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THE RELATIONSHIP BETWEEN TEACHER COMPETENCY TEST (UKG) AND TEACHER'S ABILITY IN APPLYING 21ST CENTURY LEARNING A CASE STUDY ON HISTORY TEACHERS OF VOCATIONAL HIGH SCHOOLS IN SURAKARTA CITY)

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ABSTRACT

This study aimed to find out whether there is a relationship between the Teacher Competency Test (UKG) score and the teacher's ability to carry out 21st century learning. This study is a quantitative study using statistics. The population was the History teachers of the vocational high schools (SMK) in Surakarta City, Central Java Province, Indonesia, with a total of 54 teachers. The sampling was based on Non-Probability Sampling (Non-Random Sample) with a Purposive Sampling technique, in which only 36 history teachers who attended UKG and had UKG scores became the sample of the study. The data were collected with the document study in the Central Java Education Quality Assurance Agency (LPMP) to obtain UKG score data and the observation of the teachers' teaching and the study of the teachers' instructional administration documents using the instrument determined by the Central Java Provincial Education Office to obtain the data on the application of the 21st century learning. To obtain the data on the scores of the teachers' abilities to apply 21st century learning, the researcher collaborated with her colleagues. Thus, the inter rater reliability test needs be conducted. The calculation result of the average reliability of a rater is 0.979 and the average rating carried out by 6 raters is 0.996. Thus, the consistency of the raters in responding to the assessment of 21st century learning is reliable and included in the very high category. The data processing technique used is the Product Moment Correlation formula. The result of the processing data has shows that r is 0,838. The contribution of UKG scores toward application for 21st century learning is 70,22%. Thus, it can be concluded that there is a positive and significant relationship between the UKG score variable and the teacher's ability to apply 21st century learning.

KEYWORDS: Relationship of UKG Score, Teacher's Ability, 21st Century Learning.

I. INTRODUCTION

The 21st century is marked by the globalization stream that makes everything global, and the development of information technology is very rapid. In addition, everything takes into account competitiveness through quality standards. According to Sariyatun (2017), the 21st century is known as the knowledge age. In this era. everything we do is the effort to fulfill life needs based on knowledge, such as knowledge-based education, knowledge based economic development, knowledge-based social development and empowerment, and knowledge-based industry development. In the 21st century, education becomes increasingly important to ensure students have the skills to learn and innovate, to use technology and information media, and to work and survive using life skills.

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The application of 21st century learning in schools is highly dependent on the teacher, considering that how good the curriculum or education system is, the result will not be as expected if it is not supported by the teacher competence. According to Law Number 14 of 2005 concerning Teachers and Lecturers, competence is a set of knowledge, skills, and behaviors that must be owned, lived and mastered by the teacher or lecturer in carrying out his/her professional duties. As a special profession, a teacher is also required to have specific competencies in accordance with the mandate of the regulation. As stated in the Government Regulation (PP) Number 19 of 2005 concerning National Education Standards (SNP) article 28 paragraph 23, teacher competence is divided into four (4) aspects, namely: Pedagogic, personality, professional and social competencies.

This competence relates to the teacher's ability as a member of the community and as a social being. To find out the teacher's competence, in 2012 and 2015, the Indonesian government through the Ministry of Education and Culture of the Republic of Indonesia held a Teacher Competency Test, abbreviated as UKG in Indonesian. Teacher Competency Test or UKG is an exam held to measure professional and pedagogical competencies in the teacher's content domain. Given the specific teacher competencies, special treatment is also needed, and UKG is a way to provide guidance and professional development services to teachers because the teaching profession will be qualified if there is continuous test and measurement of competence through UKG. In general, the purposes of the implementation of UKG are as follows:

1) To obtain information about the teacher competencies, especially pedagogical and professional competencies in accordance with established standards.
2) To obtain teacher competency maps that will be taken into consideration in determining the types of education and training that must be followed by teachers in the teacher professional coaching and development program in the form of continuous professional development activities.
3) To obtain UKG results that are part of teacher performance evaluation and will be the consideration for policy making in giving appreciation to the teacher (Zulfah, 2016).

