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## SURAT TUGAS

Nomor / & g / F.03.08/2022

Pimpinan Sekolah Pascasarjana Universitas Muhammadiyah Prof. DR. HAMKA  
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Sekolah Pascasarjana UHAMKA

Untuk melaksanakan hasil Publikasi Penelitian dengan judul "Implication of Knowledge  
in Vocational Education"

Demikian surat tugas ini diberikan untuk dilaksanakan sebaik-baiknya sebagai amanah  
dan ibadah kepada Allah Subhanahu Wata'ala.

Jakarta, 18 Sya'ban 1443 H  
21 Maret 2022 M

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## Implications of Knowledge Management in Vocational Education

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(Received: 01-10-2021; Reviewed: 16-12-2021; Accepted: 16-03-2022;  
Available online: 28-04-2022; Published: 29-04-2022)



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CC-BY-NC-4.0 ©2022 by author (<https://creativecommons.org/licenses/by-nc/4.0/>).

**Abstract.** This study analyzes the differences between the levels of management knowledge possessed by vocational high school teachers. The problem in this research is the shortage of vocational teachers who teach productive subjects so there is a gap in the skills possessed by graduates. This study uses a quantitative approach with Chi-Squared analysis, data collection is done by distributing online questionnaires and documents. The sample amounted to 62 respondents using a non-probability sampling technique, namely saturated sampling. The results showed that there was no significant difference between knowledge management and the category of teachers (vocational and non-vocational). These results mean that every teacher who teaches at Muhammadiyah vocational schools has the same knowledge and competence in designing, organizing, carrying out tasks, and controlling school programs..

**Keywords:** management knowledge, vocational and non-vocational, teacher competence

## INTRODUCTION

Knowledge management is systematic coordination within an organization or school that manages human resources, technology, processes and organizational structures in order to increase value through reuse and innovation. This coordination can be achieved through creating, sharing and applying knowledge using experience and action, as well as through education (Volegzhanina, Chusovlyanova, Adolf, Bykadorova, & Belova, 2017). In general, education is a form of learning that transfers values, skills and knowledge from one generation to another through discussion, teaching, storytelling and training (Charband & Jafari Navimipour, 2018). Knowledge management develops systems and processes for obtaining and sharing assets of success and maximizing the value of a foundation for

organizational success because knowledge management has a significant influence on organizational sustainability (Demir, Budur, Omer, & Heshmati, 2021). School success is the key that can provide educational competitiveness by implying management knowledge in developing educational systems and processes. The implications of knowledge management on vocational education in vocational high schools by applying systematic steps in managing intellectual assets or knowledge, various information from individuals or individuals and school organizations to create competitive advantage and maximize added value and innovation, knowledge acquisition, development and use knowledge (Orenga-Roglá & Chalmeta, 2019).

Through these steps of knowledge management implications, it is hoped that all students in schools can easily absorb knowledge and insight about educational activities so that schools are able to sustainably maintain and carry out the process, involving 3 main factors, namely people, process and technology. However, the absorption of knowledge that occurs is that the contribution of knowledge obtained from schools is only 10%, because all the theories studied are not included in the knowledge category but are included in the information category only (Gaspersz, 2019). This, of course, in sharing knowledge by teachers who teach in schools is adjusted to the context of teaching materials accompanied by the application of theories that are suitable for use in education.

Knowledge development through conceptual understanding includes skills-based scientific development by exploring, and studying many investigative approaches regarding various vocational training which is an educational practice policy through an active labor market providing qualifications for students (Aksit, Arpat, & Kalfa, 2017). The practice of vocational education in vocational schools aims to implement an education system that focuses on expertise that is directed at the output produced (Rismita & Istaryatiningtias, 2020), and conducts a complete investigation, in the sense that students are not only required to acquire knowledge, but also to learn concepts and understand the nature of knowledge. Furthermore, the practice of effective vocational education in vocational schools by educating professional and qualified students who have the knowledge and skills, as well as practical work habits as a learning environment that is applied in schools and cognitive engagement or knowledge. Practical work is a teaching and learning activity to gain knowledge and skills, in this case students observe or manipulate learning material objects individually or in groups, by involving the replication of work practices that have been demonstrated or simulated by productive teachers or experts in their fields, through observation with implement educational competencies in preparing for adjustments to increasingly rapid changes in all areas of life, as a result of the impact of the very accelerated development of information technology. Responding to changes that occur so quickly, vocational education practices must prepare innovative ways to use management

knowledge in producing quality and competitive vocational education graduates. Related research states that knowledge management is also applied to assess changes in learning and test system effectiveness/teacher or school effectiveness (Deutscher & Winther, 2018).

