

The Influence of Work Culture and Digital Competence on Learning Innovation of Public Junior High School Teachers in Kudus Regency

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Abstract: This study aims to (1) determine the effect of work culture on learning innovation of junior high school teachers in Kudus Regency, (2) determine the effect of digital competence on learning innovation of junior high school teachers in Kudus Regency and (3) determine the effect of work culture and digital competence on learning innovation of junior high school teachers in Kudus Regency. This study uses a quantitative approach to the survey method in closed questions with 5 Likert scale options. The study population was 1042 junior high school teachers in Kudus Regency. Sampling using proportional random sampling technique of 289 teachers. Instrument testing used validity test and reliability test as a requirement for a proper questionnaire test. Data analysis used Structural Equation Modeling (SEM) Analysis. The results of the study showed (1) the work culture Critical Ratio (CR) value of $2.406 \geq 1.967$ and a probability value (P) of $0.000 \leq 0.05$, then hypothesis 1 of the study was accepted, meaning that work culture has a direct effect on teacher learning innovation. (2) digital competence C.R value of $4.848 \geq 1.967$ and probability value (P) of $0.000 \leq 0.05$ hypothesis 2 of the study is accepted, meaning that digital competence has a positive and significant direct effect on teacher learning innovation. (3) Based on the output covariance data between the exogenous variable of work culture and the exogenous variable of digital competence, it has a Critical Ratio (C.R.) value of ≥ 1.967 , which is 5.119 or a probability value (P) of ≤ 0.05 , which is 0.000, this shows that work culture will have a very positive and significant effect on teacher learning innovation if correlated with digital competence.

Keywords: work culture, digital competence, teacher learning innovation

1. Introductions

Based on interviews with junior high school supervisors in Kudus Regency, data shows that young junior high school teachers in Kudus Regency are currently highly innovative. However, teachers over 50, especially those nearing retirement, face challenges in innovating their learning. These innovations can include engaging and interactive learning, technology-based learning, game-based learning, and project-based learning. This is especially true for teachers categorized as older, aged 50 and over, who experience difficulties developing technology-based, project-based, and game-based learning. The current work culture of teachers in junior high schools in Kudus Regency is generally very high due to the administrative demands of teachers. However, some schools have not yet developed a positive work culture. This is due to factors such as the school's geography, principal leadership, and teacher motivation.

Based on interviews with teachers at a public junior high school in Kudus Regency, data shows that some teachers at the school lack enthusiasm for learning innovation, especially in the area of technology. This is due to a lack of motivation to try. Furthermore, many teachers over 50 still struggle to implement technology-based and project-based learning innovations. Interviews with teachers at a public junior high school in Kudus Regency revealed a high level of work ethic and enthusiasm for developing innovative learning. The school's work culture and innovation development culture are age-agnostic. This is due to the presence of competent, young teachers who support each other throughout the innovation development process. The school boasts a Central Java Technology Ambassador (Dutek) teacher, a Ministry of Education and Culture content creator teacher, a Central Java-level learning innovation champion, 10 leading teachers, and 3 practicing teachers. Furthermore, the school is a leading school, with numerous motivations and incentives for teachers to innovate in learning, particularly in the field of technology.

1.1 Conceptual framework

Given the increasingly rapid development of technology, it is hoped that humanity will continue to evolve. Challenges in education are increasingly complex, as it requires students to develop the 5C skills (critical thinking, communication, collaboration, creativity, and character) to face the soft skills needed for the future. Learning transformation to improve the quality of education in Indonesia is crucial due to the dynamics of technological development. Currently, students are highly enthusiastic about everything digital and technological (Mister Nuel, 2014). In this digital era, teachers face different challenges.

In this rapidly evolving digital era, innovation in learning is key to improving the quality of education. The role of teachers as learning facilitators is crucial. As the spearhead of education, teachers are required to continuously adapt to changing times. One important aspect that needs to be considered is teachers' ability to innovate. This research will examine how work culture and teachers' mastery of digital technology can encourage more effective and creative learning practices.

