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BEYOND DIGITAL COMPETENCE: HOW INSTITUTIONAL SUPPORT SHAPES LECTURER PERFORMANCE AND LEARNING OUTCOMES IN HIGHER EDUCATION

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Abstract

This study looks at how lecturers' digital skills, their use of technology in teaching, and the level of support they receive from their institution affect their teaching performance and, in turn, the quality of learning at STIE Arlindo. It also looks at how lecturer creativity influences the relationship between performance and learning quality. Quantitative data were gathered from 14 lecturers and 86 students via five-point Likert scale online surveys and analysed using SEM-PLS. The results show that institutional support has a considerable favorable effect on lecturer performance, which in turn improves learning quality. In contrast, digital literacy and technological integration have no substantial impact on professor performance in this scenario. Lecturer creativity strengthens the link between performance and learning quality, emphasizing the need of new teaching methods. These findings emphasize the importance of institutional support and pedagogical inventiveness in improving learning outcomes and promoting effective teaching in the digital age.

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INTRODUCTION

It is against this backdrop that higher education must break away from the reality of drafting and transferring of knowledge-based skills thereby integrating AI technologies in teaching and learning (Al-Zahrani & Alasmari, 2024; Cellary & Walczak, 2023). The quality of higher education institutions plays an important role in ensuring strong lecturer performance, and interactions by students need to be strengthened to improve the learning process (Ahmad et al., 2022; Isnainy et al., 2023). Lecturers must work towards providing more engaging opportunities for learning through successful use of digital learning technologies. Information and communication technology (ICT) has made available newer avenues of access to education that shapes the broad landscape of education (Bouattour et al., 2024; Dai & Liu, 2024; Kiang, 2024). The Digital Age requires a holistic approach amid rapid shifts in technological paradigms. (Cosa, 2024). The Digital Age calls for a holistic approach in response to the rapid shifts in technological paradigms (Weldon et al., 2021). Higher education institutions must have a clear vision for the use of learning technology that provides optimal feedback to students (McLaren et al., 2022; Schophuizen et al., 2023). According to Ismail (2022), modern educational

transformation, lecturers and students must use technology to support the learning process. (Kaewsaeng-on et al., 2022).

University lecturers have a critical role in increasing the quality of teaching, research, and community service by effectively using digital technologies into higher education (Obuobisa-darko, 2025). In the context of higher education digital transformation, digital technology is the broader infrastructure that supports learning activities, whereas digital learning and online learning are technology-based instructional approaches, and artificial intelligence is an advanced technology that enables adaptive, personalised, and data-driven learning. The use of digital technology in learning, when aligned by human cognitive architecture can significantly enhance teaching and learning activities in higher education (Koć-Januchta et al., 2022). Lecturers often conduct research on learning and teaching integrated by courses to support students' academic achievement. (Wijaya et al., 2023; Zhan & Niu, 2023).

The increasing quality of learning depends much on the adequate digital skills of lecturers. This includes offering information in ways that are more engaging, enhancing ways of teaching, and getting students to engage with technology the proper way. Digital learning is shaped by digital competence, attitudes, and personal creativity, all of that directly influence the success of digital learning inside of the broader digital transformation of higher education (Farias-Gaytan et al., 2023; Pan et al., 2024). Knowledge about digital competence is important to support future professionals to be able to solve problems and reach insights in information and communication technology (Wang et al., 2023). Ineffective university management can negatively affect the quality of education, that, in turn, impacts the quality of the lecturers themselves (Do et al., 2025; Yusuf, 2023). Online learning is important to ensure the effectiveness and quality of higher education (Tan et al., 2021). To improve the overall quality of education, a strategic innovation ecosystem as needed among the government, companies, higher education institutions, and social forces (Zhuang & Liu, 2022).

For the enhancement of educational and academic work quality, teaching institutions are instrumental in investing in lecturers' development to equip them with the training, resources and facilities necessary for their professional development (Reier Forradellas & Garay Gallastegui, 2021). "The rise of artificial intelligence has expanded the scope of educational technologies in higher education by enabling intelligent tutoring, learning analytics, and personalised feedback, while also raising ethical, social, and educational concerns about their implementation" (Al-Zahrani & Alasmari, 2024; Selwyn, 2021). In implementing effective educational technology, dynamic interaction among the characteristics of educational technology, stakeholders' perceptions of the effectiveness of technology integration decisions, theoretical frameworks, and relevant models is needed (Chugh et al., 2023).