Teachers at Muhammadiyah 7, 9 and 15 South Jakarta Vocational High Schools in applying the implications of knowledge management (knowledge acquisition, knowledge sharing, and knowledge utilization), and in responding to their work assignments in accordance with the competencies and work requirements as teachers based on the knowledge domain they have with efforts to increase the spirit of competitive achievement excellence and be able to develop themselves and be ready to compete in the world of work, as well as academic and non-academic achievements obtained. In learning, teachers who teach skills competency subjects provide training offers to students that focus on skills, knowledge, attitudes to become competent, skilled, competitive and able to compete and have an entrepreneurial spirit and innovate.

Realizing success in producing competent graduates requires teachers who are in accordance with their fields of expertise in teaching specifically in the vocational field. In reality, the number of vocational teachers (productive teachers) is less than non-vocational teachers, resulting in the mastery of competencies needed by the world of work is not optimal. The shortage of productive teachers does not only occur in Muhammadiyah 7, 9 and 15 vocational high schools in Jakarta but also in Indonesia as a whole. Data shows that in 2016 there was a shortage of productive SMK teachers of 91,861 with details of 41,861 in State Vocational High Schools and 50,000 in Private Vocational Schools (Media, 2019). The impact of the shortage of productive teachers will cause a gap or imbalance between the skills possessed by Vocational High School graduates and the skills needed in the business world and the industrial world. This is shown by the phenomenon that occurred in Muhammadiyah 7, 9, and 15 South Jakarta vocational high schools regarding graduate data (working, continuing their studies in higher education, and entrepreneurship) occurring with various variations in number, where some experienced an increase in work, continued study in college and entrepreneurship after graduation and some have decreased based on data obtained from

2019, 2020, and 2021. Of course this has an impact on the utilization of the knowledge possessed by teachers which include indications of management knowledge about creating commercial value for customers in the form of superior products and services. This alumni or graduate data is important, to develop networks/partners and evaluation materials for graduate competencies that have an impact on the development of school quality (Istaryatiningtias & Rismita, 2021). Research related to this issue revealed that learning in vocational schools, through practical work in general and investigations in particular often rely on surveys and lacks good practice models in information and communication technology, and students feel fear of change and lack of change management skills. personal (Kipsoi, Chang'ach, & Sang, 2012).

The importance of research at Muhammadiyah Vocational High Schools regarding the implications of knowledge management for vocational and non-vocational teachers which aims to improve the quality of management-based schools because teachers are a core resource in school organizations and the application of knowledge management to teachers in overcoming changes and sustainability of school organizations as a source of progress for schools (Torres, Ferraz, & Santos-Rodrigues, 2018), as well as teachers, are required to have the ability to manage the classroom, classroom management style, and class structure goals, have a significant impact on student engagement, which affects final learning outcomes (Berger & Girardet, 2021).

## METHOD

This research method is a quantitative method using Chi-Square statistics by testing or analyzing whether there is a difference in frequency between teachers who have high management knowledge and groups of teachers who teach vocational and non-vocational, The sample in this study were all teachers of SMK Muhammadiyah in South Jakarta (SMK Muhammadiyah 7,9, and 15 ) as many as 62

teachers, with a non-probability sampling technique, namely saturated sampling, where all members of the population were used as samples in the study. Collecting data for the knowledge management variable by distributing questionnaires in the form of a Likert scale via a google form, the indicators of knowledge management consist of three, namely knowledge acquisition, knowledge sharing, and knowledge utilization (Iqbal, Latif, Marimon, Sahibzada, & Hussain, 2019). The three indicators were tested by testing the validity, that all the statements in the knowledge management questionnaire were valid by comparing  $r_{count} > r_{table}$  (0.361) and the reliability test was 0.924. The research data obtained were grouped into three categories (high, medium, and low) to obtain the value of the frequency of observation ( $f_o$ ). As for the teacher category variable, it was obtained from the questionnaire data distributed to all Muhammadiyah Vocational School teachers in the South Jakarta area based on the subjects they teach in schools which are grouped into two categories, namely vocational and non-vocational.