Innovation must be implemented in a clear and credible manner, encouraging the community to seek better ways of teaching and learning, and to improve towards change. A culture of innovation is guided by the ability to see the potential positive impact on learning under certain conditions. Furthermore, what risks might arise if the innovation is implemented, such as reduced learning, wasted resources, and lack of trust or clarity? Redding et al. (2013) argue that an innovation provides an alternative solution to a problem or creates a new solution to meet the needs of individuals, groups, or organizations. The effectiveness of innovation depends, regardless of the level at which it begins within the school organization, on the extent to which individuals are involved.

Learning innovation is a brilliant idea that generates new things, such as specific practices, technological developments, and products derived from thought processes, designed to solve emerging problems and improve specific situations or processes within society through specific stages. Shalikhah & Primadewi (2017) argue that innovation models in various fields of education include efforts to achieve educational equality, improve quality, increase educational effectiveness and efficiency, and enhance educational relevance. According to Ridwan et al. (2022), a great teacher is one who can inspire their students. The quality of learning is determined by student activity during learning and the creativity they demonstrate after participating.

According to Soewadji in Supraptiningrum et al. (2024), a teacher's work culture can be seen in their sense of responsibility in carrying out their mandate by creating and preparing the teaching and learning process, implementing it, and evaluating and analyzing learning activities. Research by Riyatiningrum et al. (2024a) states that all school members have a work culture, and all schools implement the same rules and discipline in accordance with education department regulations. One example is the requirement for teachers to innovate and take risks, competing with each other to improve teacher quality, achievement, and competence.

Society needs individuals who are able to think critically, are skilled at asking questions, and are able to obtain information to support opinions based on valid facts and truth. It has been proven that scientific and technological progress is a substantial factor in a country's economic development, but citizens need to improve their scientific literacy to respond to changing societal demands and continuously improve their knowledge and skills.

1.2 Research objectives

This study was conducted to determine the influence of teacher work culture and teacher digital competence on learning innovation of teachers of State Middle Schools in Kudus Regency.

2. Methodology

2.1 Research design

This study employed quantitative methods with a non-experimental design. Data collection utilized research instruments, and statistical analysis was used to test the established hypotheses. The research design employed an ex post facto approach.

2.2 Respondents of the study

The population in this study was all 1042 teachers of State Junior High Schools in Kudus Regency. Sampling was based on the proportional random sampling technique in 27 State Junior High Schools in Kudus Regency with a total of 289 respondent samples.

3. Findings and Discussion

To determine the relationship between variables, a hypothesis test was conducted using causality analysis. This study hopes to identify the relationship between work culture, digital competence, and teacher learning innovation by testing the hypothesis.

