Innovative Teaching Governance and Teacher Performance in Special Region of Yogyakarta and Antecedent Factors

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Abstract: This study aims to determine the role of green information technology and learning orientation as predictors of influencing teacher performance and innovative teaching governance. And to find out the role of the innovative teaching governance construct as a predictor of influencing teacher performance. The population of this research is all teaching staff at State High Schools/Vocational High Schools in Indonesia. The sampling technique used was non-probability simple random sampling with the distribution of questionnaires using google form and a completely filled out questionnaire totaling 183 teaching respondents. The analytical tool used is SEM AMOS. The results showed that there was a significant effect of green information technology and learning orientation on innovative teaching governance; green information technology and innovative teaching governance have been proven to have a significant effect on teacher performance, but learning orientation has no effect on teacher performance.

Keywords: Green information technology, learning orientation, innovative teaching governance and performance

The concept of information technology governance emerged in the late 1990s, the term IT Governance comes from the concept of impact, alignment and business investment on Information Technology (Haes et al., 2013). Effective information technology governance includes the responsibility of Information Technology decisions as a set of mechanisms that enhance business synergies for the achievement of business goals (Weill, 2004). In addition, the concept of green information technology underlies the consideration of corporate governance which is important to align information technology with business urgency (Rubino & Vitolla, 2014) such as increasing pressure from stakeholders to preserve the environment (Uyl & Driessen, 2015).

Considerations of green information technology originating from top management (Akman & Mishra, 2015) and rooted in IT governance practices are essential for organizations to benefit from the power of IT to improve environmental-based performance. Several definitions of green information technology have appeared in the literature with most of them considering the sustainability of the IT environment throughout the life cycle of the organization to improve performance (Hardin-Ramanan et al., 2018). This definition reinforces the importance of green information technology decisions in IT governance (Akman & Mishra, 2015) because it includes organizational member relationships and managerial decisions that include vision, mission, strategies, and policies that are important in implementing IT to improve environmentally friendly performance.

Improving organizational performance in addition to these issues, it is necessary to understand the concept of learning orientation. A learning

orientation can enable organizations to respond effectively to external changes, such as changes in technology. When the organization becomes larger, the commitment to learning will play an important role in developing its capabilities related to its main business activities to improve performance (Wang, 2008). Learning orientation has attracted the interest of academics for decades (Brettel & Rottenberger, 2013). Learning orientation is conceptualized as a basic attitude towards learning about organizational and managerial characteristics that facilitate organizational learning processes (Real et al., 2014).

In line with this, Hurley & Hult, (1998) view learning orientation as a predictor for building a culture based on innovation. When the organization becomes larger, the commitment to learning plays an important role in developing its capabilities related to the main business activities (Wang, 2008). If a company is small and less learning-oriented than its competitors it is possible to have less innovation (Pesämaa et al., 2013).

Education governance is currently faced with the challenge of the diversity of availability and capacity of resources in the regions. Good education governance includes transparency and accountability, management control systems, management information systems, and efficient use of resources (human, funds, facilities, etc.), as well as standardization of education services. Good education governance will have an impact on the efficiency and effectiveness of education. Educational governance needs to be directed at supporting quality education services, including improving the quality of learning. The dynamics of changes in the external environment of education in the social, cultural, economic, scientific, and technological aspects, need to be a concern in adjusting the needs of educational services. To harmonize the relationship between stakeholders, it is necessary to implement governance and failure to implement governance will have an impact on poor educational performance such as student grades, not achieving material and not carrying out learning innovations.

Contradiction with other opinions which state that indicators of poor performance of education service providers when viewed with the Balance Scorecard concept are poor financial conditions, quality of public services, internal school processes and innovation (Pabundu, 2006). Educational innovation as a tool designed to create strategic changes in order to improve the quality of education. The results of the research by Rios-Carmenado et al., (2021) show that education service providers who have educational innovation governance show a tendency to work on educational innovation projects that contribute to strategic changes that will permanently revitalize teaching, while also focusing on research and its relationship with the community. So this research focuses on the problem of implementing green information technology and learning orientation through innovative teaching governance to improve teacher performance.

METHOD

This study uses primary data through questionnaires to collect data from teaching staff at State High Schools/ Vocational High Schools in Indonesia. The research approach used is a quantitative research approach, data analysis techniques are the AMOS Structral Equation Model (SEM) method. While the sample size for the study is determined by the "rule of thumb" under the guidelines for the requirements for data analysis techniques. A minimum sample size of 120 subjects is considered adequate for factor loadings of ± 0.5 or more (Apuke & Omar, 2020). Structural equation modeling requires 15-20 observations for each independent variable or predictor (Baker & Sinkula, 1999).