Previous research has looked extensively into the use of artificial intelligence, digital learning technology, and lecturers' digital competency in higher education (Bouattour et al., 2024; Dai & Liu, 2024). These studies have mostly focused on technology adoption, digital learning tools, and individual digital competences, rather than addressing how AI might be combined with lecturer competencies, reflective pedagogy, and student involvement to facilitate long-term lecturer development. Furthermore, present studies mostly analyze AI implementation from a technological standpoint, with little emphasis paid to building an integrated framework that takes into account technological, pedagogical, and human factors at the same time (Kiang, 2024). This gap highlights the need for a comprehensive model that describes how AI-enabled educational technology might boost lecturers' competences and improve long-term teaching quality in higher education.

Despite the increased use of AI and digital technologies in higher education (Farias-Gaytan et al., 2023; Pan et al., 2024), there is still a lack of empirical evidence on how AI can be systematically integrated with lecturers' digital competence, reflective pedagogy, and student engagement to improve long-term lecturer performance. Existing lecturer development programs prioritize technology training over an integrated pedagogical framework that promotes long-term professional development. As a result, the success of these initiatives varies between higher education institutions.

This resulted in a mechanical application of education with minimal reflection on its impact on student learning outcomes. Reflective teaching practice is important in digital pedagogy because it allows lecturers to assess the success of technology integration and tailor instructional tactics to students' learning needs (Sabiteka et al., 2025; Soares-Silva et al., 2022; Tran et al., 2025). Furthermore, students' limited participation in the design and evaluation of lecturer development programs has lowered the responsiveness of professional development to students' learning experiences (Yan et al., 2022). This study thus establishes student participation as an essential component of lecturer development by including student input into the assessment of pedagogical efficacy and digital teaching practices. Building on these shortcomings, this work intends to

create and empirically test a Sustainable Lecturer Optimization Model that incorporates digital competency (Li et al., 2026; Obuobisa-darko, 2025). Building on these gaps, this study seeks to create and empirically validate a Sustainable Lecturer Optimization Model that combines digital competence, reflective digital pedagogy, AI-supported learning, and student-centered evaluation into a comprehensive framework for lecturer professional development in AI-driven higher education (Shidiq & Songkram, 2026).

The suggested paradigm builds on existing digital pedagogy and lecturer professional development literature by pushing beyond the fragmented focus on technology adoption, digital competency, and technical training. Instead, it illustrates how digital competence, reflective pedagogy, AI-supported learning, and student participation work together to promote long-term lecturer development and higher teaching quality. By combining these dimensions into a single framework, this study advances AI-enabled higher education theory while also providing an empirically validated model that can help higher education institutions design lecturer development programs that are adaptive, evidence-based, and responsive to ongoing digital transformation.

METHOD

This study employed a quantitative explanatory approach to examine the relationships among digital competence, reflective teaching practices, student involvement, and sustainable lecturer optimization in higher education. The quantitative design was utilised to evaluate the proposed hypotheses and explain the causal links among the research variables using statistical analysis (Setyaningrum & Wulandari, 2024). This study used a nonprobability sampling technique since respondents were chosen based on their availability and relevance to the research goals. This method was deemed appropriate for PLS-SEM analysis, which is useful for exploratory and predictive models with small sample sizes. The target population consisted of lecturers and students engaged in digital learning practices in higher education, whereas the accessible population consisted of 100 respondents who were available and willing to participate in the study, including 14 lecturers and 86 students. The sample size met the minimum criteria for PLS-SEM analysis as recommended by Hair et al., implying that PLS-SEM can be used on relatively small samples when the model is predictive and the data complexity is acceptable. Data were gathered using an online questionnaire with a five-point Likert scale ranging from 1 to 5, with 1 indicating strongly disagree, 2 indicating disagree, 3 indicating somewhat agree, 4 indicating agree, and 5 indicating strongly agree. Following the collection of questionnaires, data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4 software to assess the correlations between the suggested research variables and test the hypothesised model.