In implementing UKG, we must consider the principles such as objective, fair, transparent and accountable. Objective means that the implementation of UKG is carried out accordingly and clearly, and it must assess the competence as is. Fair means UKG participants are treated equally without any discrimination of cultures, beliefs, socio- culture, and seniority. Besides, they must be served according to the criteria and work mechanism fairly and without any discrimination. Transparent means the work mechanism and the assessment system must be conveyed openly and can be accessed by those who need it. Accountable means that the implementation of UKG must be accountable in terms of its implementation, applicable decisions and procedures (Zulfah, 2016).

There are 54 teachers who teach the history subject in the vocational high schools in Surakarta. However, not all of them have a diploma or educational background that matches the subject they teach, i.e. history. This is due to the uneven distribution of history teachers in Surakarta, which still

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needs attention. In this study, the UKG scores of the history teachers include the scores of pedagogic and professional competencies as tested in the form of questions. Of the 36 vocational history teachers, who were the subjects of the study, the highest score obtained was 95.24 and the lowest 50.00 with an average score of 70.20.

According to Wagner in Sariyatun (2017), there is a series of competencies and skills in 21st century learning as follows: 1) critical thinking and problem solving, 2) collaboration and leadership, 3) agility and adaptability, 4) initiative and entrepreneurship, 5) effective oral and written communication, 6) accessing and analyzing information, and 7) curiosity and imagination. This been previously stated by Bateman and Snell (2002) that the forms of knowledge and expertise expected for 21st century graduate students are: 1) communications skills, 2) creative and creative thinking, 3) information/digital literacy, 4) inquiry/reasoning skills, 5) interpersonal skills, 6) multicultural/multilingual literacy, 7) problem solving and technological skills, and 8) basic skills.
From the above conditions, 21st century teachers face far greater challenges than the teachers of the previous era. The teacher faces more heterogeneous students, more complex and difficult subject matters, higher standards of the learning process, and higher demands of the achievement of students' thinking skills (Dariing, 2006). In this 21st century, massive transformation happens on the social, economic, political and cultural aspects according to Mulford (2008) due to the support of four interrelated major forces namely the advancement of science and technology, changes in demography, globalization and the environment. With demographic changes, students in schools are more diverse in their cultures, religions/beliefs, and languages. The advancement in the field of ICT has increased flexibility in the acquisition of knowledge for each individual, both teachers and students. Therefore, teachers are required to be able to develop learning approaches and strategies in line with the progress of the times. Experts or teachers are not the only ones who own science because of the abundant access to information about various types of knowledge.

Citing the stages of teacher professionalism developed by Hargreaves and Fullan (2000), teachers are now entering a professional era, which begins in the 21st century, in which schools are required to pay more attention to the market or consumers and be competitive. The teacher’s task becomes more complex. The teacher’s professionalism through the standardization of teacher competencies is getting stronger. Thus, the development of 21st century teachers has the following characteristics: a) using a "bottom- up" approach based on the needs of teachers and schools, b) supporting the development of collaborative culture and the creation of professional teacher communities, c) conducted continuously by integrating and synergizing all professional learning obtained by the teacher. Teacher development covers not only teaching and learning approaches and strategies, but also all the knowledge and skills needed by teachers to support the efforts to improve the quality of learning, such as technology mastery, emotional management and communication skills (Hargreaves, 2000).