The structural equation modeling technique uses chi-square statistics to assess the suitability of the model. The chi-square statistic for the high sample size, i.e. the larger the sample size, the higher the probability that the model will fail (Barrett, 2007). Thus, a sample size of 100 to 400 subjects is suggested for models that require the use of structural equation modeling (Citriadin et al., 2019). By using the rule of thumb, a sample size of 300 subjects was considered adequate for it to be used in this study. Then the sampling technique used non-probability simple random sampling. The researcher distributed the questionnaires using google form and the questionnaires that were filled out completely were 183 teaching respondents. This study uses the construct of green information technology and learning orientation as a predictor of performance and innovative teaching governance. Furthermore, the construct of innovative teaching governance is used as a predictor of teacher performance.

The data used are primary data from questionnaires distributed to research respondents, namely a number of 183 State High School/ Vocational High School teachers in Indonesia. The

following are the results of the validity test based on the calculation can be seen in the following table:

Table 1. Validity and Reliability Test Results

Variable	Item	*r statictics*	Significance	Result	Cronbach's Alpha
Green Information Technology	Item 1	0,231	0,002	Valid	0,831
	Item 2	0,236	0,007	Valid	
	Item 3	0,259	0,000	Valid	
	Item 4	0,299	0,003	Valid	
	Item 5	0,237	0,001	Valid	
	Item 6	0,193	0,009	Valid	
Learning Orientation	Item 1	0,807	0,000	Valid	0,831
	Item 2	0,784	0,000	Valid	
	Item 3	0,873	0,000	Valid	
	Item 4	0,744	0,000	Valid	
	Item 5	0,675	0,000	Valid	
Innovative Teaching Governance	Item 1	0,790	0,000	Valid	0,898
	Item 2	0,704	0,000	Valid	
	Item 3	0,895	0,000	Valid	
	Item 4	0,861	0,000	Valid	
	Item 5	0,844	0,000	Valid	
	Item 6	0,839	0,000	Valid	
Teacher Performance	Item 1	0,879	0,000	Valid	0,906
	Item 2	0,854	0,000	Valid	
	Item 3	0,860	0,000	Valid	
	Item 4	0,849	0,000	Valid	
	Item 5	0,840	0,000	Valid	

* Significant at level 5%

Based on the table above, the calculated value of all questionnaire items including research variables, namely Green Information Technology, Learning Orientation, Innovative Teaching Governance and Teacher Performance shows a probability value (sig) <0.05. So the questionnaires from the research variables are all valid, and the Cronbach Alpha value is obtained from all the results including the research variables, namely Green Information Technology, Learning Orientation, Innovative Teaching Governance and Teacher Performance which shows a value greater than 0.6 and that means it can be reliable. Then before answering the research hypothesis, the research results section will explain the descriptive respondents, namely to find out the description or responses of respondents to research variables. The following is the average value of the respondents' responses:

Table 2. Descriptive Statistics

No	Variable	Mean	Category
1	*Green Information Technology*	3,78	Agree
2	Learning Orientation	3,79	Agree
3	*Innovative Teaching Governance*	3,97	Agree
4	Teacher Performance	3,94	Agree

Based on the statistical descriptive table, it shows that the variables of Green Information Technology, Learning Orientation, Innovative Teaching Governance and Teacher Performance have scores in the range of 3.41 to 4.20 or categorized as good perceived by the respondents. Green Information Technology underlies considerations on the governance of educational organizations that are important to align information technology with business urgency, the level of learning orientation is seen as organizational values that affect the company's tendency to create and use knowledge while the implementation of educational innovations such as curriculum innovation cannot be separated from innovators and implementers of innovation themselves. Increasing green information technology, learning orientation, innovative teaching governance will improve teacher performance. Furthermore, the results of the Structural Equation Model (SEM) on the structural equations are shown in the following figure:

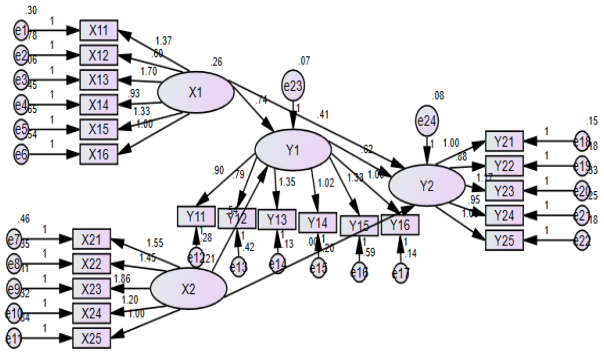

Figure 1. Structural Equation Model Test Results

Figure 1 explains that the indicators of each variable are able to reflect the research variables. The structural model describes the influence of Green Information Technology, Learning Orientation on Innovative Teaching Governance and Teacher Performance. The value of the influence of green information technology on innovative teaching governance is 0.737; the value of the influence of learning orientation on innovative teaching governance is 0.537; the value of the effect of green information technology on performance is 0.413; the value of the influence of learning orientation on performance is 0.000 and the value of the influence of innovative teaching governance on performance is 0.624.

Furthermore, the model that has been presented in the form of a path diagram is then expressed in structural equations and equations that state the specification of the measurement model. Testing the model in the Structural Equation Model is carried out with two tests, namely the model

suitability test and the causality significance test through the regression coefficient test.

Table 3. Model Feasibility Test Results

Criteria	*Cut of Value*	Result	Information
Chi-Square	37,65	2171,874	Fit
Probability	≥ 0,05	0,059	Fit
CMIN/DF	≤ 2,00	1,026	Fit
GFI	≥ 0,90	0,924	Fit
AGFI	≥ 0,90	0,946	Fit
TLI	≥ 0,95	0,966	Fit
CFI	≥ 0,95	0,987	Fit
RMSEA	≤ 0,08	0,062	Fit

The results of the feasibility test of the research model show that all goodness of fit criteria are acceptable. Thus, the final model developed is in accordance with the data. Overall the model is acceptable and the next step is to analyze the parameter estimate.

Table 4. Hypothesis Testing Results

		Standardized direct effect	C.R.	*p-value*	Result
Model 1: $ZY_1 = \gamma_{1.1}X_1 + \gamma_{1.2}X_2 + \varepsilon_1$					
Green Information Technology	*Innovative Teaching Governance*	0.727	7,342	0,000	Proven
Learning Orientation	*Innovative Teaching Governance*	0.476	5,226	0,000	Proven
Model 2: $ZY_2 = \gamma_{2.1}Y_1 + \gamma_{2.2}X_1 + \gamma_{2.3}X_2 + \varepsilon_2$					
Green Information Technology	Teacher Performance	0.371	3,218	0,001	Proven
Learning Orientation	Teacher Performance	0.000	-0,003	0,998	Not Proven
Innovative Teaching Governance	Teacher Performance	0.568	40297	0,000	Proven

*Significant at level 5%

In accordance with the research model, that the final goal of the analysis is to find evidence about the value or price of the coefficient of influence in total, because in the model it is known that the independent variable (free) affects the dependent variable (bound) through the intervening variable (between). This means that the green information technology variable can directly affect the teacher performance variable but Learning Orientation must go through the innovative teaching governance variable because the probability value is not significant. green information technology and learning orientation on teacher performance variables through innovative teaching governance variables.

Table 5. Total Effect of Exogenous Variables on Endogenous Variables

Direct Effect	Total Effect
Green Information Technology → *Innovative Teaching Governance* → Teacher Performance	0,784
Learning Orientation → *Innovative Teaching Governance* → Teacher Performance	0,270

The total effect, direct effect and indirect effect between variables can be presented in the model in the following table:

Table 6. Total Effect, Direct Effect and Indirect Effect Between Exogenous and Endogenous Variables

	Direct Effect		Indirect Effect	Total Effect
Variable	*Innovative Teaching Governance* (Y_1)	Teacher Performance (Y_2)	Teacher Performance (Y_2)	Teacher Performance (Y_2)
Green Information Technology (X_1)	0,727	0,371	0,413	0,784
Learning Orientation (X_2)	0,476	0,000	0,270	0,270
Innovative Teaching Governance (Y_1)	-	0,568	-	0,568

RESULT AND DISCUSSION

The results showed that there was a significant effect of green information technology and learning orientation on innovative teaching governance; green information technology and innovative teaching governance have been proven to have a significant effect on teacher performance, but learning orientation has no effect on teacher performance.

In the world of education, a comfortable life and environment is also desired by everyone involved in these activities. The negative impact of using information systems and technology (IS/ IT) should be reduced or even avoided. On the other hand, the use of IS/ IT, which is the backbone of research and teaching and learning activities, has a negative impact if it is not handled carefully. Kochhar & Garg, (2011) through their research describes several reasons behind an organization to implement green schools. In addition, the problem of saving can be done by applying green computing methods. The reliability of hardware devices is also a very important aspect in green computing. This is because it can reduce costs that lead to system failures and e-waste (Putri et al., 2013).