RESULTS

The changing role of lecturers in the digital age demands on the redesign of higher education, for example through the integration of learning technologies and artificial intelligence for improved quality in teaching and learning. Quality of higher education can be measured by various parameters, ranging from student's participation, efficiency of the learning process, interaction in learning to students' satisfaction and what they learned (Koć-Januchta et al., 2022; Tan et al., 2021). In this study, the quality of higher education is defined as the effectiveness of teaching and learning processes, such as student engagement, interaction quality, learning satisfaction, and perceived learning outcomes in digitally enabled learning settings. Digital competence among professors is critical to improving educational quality. This competency comprises the capacity to apply digital learning technologies, operate online learning platforms and AI-based apps, integrate technology into pedagogical methods, and creatively design digital educational media (Farias-Gaytan et al., 2023; Wang et al., 2023). The availability of online learning systems, flexibility in accessing learning activities across time and location, the quality of digital learning materials, and the efficiency of technology-based feedback mechanisms are all examples of the usage of learning technology (McLaren et al., 2022; Schophuizen et al., 2023; Weldon et al., 2021). Institutional support in higher education can be seen in digital transformation policies, lecturer training programs, technological infrastructure, learning resource support, and the creation of an academic culture that fosters teaching and learning innovation (Chugh et al., 2023). These factors have positive effect in terms of quality of teaching, interaction between lecturer and students, mentor lecture role as well as innovation to the teaching method applied even integration of research concept was adapted in learning system. This in effect enhances the quality of education in higher learning institutions. (Ahmad et al., 2022; Isnainy et al., 2023).

This research is based on a survey of 100 participants, including 14 lecturers and 86 students. The medium was an online questionnaire. From the role of respondents, lecturers and students were chosen to represent the

two main sides in learning at STIE Arlindo regarding digital learning technology and artificial intelligence. Demographically, the respondents represented various age groups, all inside of the productive age range. All respondents were lecturers and had a minimum educational background of a Master's degree (S2), while the students came by various levels of study. The range of respondents' positions, ages, and educational backgrounds provided a more comprehensive picture of lecturers' digital competence, learning technology use, institutional support, and perceived quality of teaching and learning in higher education. These are considered adequate and suitable to treat research involving the relationship among variables based on Partial Least Squares-based Structural Equation Modeling (SEM-PLS) methodology. For the convergent and discriminant validity of variables under consideration, the authors utilized SmartPLS 4. Factor loading (λ) and average variance extracted (AVE) values were used to evaluate convergent validity, while the Fornell-Larcker criteria were used to evaluate discriminant validity.

Table 1. Factor Loadings

Constructs	Items	Factor Loadings	AVE	Conclusion
Digital Competence (Pan et al., 2024)	I am able to use various digital technologies to support the learning process. (KD1)	0.758	0.652	Valid
	I am proficient in using LMSs, video conferencing, and AI-based tools for learning. (KD2)	0.826		Valid
	I am able to integrate digital technology into the teaching methods I use. (KD3)	0.801		Valid
	I am able to manage, evaluate, and use digital information effectively in learning. (KD4)	0.870		Valid
	I am creative in developing and using digital learning media. (KD5)	0.979		Valid
Utilisation of Digital Learning Technology (Weldon et al., 2021)	Online learning technology is readily available at my university. (PTPD1)	0.906	0.692	Valid
	Digital learning materials are easily accessible to lecturers and students (PTPD2)	0.864		Valid
	Learning technology offers flexibility in terms of time and place. (PTPD3)	0.849		Valid
	The digital learning content used is of good quality. (PTPD4)	0.884		Valid
	Digital learning systems provide quick and useful feedback. (PTPD5)	0.820		Valid
Support by Educational Institutions (Do et al., 2025)	The institution has a clear policy for digital learning transformation. (DIP1)	0.874	0.723	Valid
	The institution provides training to improve lecturers' digital competence. (DIP2)	0.888		Valid
	Learning technology facilities and infrastructure are adequately available. (DIP3)	0.645		Valid
	Management supports technology-based learning innovation. (DIP4)	0.798		Valid
Performance (Normansyah et al., 2024)	Lecturers deliver learning materials clearly and systematically. (K1)	0.903	0.600	Valid
	There was active interaction among lecturers and students during the learning process. (K2)	0.889		Valid
	Lecturers act as mentors in students' academic and non-academic development. (K3)	0.863		Valid
	Lecturers apply innovative and varied learning methods. (K4)	645		Valid
	Lecturers integrate research outcomes into the learning process. (K5)	0.843		Valid
	Lecturers utilise technology effectively in teaching and learning activities. (K6)	0.822		Valid
Quality of Learning (Tan et al., 2021)	Students are actively involved in the learning process. (KP1)	0.853	0.598	Valid
	The learning process runs effectively. (KP2)	0.781		Valid
	Students are satisfied by the learning process. (KP3)	0.655		Valid