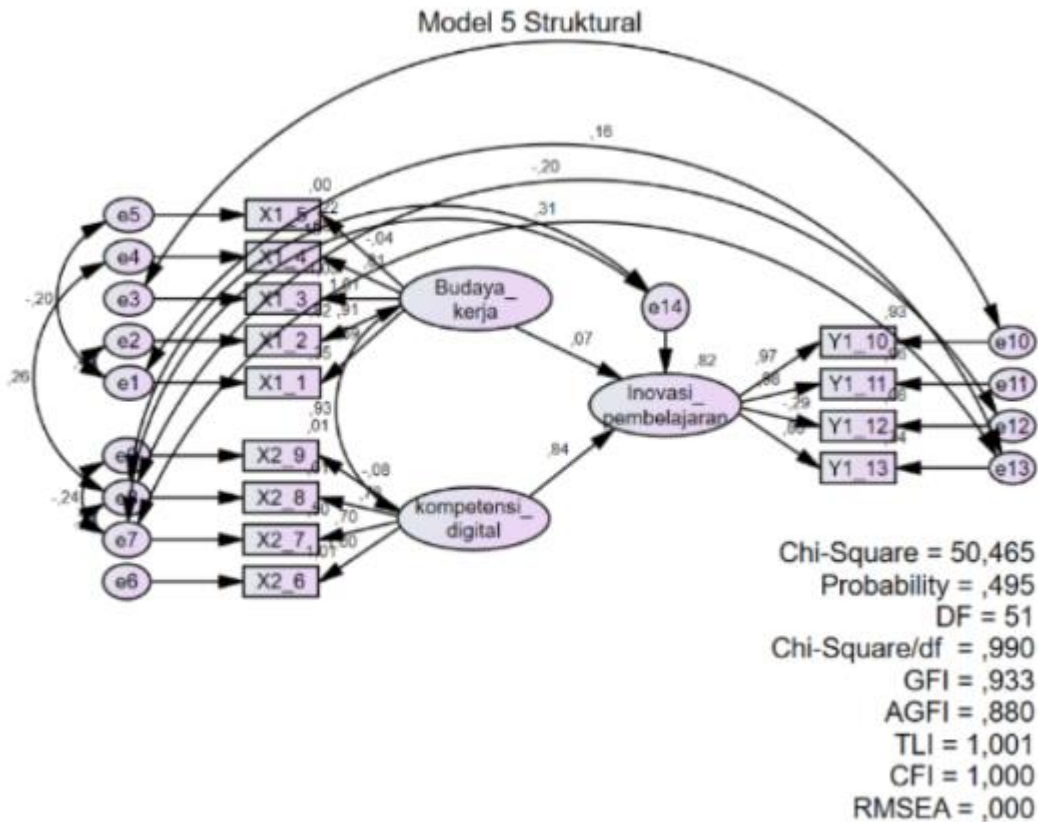


Figure 1. Structural model

Based on the image above and the output data of the 5 structural fit model, it can be seen that all correlated dimensions and their indicators are valid and the indicators in the 5 structural fit model are all valid because they have a standard loading factor value ≥ 0.5 (Ghozali, 2017:135). Next, a test was carried out on the feasibility of the 5 Structural model. From the path diagram in Figure 1 above, it can be seen that the 5 structural fit model starting from the Chi-Square value, probability (P) value and GFI, AGFI, CFI, TLI, CMIN/DF, RMSEA values meet the recommended values which are clearly seen in the table below.

Table 1. Goodness of Fit Test Results for the 5 Structural Fit Models

No	Goodness of Fit Index	Cut off value	Hasil Pengujian	Keterangan
1	Chi Square	Diharapkan Kecil	50,465	Fit
2	Significance Probability	$\geq 0,05$	0,495	Fit
3	CMIN/DF	$\leq 2,00$	0,990	Fit
4	GFI	$\geq 0,90$	0,933	Fit
5	AGFI	$\geq 0,90$	0,880	Marginal Fit
6	TLI	$\geq 0,95$	1,001	Fit
7	CFI	$\geq 0,95$	1,000	Fit
8	RMSEA	$\leq 0,08$	0,000	Fit

From Table 1 above, it can be concluded that overall, the 5 structural fit model is an acceptable fit model, although in empirical research, a researcher is not required to meet all goodness of fit criteria. In empirical research, a

researcher does not have to meet all goodness of fit criteria. According to Hair et al. (2010) in Siswoyo (2016:59), the use of 4 to 5 goodness of fit criteria is considered sufficient to assess the feasibility of a model, as long as each goodness of fit group, namely absolute fit indices, incremental fit indices, and parsimonious fit indices, is represented. The fundamental hypothesis of SEM analysis in this study is accepted. This means that there is no significant difference between the data covariance matrix of the observed variables and the covariance matrix of the specified model (implied covariance matrix). The 5 structural fit model in this study can be used to explain the relationship and influence between exogenous variables and their endogenous variables. To determine which exogenous variables have a significant and dominant influence on the endogenous variables and the extent of each exogenous variable's influence on the endogenous variables, statistical testing will be conducted.