The role of learning orientation has attracted the interest of academics for decades Brettel & Rottenberger, (2013) and Hakala, (2011). Learning orientation is conceptualized as a basic attitude towards learning about organizational and managerial characteristics that facilitate organizational learning processes (Real et al., 2014). In this context, learning orientation is seen as corporate values that influence the company's tendency to create and use knowledge Wang, (2008) and Zhao et al., (2011), as well as management's commitment to support a culture that fosters learning orientation as one of the main aspects. in business values Baker & Sinkula, (1999) and Real et al., (2014). In line with this, Hurley & Hult, (1998) view learning orientation as a predictor for building a culture based on innovation. As the company gets bigger, the commitment to learning plays an important role in developing its capabilities related to the main business activities (Wang, 2008). If a company is small and less learning-oriented than its competitors it is possible to have less innovation (Pesämaa et al., 2013; Zhao et al., 2011).

The concept of Green Information Technology underlies considerations on corporate governance which is important to align Information Technology with business urgency Rubino & Vitolla, (2014) such as increasing pressure from stakeholders to preserve the environment (Uyl & Driessen, 2015). Green Information Technology considerations originating from top management (Akman & Mishra, 2015) and rooted in IT governance practices are essential for organizations to benefit from the power of IT to improve environmental-based performance. Several definitions of Green Information Technology have appeared in the literature with most of them considering the sustainability of the IT environment throughout the life cycle of the organization to improve performance (Hardin-Ramanan et al., 2018). This definition reinforces the importance of Green Information Technology decisions in IT governance Akman & Mishra, (2015) because they include organizational member relationships and managerial decisions that include vision, mission, strategies, and policies that are important in implementing IT to improve environmentally friendly performance.

With a learning orientation, the teacher is oriented towards increasing efforts to do work with the approval of each function/ section, trying to do activities in a way that is not afraid of criticism and suggestions in developing the institution, every time doing work with thinking that is easy to complete, any work that is easy to complete. new, both in models/designs and others, always try to spread it to other teachers and the work done is trying to do it with a happy heart/trying to be able to control emotions, it is hoped that it can improve students, graduation and student achievement. This condition will make it easier for private madrasas to adapt and respond well so that in the end they will be able to improve the performance of private madrasas. The results of the study are supported by the results of research by Han et al (1998) which states that learning orientation has a positive but not significant effect on company performance. However, in his research it was stated that learning orientation had a significant effect on company performance, through innovation as an intervening variable. Furthermore, Lukas & Ferrel (2000) stated that organizational learning orientation is considered by researchers as the key to organizational success in the future.

Meanwhile, innovative teaching governance refers to the concept of managing educational innovation (Carmenado et al, 2021). Educational innovation according to Ibrahim (1998) suggests that educational innovation is innovation in the field of education or innovation to solve educational problems. So, educational innovation is an idea, item, method that is felt or observed as new

for a person or group of people (society), either in the form of intervention (new discoveries) or discovery (newly discovered people), which are used to achieve educational goals. or solve national education problems.

CONCLUSION

This study shows that there is a significant effect between green information technology and learning orientation on innovative teaching governance; green information technology and innovative teaching governance have been proven to have a significant effect on teacher performance, but learning orientation has no effect on teacher performance. Effective IT governance in organizations is closely related to Information Technology (IT) governance mechanisms. In addition, the adoption of formal practices of IT governance mechanisms at the highest level in an organization, in this case at the management level in managing IT, is expected to bring benefits and improve organizational performance. To control information technology (IT) in universities, effective IT governance is very important in making use of structures, processes, and linking mechanisms. Learning orientation has no effect on performance because learning orientation is a predictor for building a culture based on innovation.

Further researchers can add the capability factor and teacher behavior to determine the effect on innovation that will have an impact on teacher performance. Furthermore, to get better results, further researchers can fill this research gap by modifying the green information technology indicator and increasing the number of samples by comparing private and national school.