	Learning takes place interactively among lecturers and students. (KP4)	0.890		Valid
	Learning equips students by future skills. (KP5)	0.823		Valid
	Learning helps improve student learning outcome.s (KP6)	0.603		Valid
Lecturer Creativity (Farias-Gaytan et al., 2023)	I have a positive attitude towards the use of digital technology in learning. (KRD1)	0.874	0.749	Valid
	I am ready to adapt to technological changes in education. (KRD2)	0.745		Valid
	I am creative in designing digital technology-based learning. (KRD3)	0.616		Valid
	I am motivated to continue using technology in teaching activities. (KRD4)	0.833		Valid

Source: Output of SmartPLS 4, 2026

The outcomes by the external model testing show that all constructs in this study meet the criteria for convergent validity. This is supported by the fact that the factor loadings for each indicator are above the 0.60 threshold, and the Average Variance Extracted (AVE) values for all variables are greater than 0.50. The Digital Competence construct has factor loadings ranging by 0.758 to 0.979, by an AVE of 0.652, indicating that the indicators in this construct describe lecturers' ability to use digital technology effectively and strongly.

The use of digital learning technology demonstrates strong validity, by factor loadings ranging by 0.820 to 0.906 and an AVE value of 0.692. On the other hand, support by educational institutions has an AVE value of 0.723, by indicator factor loadings ranging by 0.645 to 0.888. Furthermore, the lecturer performance construct meets the validity criteria, by an AVE of 0.600 and factor loadings above the recommended limit, while learning quality has an AVE of 0.598 and factor loadings ranging by 0.603 to 0.890. The lecturer creativity construct showed excellent convergent validity, by an AVE of 0.749 and indicator loadings ranging by 0.616 to 0.874.

These results confirm that the constructs of Digital Competence, Digital Learning Technology, Institutional Support, Lecturer Performance, Learning Quality, and Lecturer Creativity have satisfactory convergent validity and are suitable for further structural model analysis using the SEM-PLS approach. Although numerous indicators, including DIP3 (0.645), K4 (0.645), KP3 (0.655), KP6 (0.603), and KRD3 (0.616), have lower factor loadings than the other indicators, they are still above the minimum acceptable threshold specified for exploratory and theory-development research in PLS-SEM. Furthermore, these indicators were kept since they represent theoretically relevant characteristics of their respective constructs, and their inclusion did not lower the AVE values below the suggested threshold. The satisfactory AVE values found for all constructs suggest that overall convergent validity is still adequate, despite the inclusion of multiple moderately loaded signs. This implies that the constructs capture the multifaceted nature of lecturers' digital competence, institutional support, lecturer performance, learning quality, and creativity while maintaining the theoretical comprehensiveness of the assessment model. As a result, the retained indications improve the content validity of the constructs and provide a solid foundation for analyzing structural linkages and testing hypotheses.

Table 2. Fornell and Larcker Criterion

	KD	PTPD	DIP	K	KP	KRD
KD	0.807					
PTPD	0.937	0.832				
DIP	0.195	0.142	0.850			
K	0.900	0.902	0.222	0.775		
KP	0.750	0.760	0.186	0.758	0.773	
KRD	0.103	0.068	0.888	0.151	0.133	0.865

Source: Output of SmartPLS 4, 2025

The discriminant validity of the measurement model was assessed using the Fornell-Larcker criterion, which compares the square root of the Average Variance Extracted (AVE) for each construct to its correlations with other constructs. The results show that most constructions meet the discriminant validity criterion since the square root of the AVE values on the diagonal is greater than the corresponding inter-construct correlations. Specifically, Digital Learning Technology (0.850), Lecturer Creativity (0.865), Digital Competence (0.807), Lecturer Performance (0.773), and Learning Quality (0.775) all have acceptable discriminant validity, indicating that each construct shares more variance with its own indicators than with other latent variables.

The constructs Digital Competence (KD) and Reflective Digital Pedagogy (PTPD) deserve additional attention because their correlation (0.937) is greater than the square root of the AVE for both constructs (0.807 and 0.832, respectively). Similarly, the correlation between Reflective Digital Pedagogy (PTPD) and Learning Quality (K) (0.902) and between Digital Competence (KD) and Learning Quality (K) (0.900) is greater than the equivalent diagonal values. These findings indicate that these measures have low discriminant validity and may cover conceptual domains that are closely linked. This overlap is conceptually acceptable since lecturers with great digital competence are more likely to adopt reflective digital pedagogy, which adds to better learning outcomes. Nonetheless, the substantial correlations suggest that the conceptual distinction between these conceptions has to be carefully considered.