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The important thing that needs to be implemented in 21st century learning by teachers is that they need to develop a lesson plan that challenges students to think critically, cooperate and communicate. Student-centered learning has several characters known as 4C, which stands for Creativity and Innovation, Critical Thinking and problem Solving, Communication, and Collaboration. All must be realized in the learning preparation, implementation and evaluation. Thus, a teacher can implement 21st century learning if he has implemented a scientific learning model that has integrated 4 C characters in it and is able to develop, construct and develop HOTS questions in his evaluation. The indicators of 21st century learning have emerged in the lesson plan and learning implementation instruments that use the scientific learning approach. The scores of the teachers' abilities to apply 21st century learning was obtained from scores of the observation of the learning process/implementation, lesson plans and evaluation instruments, which were summed and divided by three (3). From the results of the score analysis, it shows that the highest score for the implementation of 21st century learning is 88.91, the lowest 73.43 and the average score 78.95. Thus, teachers must continue to try to become a standard teacher by, one of them, having the ability to utilize various innovations in Information and Communication Technology (ICT).

II. RESEARCH METHOD

The method used in this study was quantitative descriptive with a correlation approach by describing the object of the current study based on facts as is, which was then analyzed and interpreted (Siregar, 2017: 16). The study location was in Surakarta City, Central Java Province, Indonesia. The independent variable in this study is the Teacher Competency Test (UKG) score while the dependent variable is the teacher's ability to apply 21st century learning. The sample was selected using cluster random sampling technique based on the data from 36 vocational history teachers who had followed UKG and had UKG scores in the history subject held by the Ministry of National Education.

This technique was carried out because in Surakarta city there are history teachers who have never followed the UKG for the history subject. The score data from the UKG of vocational history teachers were obtained through library study or documentation at the Education Quality Assurance Agency (LPMP) of Central Java Province in Semarang. The data of the teachers' abilities to carry out 21st century learning was obtained through observation during their teaching, the teacher document study in the form of lesson plans (RPP) and evaluation instruments used by the teacher contained in the lesson plan. The instrument of the observation during the teacher's teaching, lesson plan and evaluation instruments are the products of the Central Java Provincial Education Office. The score of

the teacher's ability to apply 21st century learning was obtained from the scores of teaching observations, lesson plan documentation study and the evaluation tool, which was then summed and divided by three (3). The researcher did not obtain the research data in the form of implementation of 21st century learning on his own. She involved 5 colleagues, who had passed the interrater reliability test. The interrater reliability test results show that the average reliability of one rater is r = 0.979 and the average rating carried out by 6 raters is 0.996. Thus, the consistency of the raters in addressing

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the lesson plan Instrument was reliable of the very high category. After the data were obtained, they were analyzed. The data in this study were analyzed during data collection and after the data collection was completed.

III. RESULT AND DISCUSSION

1. Result of Study

a. List of research subjects, UKG scores and scores of 21st century learning application

The UKG score is the score of the test held by the Ministry of National Education to measure basic competencies regarding professional and pedagogical competencies of a teacher. The minimum completeness standard of UKG was 55. The UKG score is multiplied by 100 with a range between 0 – 100, the final score of UKG is obtained by weighting 30% of the pedagogical competence score plus 70% of the professional competence score. The scores of UKG and 21st century learning of the 36 subjects are described as follows:

Table 1. Scores of UKG of the vocational history teachers in Surakarta City and 21st century learning

Number Subject	Score per competence		UKG final score (X)	Score of teacher's abilities to apply 21st century learning (Y)
	Pedagogic	Professional		
1	83,33	88,44	86,90	84,53
2	63,49	86,73	79,76	80,56
3	95,24	95,24	95,24	88,91
4	39,68	74,83	64,29	75,00
5	75,40	93,54	88,10	87,16
6	71,43	90,14	84,52	85,75
7	83,33	74,83	77,38	80,93
8	71,43	79,93	77,38	83,34
9	55,56	54,42	54,76	75,00
10	35,71	57,82	51,19	80,80
11	87,30	66,33	72,62	79,51