## RESULTS AND DISCUSSION

### Result

The results of the distribution of a questionnaire on management knowledge consisting of 30 statement items to 62 respondents (Teachers of SMK Muhammadiyah 7.9, and 15 South Jakarta) obtained the highest score of 150 and the lowest score of 91, The classification of knowledge management categories consists of 3, namely high, medium, low so the class interval is obtained as follows:

$$\begin{aligned} interval &= \frac{150 - 91 + 1}{3} \\ &= 20 \end{aligned}$$

The interval value of the data group on the knowledge management variable is 20. The frequency distribution of management knowledge is as shown in the following table:

**Table 1.** Frequency Distribution of Management Knowledge of SMK Muhammadiyah 7,9 and 15 South Jakarta Teachers

No.	Class Interval	Frequencies	Categoris	Persentase
1.	131 - 150	39	High	62,90
2.	111 - 130	21	Medium	33,87
3.	91 - 110	2	Low	3,23
	Amount	62	-	100

Based on table 1 above, there are 39 teachers (62.90%) in the high category of management knowledge, 21 teachers in the medium category (33.87%), and 2 teachers in the low category (3, 23%). The data explains that the level of teacher management knowledge at Muhammadiyah Vocational Schools in the

south Jakarta area is mostly in the high category, which means that these teachers apply the concept of knowledge as an important source in developing appropriate methods of sharing knowledge with students to achieve competitive advantage.

**Table 2.** Data for Vocational and Non-Vocational Teachers at SMK Muhammadiyah 7,9 and 15 South Jakarta

No.	Teachers Categories	Amount	Persentase
1.	Vokasi	29	46,77
2.	Non-Vokasi	33	53,23
	Amount	62	100

Based on table 2 above, it explains that there are 29 vocational teachers (46.77%) and 33 non-vocational teachers (53.23%). This shows that there are fewer vocational teachers than non-vocational teachers. After grouping the management knowledge categories in table 1 and the vocational and non-vocational teacher categories (table 2), to find out whether there is a difference in the level of teacher management knowledge to the vocational and non-vocational teacher categories, by analyzing the chi-square test using SPSS Version 25, it is obtained table 3.

Based on table 4 above, the value of chi square ( $\chi^2$ ) is obtained, the value of Chi square ( $\chi^2$ ) is 0.020. To find out whether there is a difference between vocational teachers and non-vocational teachers on teacher management knowledge, use a criteria table with the formula  $db = (b - 1) (k - 1) = 2$ , where: b = number of rows (teacher category), k = number of column (knowledge management), obtained the value of  $2 \text{ tab} = 2 (2)(0,05) = 5,991$ . Then compared

between 2 count = 0.020 < 2 table = 5.991. The result of the decision regarding the value of 2 arithmetic is smaller than 2 the table states that H0 is accepted which means that there is no difference in management knowledge between vocational and non-vocational teachers.

### Discussion

Based on the data obtained, there are 98.4% (almost all teachers of Muhammadiyah 7,9, and 15 South Jakarta vocational high schools have an interest in increasing learning sensitivity in vocational education for school sustainability by involving the role of the business world and industry. This data illustrates that teachers Muhammadiyah 7,9, and 15 South Jakarta vocational high schools are trying to adopt a curriculum-based framework that has relevance to educational practice (Humphreys, Crino, & Wilson, 2018), and adapts it to a competency-based learning model that is related to the world of work and explains various skills



to be developed (Laajala, Lehtelä, Rantanen, & Jussila, 2020), vocational education and training are always challenged for their relevance to the world of work (Bahl & Dietzen, 2019).With the sensitivity of teachers in learning to face significant changes and support the achievements achieved students are actions and teacher policies to accelerate progress by

prioritizing educational priorities and goals. Muhammadiyah 7, 9, and 15 South Jakarta Vocational High School teachers always pay attention to improving the quality of education regarding educational outputs and outcomes, making improvements and educational innovations (Shawyun, 2016).

**Table 3.** Categories of vocational and non-vocational teachers regarding Management Knowledge at SMK Muhammadiyah South Jakarta

<b>Knowledge Management * Teachers Categories Crosstabulation</b>				
Count		Teachers Categories		
		Vocational Teachers	Non-Vocational Teachers	Total
Knowledge management	High	18	21	39
	Medium	10	11	21
	Low	1	1	2
Total		29	33	62

Processed: with SPSS Version 25

The next process to test the relationship between knowledge management and teacher categories, the Chi Square ( $\chi^2$ ) test table is used as follows:

**Table 4.** Chi Square Test ( $\chi^2$ )

<b>Chi-Square Tests</b>			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.020 <sup>a</sup>	2	.990
Likelihood Ratio	.020	2	.990
Linear-by-Linear Association	.020	1	.889
N of Valid Cases	62		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .94.