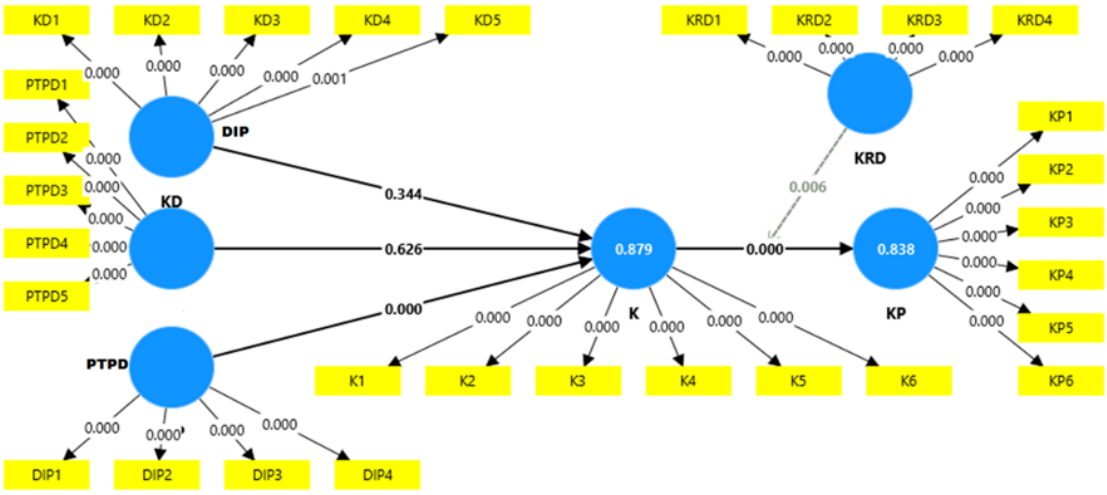
The reliability study shows that all constructs have good internal consistency, with Cronbach's Alpha values ranging from 0.776 to 0.933 and Composite Reliability (CR) values ranging from 0.854 to 0.937, which all above the recommended criterion of 0.70. These findings suggest that the indicators consistently assess their respective latent constructs and so are suitable for structural model analysis with SEM-PLS. Educational Institution Support (DIP) and Lecturer Creativity (KRD) have particularly strong internal consistency, with reliability values exceeding 0.90, implying that their indicators accurately assess the underlying components. However, such high dependability may indicate some level of resemblance or redundancy among some indicators, which should be considered when developing future measurement equipment. In comparison, Learning Quality (KP) has lower dependability values, but they are still over the suggested threshold, demonstrating good internal consistency while reflecting the construct's broader and more multifaceted character. Overall, the findings confirm that all constructs are sufficiently reliable and provide a solid measuring foundation for assessing the structural linkages postulated in this work.

Table 3. Cronbach Alpha (CA) and Composite Reliability (CR)

Constructs	*Cronbach's Alpha*	*Composite Reliability*	*Conclusion*
KD	0.816	0.881	*Reliable*
PTPD	0.908	0.930	*Reliable*
DIP	0.933	0.928	*Reliable*
K	0.862	0.898	*Reliable*
KP	0.776	0.854	*Reliable*
KRD	0.923	0.937	*Reliable*

Source: Output of SmartPLS 4, 2025

In this study, hypothesis testing was performed using SmartPLS 4 software by the bootstrapping method, as illustrated in Figure 1 below. A significance level of 0.01 and a confidence level of 99% were used, minimizing the risk of false-positive outcomes. The results revealed that the impact between independent and dependent were highly significant (at 0.01). In this study, KD stands for digital competence, PTPD for use of digital learning technology, DIP for institutional support, K for lecturer performance, KP for learning quality, and KRD for lecturer creativity.



Source: Output of SmartPLS 4

Figure 1. Structural Model (Bootstrapping)

The SEM-PLS analysis shows that digital competence (KD) and the use of digital learning technology (PTPD) have no significant effect on lecturer performance (K), as evidenced by p-values of 0.344 and 0.626, respectively, which exceed the significance level of 0.05. In contrast, institutional support (DIP) has a positive and statistically significant effect on lecturer performance (path coefficient = 0.948, p-value = 0.000). Additionally, lecturer performance strongly influences learning quality (KP), by a path coefficient of 0.879 and a p-value of 0.000.

The mediation analysis reveals that lecturer performance does not significantly mediate the relationship between digital competence (KD) and learning quality (KP), nor between the use of digital learning technology (PTPD) and learning quality (KP), with p-values of 0.345 and 0.627, respectively. However, lecturer performance significantly influences the link between institutional support (DIP) and learning quality (KP), with a p-value of 0.000. Lecturer creativity (KRD) significantly modifies the link between lecturer performance and learning quality, however the moderating effect is rather small, as evidenced by the coefficient value and p-value of 0.006. Thus, the data show that institutional support is the key factor directly impacting lecturer performance, which in turn increases learning quality. Meanwhile, digital competence and the usage of digital learning technologies had no significant direct influence on instructor performance in this study. Lecturer creativity also plays a moderating role in enhancing the link between lecturer performance and learning quality.

