. (3) Context: mastery of the use of learning technology concepts; and (4) Attitude: a person's good understanding and attitude towards technological developments. ICT literacy is also interpreted as media literacy that positions humans who have the ability to understand, master, and utilize mass media content. A teacher in this digitalist era will find it difficult to be creative if he does not have competence in the field of computer technology. Along with the emergence of the current pandemic outbreak, the use of ICT has really become the main support for the implementation of the learning process in the network.

In the current condition of accelerating technological knowledge (knowledge age), teachers are required to continue to develop knowledge (knowledge improvement) in the field of teaching and improve skills in utilizing teaching facilities with computer technology media. So that it takes self-management of the new knowledge that is obtained or called personal knowledge management (MPP). Various research results prove that an increase in the amount of information can not automatically be directly converted into knowledge (Cheng, 2015). This process requires management and skills to accumulate information through experience and behaviour in a person's daily construction systematically. As a cognitive and metacognitive competence, MPP allows one's knowledge to apply complex thinking skills to solve problems. As competency information, it allows one's knowledge to utilize technology tools integrally. As a social competence, it enables one's knowledge to understand other people's ideas, develop and follow up on joint work practices, build win-win relationships and resolve conflicts (Cheng, 2015).

The other side, the main and urgent factor in the implementation of the 21st century and the *Merdeka Belajar* curriculum in the learning process is the competence of teacher knowledge, especially in the field of computer information technology (ICT) literacy and the ability of teachers to respond to changes (adaptability competence) with the conditions of the digital era and the current pandemic. The ability of teachers to adapt is needed so that teachers can carry out teaching initiatives in any conditions (Puertas-Aguilar, 2021). So it is important for teachers to increase their knowledge (knowledge improvement), either by doing it themselves or through training facilitated by schools or local education offices to improve teachers' ICT competence. Furthermore, the wealth of teachers' ICT knowledge and their adaptability response results are managed in personal knowledge management. The influence model between knowledge enhancement, ICT literacy, personal knowledge management and adaptability is depicted in Figure 4 below:

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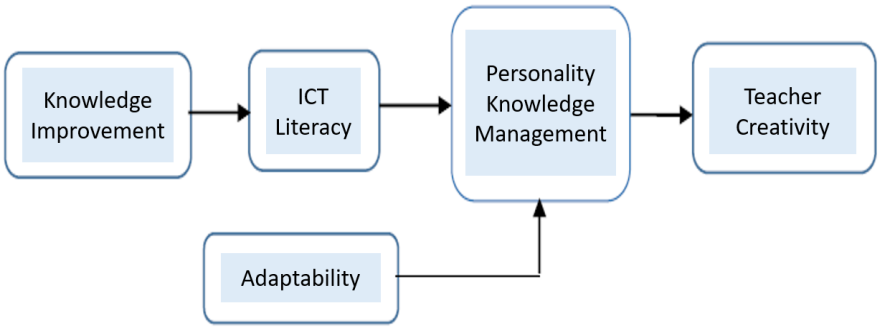

Fig 4. Part 2 Teacher Creativity Model

3) The next dominant variable is teamwork (team work) and interpersonal relationships (teacher relations) greatly affect the results of teacher creativity in schools. Collaboration between teachers in this online era is very much needed. Especially the collaboration between senior teachers and junior teachers, because the ICT literacy skills of junior teachers are better than senior teachers. Teamwork of teachers is always needed to succeed in the transfer of knowledge between them, in solving problems that occur in schools, in carrying out teaching assignments projects. For example, when a pandemic teacher has to create an online teaching program that they have never done before (Ensor, 2001; Puertas-Aguilar, 2021). The relationship between variables with teacher creativity is described as follows:

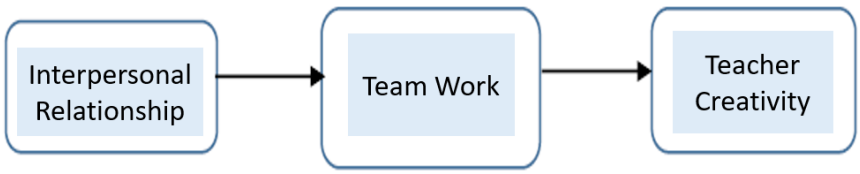

Fig 5. Part 3 Teacher Creativity Model

So from the three concepts models above, the model for developing the creativity of high school teachers is as follows:

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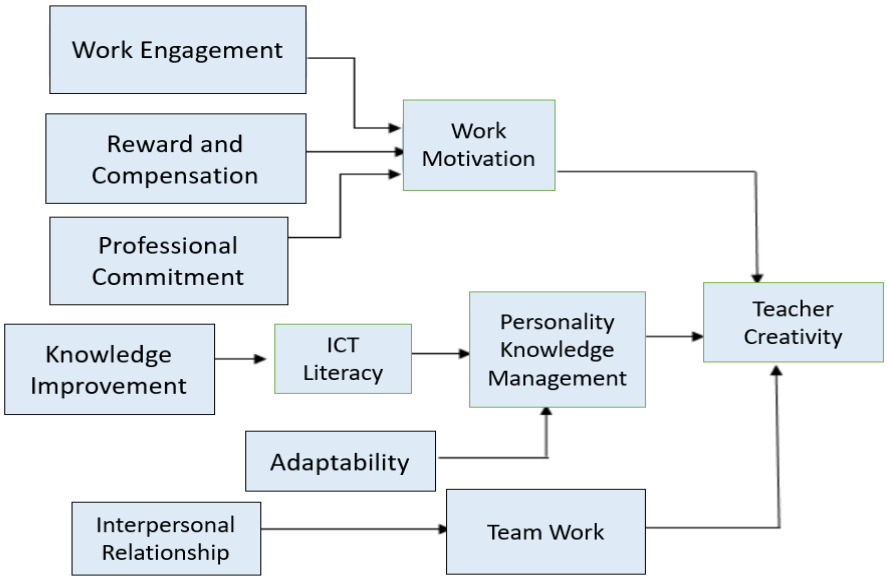

Fig 6. Final Model of Teacher Creativity

CONCLUSIONS

Teachers as the main subject of implementing education in schools must have good creative abilities. Considering that not all students have the same intellectual abilities, different characters and come from different family backgrounds. So that in carrying out their duties teachers are always asked to be able to be creative in carrying out the learning process, in getting closer to their students, in completing assignments and assessing their students. From this empirical research, it is found that the variables that are expected to affect the creativity of teachers in schools are: (1) Adaptability Competence, (2) Literacy of Information and Communication Technology (ICT), (3) Interpersonal Relationship, (4) Knowledge Improvement, (5) Professional Commitment, (6) Personal Knowledge Management, (7) Reward and Compensation, (8) Team Work, (9) Work Engagement, and (10) Work Motivation. Further research is needed quantitatively to calculate the magnitude of the influence between these variables on strengthening teacher creativity.

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