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12	55,56	81,63	73,81	80,35
13	79,37	86,73	84,52	86,28
14	87,30	74,83	78,57	84,15
15	59,52	81,63	75,00	84,41
16	75,40	86,73	83,33	85,73
17	71,43	95,24	88,10	87,63
18	83,33	57,82	65,48	78,32
19	63,49	71,43	69,05	79,94
20	79,37	100,00	93,81	88,05
21	91,27	79,93	83,33	81,22
22	55,56	100,00	86,67	86,23
23	63,49	71,43	69,05	75,00
24	79,37	64,63	69,05	77,08
25	51,59	81,63	72,62	83,73
26	35,71	57,82	51,19	73,43
27	83,33	39,12	52,38	75,00
28	59,52	91,84	82,14	88,97
29	63,49	74,83	71,43	82,73
30	75,40	39,12	50,00	73,43
31	83,33	68,03	72,62	85,30
32	43,65	57,82	53,57	75,00
33	67,46	54,42	58,33	75,00
34	31,75	59,52	51,19	73,43
35	63,49	61,22	61,90	74,67
36	47,62	90,14	77,38	79,17

b. Analysis of correlation test data between the scores of UKG (X) and 21st century learning application (Y)

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From the data in Table 1, the correlation test data were then processed to determine the correlation between the UKG score (variable X) and the teacher's ability to apply 21st century learning (variable Y).

Table 2. Table of data analysis for correlation test between the scores of UKG (X) and 21st century learning application (Y)

Number Subject	X	Y	X^2	Y^2	XY
1	86,90	84,53	7551,61	7145,32	7345,66
2	79,76	80,56	6361,66	6489,91	6425,47
3	95,24	88,91	9070,66	7904,99	8467,79
4	64,29	75,00	4133,20	5625,00	4821,75
5	88,10	87,16	7761,61	7596,87	7678,80
6	84,52	85,75	7143,63	7353,06	7247,59
7	77,38	80,93	5987,66	6549,67	6262,36
8	77,38	83,34	5987,66	6945,56	6448,85
9	54,76	75,00	2998,76	5625,00	4107,00
10	51,19	80,8	2620,42	6528,64	4136,15
11	72,62	79,51	5273,66	6321,84	5774,02
12	73,81	80,35	5447,92	6456,12	5930,63
13	84,52	86,28	7143,63	7444,24	7292,39
14	78,57	84,15	6173,24	7081,22	6611,67
15	75,00	84,41	5625	7125,05	6330,75
16	83,33	85,73	6943,89	7349,63	7143,88
17	88,10	87,63	7761,61	7679,02	7720,20
18	65,48	78,32	4287,63	6134,02	5128,39
19	69,05	79,94	4767,90	6390,4	5519,86
20	93,81	88,05	8800,32	7752,8	8259,97
21	83,33	81,22	6943,89	6596,69	6768,06
22	86,67	86,23	7511,69	7435,61	7473,55
23	69,05	75,00	4767,90	5625,00	5178,75

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24	69,05	77,08	4767,90	5941,33	5322,37
25	77,62	83,73	5273,66	7010,71	6080,47
26	51,19	73,43	2620,42	5391,96	3758,88
27	52,38	75,00	2743,66	5625,00	3928,50
28	82,14	88,97	6746,98	7915,66	7307,99
29	71,43	82,73	5102,24	6844,25	5909,40
30	50,00	73,43	2500,00	5391,96	3671,00
31	72,62	85,30	5273,66	7276,09	6194,49
32	53,57	75,00	2869,74	5625	4017,75
33	58,33	75,00	3402,39	5625	4374,75
34	51,19	73,43	2620,42	5391,96	3758,88
35	61,9	74,67	3831,61	5575,61	4622,07
36	77,38	79,17	5987,66	6267,89	6126,17
Σ	2606,66	2842,31	194805,49	237038,08	213146,26

From the data in Table 2, the calculation of the correlation between the scores of UKG and the teacher's ability to apply 21st century learning was performed using the product moment correlation formula as follows:

$$r_{xy} = \frac{n(\Sigma XY) - (\Sigma X.\ \Sigma Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

$$r_{xy} = \frac{264329,58}{\sqrt{(218321,28)(454644,75)}}$$

$$= 0,838$$

The guideline for interpreting the correlation coefficients is as follows:

Table 3. Guideline for interpretation of correlation coefficients

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Coefficient Interval	Relationship Level
0.00 – 0.199	Very low
0.20 – 0.399	Low
0.40 – 0.599	Medium
0.60 – 0.799	Strong
0.80 – 1.000	Very strong

From the calculations of contribution of variable X and Y is as follows:

$$KP = r^2 \text{ X } 100\%$$
$$= (0{,}838)^2 \text{ x } 100\%$$
$$= 70{,}22\%$$

2. Discussion of Findings

The findings on the correlation between the scores of UKG and the teacher's ability to apply 21st century learning and hypothesis testing have shown that:

1. The teacher's UKG score which represents the teacher's ability in pedagogical and professional competencies has a very strong relationship with the teacher's ability to apply 21st century learning. This can be seen from the results of calculations using the product moment correlation formula where r > r table or 0.893 > 0.329. From the guidelines of the interpretation of the correlation coefficient between UKG score and the teacher's ability to apply 21st century learning is very strong positively. The relationship is positive, meaning there is a direct relationship between variables X and Y. If the score of UKG is higher and the scores teacher's ability to apply 21st century learning is also increasing. The contribution of variable X toward variable Y is 70,22%, there is effect of the score of UKG toward the score of teacher's ability to apply 21st century learning is 70,22% and 29,78% has determined by other variables.
2. When viewed from the UKG score, the achievements of the vocational history teachers in Surakarta City are quite good. With a minimum completeness standard of 55 in the range between 0 –100, the final score of UKG is obtained by weighting 30% of the pedagogical competence score plus 70% of the professional competence score. Of the 36 history teachers of vocational high schools, 80.56% or 29 teachers have scores above the minimum

completeness standard and only 19.44% or 7 teachers obtain the scores below the standard. Besides that, he highest UKG score is 95.24, the lowest is 50.00 and the average score is 72.41. Thus, the average UKG score is already far above the predetermined minimum completeness standard of 55.

3. When viewed from the teacher's ability of the application of 21st century learning is good enough, based on the research the higher score of application of 21st century learning is 88,97 and lowest score is 73,43 then average score is 78,95.

If the predicates of teachers' teaching scores are 91-100 Very good, 81-90 Good, 71-80 Enough and ≤ 70 Less, then in this study, no teachers, who applied 21st century learning, got very the good predicate. Around 58,33% of teachers obtained good predicate, 41,67% got enough predicate, and no one got less predicate. The average predicate of the teacher's teaching ability is also good.

In relation to the theory of teacher competence when associated with teaching ability, the result shows that if the teacher has a high score of the competency test, it can be ascertained that he has mastered pedagogic and professional competencies, as measured in UKG.

According to Government Regulation Number 19 of 2005 concerning Education National Standards article 28 paragraph 23, pedagogic competence is the ability to manage learning which includes student understanding, design and implementation of learning, evaluation of learning outcomes and development of students to actualize various competencies in accordance with development of the era. For the professional competence, the ability of broad and deep mastery of learning material which can guide students to meet the established competency standards is measured.

This is as put forward by Danim (2008: 30) that whether a teacher is professional can be seen from two perspectives, namely: 1) educational background; 2) teacher's mastery of teaching material, learning and student management, conducting guidance, and others. This second perspective is the realization of the implementation of pedagogic and professional teacher competencies. In developing teaching preparation, the history teacher of vocational high schools must first master the elements contained in teaching preparation and that requires pedagogic competence. What is implemented in 21st century learning by history teachers is developing a lesson plan that challenges students to think critically, cooperate and communicate. Student-centered learning has several characters known as 4C, which stands for Creativity and Innovation, Critical Thinking and Problem Solving, Communication, Collaboration. These are the manifestation of professional competence.