The SEM-PLS results show that Digital Competence (H1) and Utilization of Digital Learning Technology (H2) have no significant effect on Lecturer Performance, implying that lecturers' technological capabilities and use of digital learning technologies alone are insufficient to improve performance in the absence of enabling organisational conditions. These findings contradict much of the previous evidence, which generally finds favorable links between digital competence, technology use, and instructional performance. One possible explanation is that Educational Institution Support takes a more dominating role by providing policies, infrastructure, professional development opportunities, and organizational support that allow lecturers to effectively apply their digital capabilities in the classroom. Another possible explanation is that the respondents' levels of digital competence were generally equal, minimizing its statistical influence on instructor performance, while the institutional context became the key differentiator. Furthermore, the tight link between institutional support and lecturer success may have restricted the direct contribution of digital competence and technology use to the structural model. Future research should look into potential multicollinearity and the contextual factors that may influence these interactions across different higher education contexts.

In contrast, Educational Institution Support (H3) has a significant positive effect on Lecturer Performance, demonstrating that institutional commitment is still the key driver of lecturers' effectiveness in the digital age. Lecturer Performance has a considerable positive effect on Learning Quality, demonstrating that improving lecturers' professional performance directly contributes to higher educational outcomes. The mediation analysis also reveals that Lecturer Performance only mediates the relationship between Educational Institution Support and Learning Quality, while the indirect effects of Digital Competence and Digital Learning Technology are negligible because their direct effects on Lecturer Performance are not supported. Finally, Lecturer Creativity significantly moderates the relationship between Lecturer Performance and Learning Quality, albeit with a small effect size, implying that creativity strengthens the positive impact of lecturer performance on learning quality while acting as a complementary rather than dominant factor. Overall, these data demonstrate that sustained increases in learning quality necessitate not only individual digital capabilities, but also strong institutional support and a conducive organizational context.

Table 4. Hypothesis Testing

Hypothesis	*Relationship*	*Original Sample (O)*	*Sample Mean (M)*	*Standard Deviation (STDEV)*	*T Statistics (|O/STDEV|)*	*P Values*
H1	KD -> K	-0.081	-0.038	0.086	0.947	0.344
H2	PTPD -> K	0.043	0.010	0.088	0.487	0.626
H3	DIP -> K	0.948	0.943	0.020	47.799	0.000
H4	K -> KP	0.703	0.704	0.057	12.383	0.000
H5	KD -> K -> KP	-0.057	-0.027	0.061	0.944	0.345
H6	PTPD -> K -> KP	0.030	0.007	0.062	0.485	0.627
H7	DIP -> K -> KP	0.666	0.664	0.056	11.921	0.000
H8	KRD* K -> KP	-0.109	-0.102	0.040	2.743	0.006

Source: Output of SmartPLS 4

DISCUSSION

The discussion section explicitly affirms the interpretation of the outcomes by the data analysis. It provides a clear explanation of how the outcomes address the research objectives and problem identification, links the outcomes by previous theory or research (sourced by national and international scientific journals), and the implications of the outcomes are related to the current situation.

The following provides a more detailed explanation of the influence of each variable, based on hypothesis testing using SmartPLS 4.

The Effect of Digital Competence (KD) on Lecturer Performance (K). The analysis outcomes show a path coefficient of -0.081, by a t-statistic of 0.947 and a p-value of 0.344. The p-value is (> 0.05), this means that not significantly digital competence has an impact on lecturer performance in this study. Accordingly, the first hypothesis (H1) is not supported and it can be stated that an uptick in lecturers' digital competence has no immediate impact on their performance in this study.

The fact that digital competence has no substantial influence on lecturer performance implies that digital competence alone is insufficient to improve lecturers' effectiveness in higher education. This finding suggests that digital proficiency has become a minimum professional requirement rather than a distinguishing factor in lecturer success. Although lecturers may have acceptable digital capabilities, these abilities cannot be effectively converted into increased teaching effectiveness without adequate institutional support, pedagogical integration, and opportunity for ongoing professional growth (Manwa et al., 2020). This finding is congruent with the Socio-Technical structures Theory, which contends that technological competence generates value only when it is supported by organizational structures and work conditions (Sasaki et al., 2025; Wafa & Longo, 2026). This conclusion varies with prior research that found beneficial impacts of digital competence on teaching performance, implying that institutional context may influence whether digital competence helps to lecturer effectiveness. As a result, this study expands on past research by indicating that digital competency alone is insufficient to improve lecturer performance unless combined with favorable organizational settings.