Based on the 5-Structural Fit model, the research results show a factor loading value of 0.07 and a Critical Ratio (CR) value for the Regression Weights of the fit model (Model 5 Structural Fit) of ≥ 1.967 , or 2.406, or a probability value (P) of ≤ 0.05 , or 0.000. Therefore, H₀ is rejected (the research hypothesis is accepted). This indicates that the exogenous variable of work culture has a positive and significant direct effect on the endogenous variable, namely teacher learning innovation. This work culture, consisting of integrity, professionalism, innovation, responsibility, and exemplary behavior, as shown in the 5-Structural Fit model, has a factor loading greater than 0.5. All these indicators have a positive and significant effect on the exogenous variable of digital competence, which directly influences teacher learning innovation. This is based on the opinion of Robbins & Judge (2015), who stated that of the seven elements of work culture, innovation and risk-taking are among the seven elements that can encourage employees to be innovative and dare to take risks.

Based on the 5-Structural Fit model, the research results show that the digital competency factor loading value is only 0.84, and the Critical Ratio (CR) value in the Regression Weights of the fit model (Model 5 Structural Fit) is ≥ 1.967 , or 4.848, or a probability value (P) ≤ 0.05 , or 0.000. Therefore, H₀ is rejected (the research hypothesis is accepted). This indicates that the exogenous variable of digital competence has a direct positive and significant effect on the endogenous variable, namely teacher learning innovation. According to Blyznyuk (2019: 44), teachers' digital competencies, namely information (searching, selecting, sorting, evaluating, and managing information), communication, educational problem-solving (creating digital learning content), and educational content creation (creating digital learning content), can encourage teachers to create learning innovations. Therefore, it can be concluded that based on the calculation of the 5-Structural Fit model, the research results prove that the theory proposed by Blyznyuk is valid. Therefore, there is an influence of teacher digital competence on teacher learning innovation.

Based on the output data, the covariance between the exogenous variables of work culture and digital competence has a Critical Ratio (CR) value of ≥ 1.967 , or 5.119, or a probability value (P) of ≤ 0.05 , or 0.000. This indicates that work culture will have a positive and significant effect on teacher learning innovation when correlated with digital competence. This is consistent with the opinion of Redding et al. (2013) who stated that innovative teachers are lifelong learners, literate and technologically literate teachers, and teachers who are able to educate based on the philosophy of constructivism with a contextual or appropriate approach. This will be successful if supported by a positive work culture. Therefore, teachers with digital competence and a positive work culture will influence teacher learning innovation. So, the results of this study can prove Redding et al's (2013) theory that digital competence will encourage teacher learning innovation supported by a positive work culture.

4. Conclusions and Recommendations

Based on the output data from the 5-item structural fit model, the exogenous variable of work culture has a CR value of ≥ 1.967 , or 2.406, and a probability value (P) of ≤ 0.05 , or 0.000. Therefore, H₀ is rejected (the research hypothesis is accepted). This indicates that the exogenous variable of work culture has a direct effect of 0.766 on the endogenous variable, learning innovation. All indicators of the work culture variable—integrity, professionalism, innovation, responsibility, and role model—have large factor loadings and influence learning innovation.

Based on the 5 Structural Fit model, the research results show that the digital competency factor loading value is only 0.84 and the Critical Ratio (CR) value in the Regression Weights of the fit model (Model 5 Structural Fit) is ≥ 1.967 , which is 4.848, or a probability value (P) ≤ 0.05 , which is 0.000. Therefore, H₀ is rejected (the research hypothesis is accepted). This indicates that the exogenous variable of digital competency has a positive and significant effect of 0.841 directly on the endogenous variable, namely teacher learning innovation.

Based on the output covariance data between the exogenous variable of work culture and the exogenous variable of digital competency, the Critical Ratio (CR) value is ≥ 1.967 , which is 5.119, or a probability value (P) ≤ 0.05 , which is 0.000. This indicates that work culture has a positive and significant effect of 0.928 on teacher learning innovation, correlated with digital competency.

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Conflict of Interest

The authors declare there is no conflict of interest.

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