Processed: with SPSS Version 25

The highest level of teacher management knowledge is in the high category, which means that teachers of Muhammadiyah 7,9 and 15 South Jakarta Vocational High Schools are successful in managing knowledge that can improve school performance (Koohang, Paliszkievicz, & Goluchowski, 2017) and can create value. added to meet strategic needs which include the process of knowledge acquisition, knowledge sharing, and knowledge utilization (Balasubramanian, Al-Ahbab, & Sreejith, 2020). Another impact of teacher management knowledge is on the achievement of knowledge-based competitive advantage (Hussinki, Ritala, Vanhala, & Kianto, 2017), and competency-based which is a special domain shown by individual performance (Mulder, 2017), and knowledge management is a process dissemination of the intellectual resources of an organization (Antunes & Pinheiro, 2020).

The results of the study shown above, explain that the calculated chi-square test is smaller than the table chi-square test, meaning that the level of management knowledge of a teacher does not have a significant relationship with the category of teachers who teach vocational subjects with teachers who teach non-vocational subjects. . This shows that there is a similarity in the level of management knowledge that teachers have for the subjects they teach without distinguishing that the teacher is teaching vocational or non-vocational, with the implication that management knowledge is something that can be used as an integrated collaboration to access intellectual assets in gaining strategic advantage. school. Teachers who apply management knowledge are teachers who are able to overcome the gap between operational management and strategic management (Bolisani & Bratianu, 2018). The purpose of the research results obtained is that the Muhammadiyah 7, 9, and 15 South Jakarta vocational high school teachers in the learning process provide the same treatment regarding knowledge and teachers who are able to master the four competencies (pedagogic, professional, social, and personal) in the learning process ( Bakar, 2018), because knowledge is a core competency and the main source of competitive advantage in creating value for schools, teachers who have intelligence and competencies are important to apply in schools (Barão, de Vasconcelos, Rocha, & Pereira, 2017). Scott and Bhaskar, suggest that educational theory is a set

of characteristics that make up a learning environment that has the capacity for knowledge and skills (Scott & Bhaskar, 2015). Knowledge management as an effective vital tool for schools to be able to fulfill the duties of teachers in carrying out learning activities to achieve goals efficiently (Abualoush, Masa'deh, Bataineh, & Alrowwad, 2018). The implication of knowledge management applied by teachers in schools is the transfer of the right knowledge at the right time to students in increasing effectiveness by using appropriate methods by developing creative and innovative competencies (Obeidat et al., 2015), as well as teachers in teaching and educating carried out regularly. professionals who have knowledge and skills that become habits in their work (Aksit et al., 2017). Knowledge management is an effort to expand, process and apply knowledge by providing positive values in achieving goals, so that all Muhammadiyah 7,9, and 15 South Jakarta teachers share knowledge in accordance with the educational context with knowledge management processes for a continuous cycle (Al-Emran , Mezhuyev, Kamaludin, & Shaalan, 2018), for the sake of school progress and development even though some of the Muhammadiyah school teachers are not included in the vocational group and the success of the use of knowledge depends on the teacher's role in encouraging the effective use of knowledge in planning (which is stated in making the Implementation Plan Learning/RPP), organizing, implementing, and controlling school programs in the form of learning, because quality schools describe education as a productive system (Scheerens, Luyten, & Ravens, 2011). The purpose of knowledge management is to utilize knowledge with reference to improving organizational (school) performance through customer satisfaction (Scheerens, 2014), and within the knowledge management framework there is an element of a basic understanding of knowledge operations to support institutional operational activities (Abubakar, Elrehail, Alatailat, & Elçi, 2019).

## CONCLUSIONS AND SUGGESTIONS

The management knowledge possessed by teachers focuses on improving teaching and learning for the professional development of teachers in guiding subjects in designing, organizing, implementing, and controlling in managing the classroom being taught which is

useful for helping students become competent individuals in creating and managing a school environment that is conducive to learning, suitable for learning in vocational schools. The implications of teacher management knowledge in carrying out work duties as teachers are all the same as outlined in the Learning Implementation Plan without distinguishing that between vocational and non-vocational teachers by using intelligence and competence as a process of intellectual dissemination to students in dealing with teacher work assignments which are the teacher's responsibility to develop education achieves its goals. In the learning process, teachers should apply three knowledge management processes (knowledge acquisition, knowledge sharing, and knowledge utilization), both vocational and non-vocational teachers, because knowledge management is a process to bridge the gap between operational management and school strategic management.

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