The Effect of Digital Learning Technology Utilisation (PTPD) on Lecturer Performance (K). The path coefficient between PTPD and K equals 0.043, with a t-statistic of 0.487 and a p-value of 0.626, which is found to be statistically insignificant. Thus, H2 is not supported which implies that the usage of digital learning technology may not have direct and significant effect on lecturer performance improvement in this study.

The negligible connection between digital learning technology use and lecturer performance suggests that technology use does not inherently boost teaching performance. This conclusion implies that the efficacy of digital technology is more dependent on how it is pedagogically incorporated than on its frequency of application. This interpretation is congruent with the TPACK framework, which emphasizes the importance of integrating technological, pedagogical, and content knowledge to increase teaching efficacy (Torggler et al., 2023; Yang et al., 2026). The findings also contradict research that found significant positive benefits of digital learning technology, showing that differences in institutional preparation, lecturers' teaching styles, and the educational context could explain these discrepancies. As a result, this study shows that technology adoption without pedagogical transformation is unlikely to improve lecturer performance.

The Effect of Educational Institution Support (DIP) on Lecturer Performance (K) The results of the test indicate that the path coefficient = 0.948, t-statistic is 47.799 at p = 0.000 >.05 (two-tailed), which show significant and positive effect of educational institution support on lecturer performance. Hypothesis H3 is well accepted implying that institutions support includes; policies, training and technological facilities have an influence on the performance of lecturers. Well established institution provides with a wits-end for the lecturers to effectively perform their duties. It also helps to bring technology into use and fosters innovation in the teaching methods. This shows the importance of the role of higher education management in helping lecturers succeed and improving the quality of the teaching and learning process.

Educational institution support is the strongest predictor of lecturer success, emphasizing the relevance of organizational resources in promoting digital change. Institutional policies, professional development programs, digital infrastructure, and leadership commitment allow lecturers to effectively apply their knowledge and technology skills in the classroom. This research backs up the Resource-Based View, which contends that organizational resources are strategic assets that improve individual performances (Han, 2021; Muduli et al., 2020). Compared to previous studies that focused on lecturers' individual competencies, this study shows that institutional support is more important in improving lecturer performance during digital transformation, thereby expanding current understanding of sustainable lecturer development.

The Effect of Lecturer Performance (K) on Learning Quality (KP) The path coefficient of 0.703, by a t-statistic of 12.383 and a p-value of 0.000, indicates a positive and highly significant effect of improvements in

lecturer performance on learning quality. Hypothesis H4 is accepted, meaning that as lecturers' work performance improves, the quality of learning experienced by students also improves. This proves that lecturers' ability to explain material, communicate by students, and use innovative learning methods and technologies directly influences improvements in the quality of outcomes and in student satisfaction by the learning process. Lecturers' performance is very important in creating a good and effective learning atmosphere.

The Effect of Lecturer Performance Mediation (K) on the Relationship among Digital Competence (KD) and Learning Quality (KP) The path coefficient of mediation by KD to K and then to KP is -0.057, a t- value of 0.944 with p-value = 0.345. This means that the mediation of lecturer performance in this association is not significant. So, hypothesis H5 is rejected that means the mediator of lecturers' performance among digital competence and learning quality under study in this research is not significant.

The insignificant mediation impact suggests that lecturer performance does not explain how digital competence affects learning quality. This data lends credence to the research from Livingstone et al. (2023) that digital ability does not always translate into better educational outcomes. Prior to contributing to improved learning quality, digital competency should be supplemented by institutional support and pedagogical innovation. This finding strengthens digital pedagogy theory by implying that technical capabilities is merely one component of a larger educational ecosystem.

The Effect of Lecturer Performance Mediation (K) on the Relationship among Digital Learning Technology Utilisation (PTPD) and Learning Quality (KP) The mediation path coefficient by PTPD to K and then to KP is 0.030, by a t-statistic of 0.485 and a p-value of 0.627, indicating that the mediation effect is not statistically significant. Hypothesis H6 is rejected, meaning that lecturer performance does not act as a mediator in the relationship among the use of digital learning technology and learning quality.