REFERENCES

Akman, I., & Mishra, A. (2015). Sector diversity in green information technology practices: technology acceptance model perspective. Computers in Human Behavior. https://www.sciencedirect.com/science/article/pii/S0747563215001958

Apuke, O. D., & Omar, B. (2020). Modelling the antecedent factors that affect online fake news sharing on COVID-19: the moderating role of fake news knowledge. Health Education Research. https://academic.oup.com/her/article-abstract/35/5/490/5935536

Baker, W. E., & Sinkula, J. M. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. Journal of the Academy of Marketing …. https://doi.org/10.1177/0092070399274002

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. Personality and Individual Differences. https://www.sciencedirect.com/science/article/pii/S0191886906003837

Brettel, M., & Rottenberger, J. D. (2013). Examining the link between entrepreneurial orientation and learning processes in small and medium-sized enterprises. Journal of Small Business …. https://doi.org/10.1111/jsbm.12002

Citriadin, Y., Wiyono, B. B., Huda, M., & Arifin, I. (2019). The influences of teacher performance in public high schools in Indonesia. In International Journal of Innovation …. ijicc.net. https://www.ijicc.net/images/vol9iss6/9602_Citriadin_E_R.pdf

Haes, S. De, Grembergen, W. Van, & ... (2013). COBIT 5 and enterprise governance of information technology: Building blocks and research opportunities. Journal of …. https://meridian.allenpress.com/jis/article-abstract/27/1/307/75744

Hakala, H. (2011). Strategic orientations in management literature: Three approaches to understanding the interaction between market, technology, entrepreneurial and learning …. International Journal of Management Reviews. https://doi.org/10.1111/j.1468-2370.2010.00292.x

Han, Jin K., Kim, Namwoom, Srivastava, Rajendra K. (1998). Market Orientation and Organizationa Performance: Is Innovation a Missing Link?", Journal of Marketing, October, 62 (4) 16-30.

Hardin-Ramanan, S., Chang, V., & Issa, T. (2018). A Green Information Technology governance model for large Mauritian companies. Journal of Cleaner Production. https://www.sciencedirect.com/science/article/pii/S0959652618320146

Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. Journal of Marketing. https://doi.org/10.1177/002224299806200303

Ibrahim. (1998). Inovasi Pendidikan. Jakarta: Depdikbud Dikti Proyek Pengembangan Pendidikan

Kochhar, N., & Garg, A. (2011). Eco-friendly computing: green computing. In International Journal of Computer …. researchmanuscripts.com. http://researchmanuscripts.com/PapersVol2N2/IJCBRVOL2N2P1.pdf

Lukas, Bryan. A & Ferrell, O. C, (2000), The Effect of Market Orientation on Product Innovation, Journal of the Academy of Marketing Science, Vol. 28, Spring, hal 25-38

Moh, P. T. (2006). Budaya Organisasi dan Peningkatan Kinerja Perusahaan. In Jakarta: Bumi Aksara.

Pesämaa, O., Shoham, A., Wincent, J., & Ruvio, A. A. (2013). How a learning orientation affects drivers of innovativeness and performance in service delivery. Journal of Engineering and …. https://www.sciencedirect.com/science/article/pii/S0923474813000155

Putri, N. K. S., Argogalih, A., & Hudiarto, H. (2013). Model Tata Kelola Komputasi Hijau Berbasis Dokumen untuk Universitas Bina Nusantara. … Computer, Mathematics and …. https://journal.binus.ac.id/index.php/comtech/article/view/2548

Real, J. C., Roldán, J. L., & Leal, A. (2014). From entrepreneurial orientation and learning orientation to business performance: analysing the mediating role of organizational learning and the moderating effects …. British Journal of Management. https://doi.org/10.1111/j.1467-8551.2012.00848.x

Rios-Carmenado, I. D. los, Sastre-Merino, S., & ... (2021). Building world class universities through innovative teaching governance. Studies in Educational …. https://www.sciencedirect.com/science/article/pii/S0191491X21000572

Rubino, M., & Vitolla, F. (2014). Corporate governance and the information system: how a framework for IT governance supports ERM. Corporate Governance. https://doi.org/10.1108/CG-06-2013-0067

Uyl, R. M. Den, & Driessen, P. P. J. (2015). Evaluating governance for sustainable development–Insights from experiences in the Dutch fen landscape. Journal of Environmental Management. https://www.sciencedirect.com/science/article/pii/S0301479715302267

Wang, C. L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. Entrepreneurship Theory and Practice. https://doi.org/10.1111/j.1540-6520.2008.00246.x

Weill, P. (2004). Don't just lead, govern: How top-performing firms govern IT. In MIS Quarterly executive. gti4u.es. http://www.gti4u.es/curso/material/complementario/weill_2004.pdf

Zhao, Y., Li, Y., Lee, S. H., & ... (2011). Entrepreneurial orientation, organizational learning, and performance: Evidence from China. … Theory and Practice. https://doi.org/10.1111/j.1540-6520.2009.00359.x