Likewise, in the vocational history teachers in Surakarta City, if the UKG score is good, then the learning is carried out in accordance with the stages as outlined in the 21st century lesson plan along with its evaluation instruments. The results of the study conducted by the Brad White Consortium for Policy Research in Education University of Wisconsin (2004) show that the score of teacher evaluation can show his quality. Thus, a teacher can carry out his duties well if he can manage

learning, manage students, conduct coaching in accordance with the times in the 21st century era as it is today 80.56% of vocational history teachers obtained UKG scores above the minimum completeness score, which means most of history teachers have already had pedagogic and professional competencies above the standard. 58,33% of them obtained the good scores of 21st century learning application. Thus, if it is associated with Danim's theory, the vocational history teachers in Surakarta City have the good mastery of teaching material, managing learning, managing students, guidance, etc. Thus, there is a correlation between the scores of UKG and the teacher's ability to apply 21st century learning.

The results of a study conducted by Gallagher (2004) indicate that teacher evaluation test scores, like UKG in Indonesia, show a positive and significant relationship with student achievement because if the teacher has good pedagogical and professional knowledge, there will be good harmony in learning and have an impact on student achievement. That means the evaluation test score has a relationship with the learning process carried out by the teacher.

This is supported by the study conducted by Geoffrey D Borman (2005) showing that the low score of teacher evaluation means that pedagogic and professional mastery is also low. Their students tend to be lacking concentration and have poor ideas that influence their learning achievement. On the contrary, the high score of teacher evaluation indicates higher average achievement in the class taught by the teacher who has the high evaluation score. The teacher competency evaluation score has a very close relationship with learning process implemented. The teacher evaluation score is used as the basis for the payment system or for making other decisions related to the consequences and fate of teachers in Cincinnati – Ohio, United States. (Milanowski, 2004).

Different with Indonesia, the scores of UKG in Indonesia is still as illustration and mapping for while of teacher competencies, and has no effect on the professional allowance, although the discourse of score of UKG has become a material consideration in the formulating policies appreciation to teachers has also been raised.

IV. CONCLUSION

Based on the study conducted, the conclusions are as follows:

1. Of the 36 history teachers of vocational high schools who became the study sample, 80.56% or 29 teachers had scores above the minimum completeness standard and only 19.44% or 7 teachers had the scores below the standard. The highest UKG score is 95.24, the lowest 50.00 and the average score 72.41. Thus, the average UKG score of the history teachers is above the predetermined standard of 55.
2. The average score of the teacher's ability to apply 21st century learning is good with thehighest score of 88.97, the lowest of 73.43 and the average score of 78.95. When looking at the predicates of teacher's teaching scores, namely, 91 -100 Very good, 81-90 Good, 71 - 80 Enough and 70 Less, then in this study no teachers, who applied 21st century learning, got very good

predicate. Around 58,33% of teachers got good predicate, only 41,67% got enough predicate, and no one got less predicate. The average predicate of the teacher's teaching ability is also good.

3. The correlation between the teacher's UKG score and their ability to apply 21st century learning from the results of calculations using the Product Moment Correlation formula shows r 0.893. Meaning that there is a significant relationship between the scores of UKG and the teacher's ability to apply 21st century learning, and contribution the scores of UKG toward the teacher's ability to apply 21st century learning is 70,22%, meaning that variable contribution of scores of UKG toward teaching ability to apply 21st century learning shows 70,22% and 29,78% has determined by other variables.
4. In conclusion, there is a close relationship between the UKG's score and the teacher's ability to apply 21st century learning.

V. SUGGESTIONS

Vocational history teachers have good pedagogic and professional competencies, which can be seen from the results of UKG scores and 21st century teaching abilities. It is expected that in the future teacher quality will increase. One of the ways is by holding a Teacher Competency Test (UKG) again with the Minimum Completeness Score higher than the previous year's score. If possible, UKG is also carried out in the use of Information and Communication Technology (ICT) considering the current revolution of industry 4.0 era that requires teacher's mastery of ICT. Thus, it is expected that in the future teachers will continue to improve their self-quality and service quality in teaching the students so that they can improve the quality of school graduates to conform to the Graduates Competency Standards set by the government.

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