The lack of a substantial mediation impact shows that using digital learning technology does not increase lecturer performance or learning quality unless it is combined with proper pedagogical practices and institutional support. This study lends weight to the concept that educational technology should be considered as an enabler rather than an independent predictor of educational quality. As a result, higher education institutions should prioritize pedagogical capacity building rather than just increasing technology adoption.

The Effect of Lecturer Performance Mediation (K) on the Relationship among Educational Institution Support (DIP) and Learning Quality (KP) The mediation coefficient by DIP to K and then to KP is 0.666, by a t-statistic of 11.921 and a p-value of 0.000, indicating highly significant mediation. Hypothesis H7 is accepted, meaning that lecturer performance effectively mediates the influence of institutional support on learning quality. This implies that the institutional support has no direct effect on learning quality, instead it comes through improving lecturer competence.

Lecturer performance has a strong mediating effect on the connection between institutional support and learning quality, implying that institutional support indirectly enhances learning quality by improving lecturer professionalism. This research demonstrates that investments in digital infrastructure, professional development, and institutional policies are only helpful if they improve lecturers' teaching techniques. The findings build on earlier research by indicating that lecturer performance is the fundamental mechanism relating organizational resources to educational quality.

The Moderating Effect of Lecturer Creativity (KRD) on the Relationship among Lecturer Performance (K) and Learning Quality (KP) The interaction coefficient among KRD and K to KP is -0.109, by a t-statistic of 2.743 and a p-value of 0.006. This indicates that the moderation effect of lecturer creativity is statistically significant, despite the negative coefficient. Hypothesis H8 is accepted, showing that lecturers' creativity has a significant negative moderating influence on the connection between lecturer performance and learning quality. The negative value of this moderation coefficient suggests that, in certain situations, a very high level of lecturer creativity could actually weaken the positive relationship among lecturer performance and learning quality. For instance, if a lecturer's creativity does not align by students' needs or the existing learning conditions, this relationship may be diminished.

The negative moderating effect of lecturer creativity implies that creativity does not always amplify the favorable effects of lecturer performance on learning outcomes. Excessive or inappropriate creativity can diminish instructional clarity when teaching practices are not in sync with students' learning needs, curriculum objectives, or classroom conditions. This research expands on previous digital pedagogy literature by demonstrating that creativity should be balanced with educational appropriateness rather than maximized indiscriminately. As a result, creativity serves as a contextual capability whose usefulness is determined by instructional design and student characteristics.

Overall, the study's findings highlight the importance of institutional variables rather than individual digital competency in increasing lecturer effectiveness and learning quality. This study adds to the literature on digital transformation in higher education by showing that digital competence and technology utilisation do not automatically improve educational quality in the absence of strong institutional support, organisational readiness, and effective pedagogical integration.

CONCLUSION

This study shows that institutional support is the key driver of lecturer performance, which ultimately increases learning quality in higher education. In contrast, digital competence and the use of digital learning technologies do not directly or indirectly improve learning quality via lecturer performance. These findings show that technology skills alone are insufficient to improve educational outcomes in the absence of suitable organizational support. Furthermore, lecturer creativity significantly modifies the relationship between lecturer performance and learning quality; however, the negative moderating effect suggests that creativity should be aligned with instructional objectives and students' learning needs in order to maximize its educational value. This study shows that institutional support is the key driver of lecturer performance, which ultimately increases learning quality in higher education. In contrast, digital competence and the use of digital learning technologies do not directly or indirectly improve learning quality via lecturer performance. These findings show that technology skills alone are insufficient to improve educational outcomes in the absence of suitable organizational support. Furthermore, lecturer creativity significantly modifies the relationship between lecturer performance and learning quality; however, the negative moderating effect suggests that creativity should be aligned with instructional objectives and students' learning needs in order to maximize its educational value. The discovery of the negative moderating role of lecturer creativity adds to the digital pedagogy literature by indicating that creativity should be pedagogically aligned rather than simply maximized, resulting in a more nuanced understanding of long-term lecturer development in AI-supported higher education.

The study has significant drawbacks. First, the sample size was small, consisting of only lecturers and students from a few universities, which may restrict the findings' generalizability. Second, the quantitative survey design failed to adequately reflect the complexities of lecturers' creativity and pedagogical approaches. Third, the suggested model excluded other contextual variables such as student motivation, organizational culture, and technological preparedness, all of which may have an impact on lecturer performance and learning quality. Future research should incorporate these variables, evaluate the proposed model in various higher education contexts, and use mixed-method or qualitative approaches to better understand the conditions under which lecturer creativity promotes or lowers learning quality.

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