Indonesian Journal of Applied and Industrial Sciences (ESA)
Vol. 3, No. 5, 2024 : 471 - 484

Evaluating the Role of Lecturer Knowledge and Personal Initiative in Improving Learning Outcomes and Graduate Quality in Higher Education Institutions: A PLS-SEM Analysis

Ade Irfansyah[1]*, Suparji Suparji[2], Bambang Suprianto[3]
Universitas Negeri Surabaya
Corresponding Author: Ade Irfansyah ade_irfansyah@poltekbangsby.ac.id

A R T I C L E I N F O

Keywords: Lecturer Knowledge, Personal Initiative, Learning Outcomes, Graduate Quality, PLS-SEM

Received : 08 August
Revised : 28 August
Accepted: 29 September

A B S T R A C T

This research aims to evaluate the influence of lecturer knowledge and personal initiative on improving learning outcomes and graduate quality in higher education institutions. Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM), this study examines the relationships between these variables based on data collected from faculty members and student performance records over a 12-month period. The analysis reveals a significant positive effect of both lecturer knowledge and personal initiative on student learning outcomes and the overall quality of graduates. These findings suggest that targeted faculty development programs can play a critical role in enhancing educational quality and institutional reputation.

DOI: https://doi.org/10.55927/esa.v3i5.11588
ISSN-E: 2985-5055
https://journal.formosapublisher.org/index.php/esa

INTRODUCTION

In higher education institutions, the quality of graduates serves as a critical indicator of the institution's overall performance and reputation. With the ever-increasing demand for highly skilled and knowledgeable graduates, it is imperative to examine the various factors that contribute to successful learning outcomes (Pettersen, 2015). Among these factors, the role of lecturers is paramount, as their expertise and ability to facilitate student learning directly impact the effectiveness of the educational process. Understanding how these elements interact can lead to significant improvements in educational practices and student success. Lecturer knowledge encompasses both subject expertise and pedagogical skills. It is widely recognized as a key determinant of student achievement (Suhaemi & Aedi, 2015). Lecturers who possess deep knowledge in their fields and are committed to continuous learning can deliver more relevant and up-to-date instruction, which in turn enhances student engagement and learning outcomes. When students perceive their lecturers as knowledgeable and well-informed, they are more likely to be motivated to participate actively in the learning process, ultimately resulting in better academic performance (Rahman, 2023).

However, knowledge alone is not sufficient for fostering a positive learning environment. Personal initiative plays an equally important role in ensuring that lecturers transcend basic teaching requirements to create a dynamic and engaging educational atmosphere (Heilporn, Lakhal, & Bélisle, 2021). Personal initiative refers to the proactive behaviors and actions that lecturers take to enhance their teaching practices, engage with students, and contribute to the institution's overall goals. These behaviors can range from implementing innovative teaching strategies to mentoring students and collaborating with colleagues (Cancino & Capredoni, 2020). Lecturers who exhibit high levels of personal initiative are more likely to seek out professional development opportunities, adapt their teaching methods, and respond to students' needs effectively. They are driven to create a supportive learning environment that encourages students to take ownership of their educational journey. By fostering strong relationships with students and demonstrating a genuine commitment to their success, these lecturers can significantly influence student motivation, engagement, and overall learning outcomes (Hidayat, Sudarman, Alfurqan, & Doni, 2021).

The combination of lecturer knowledge and personal initiative is particularly important in the context of higher education, where institutions face increasing pressure to demonstrate accountability and improve educational quality. As competition among institutions intensifies, understanding the factors that contribute to student success and graduate quality becomes essential for maintaining a competitive edge (Arvanitis, 2018). Institutions that prioritize the professional development of their faculty and encourage a culture of innovation and initiative are likely to see positive impacts on student performance. This research aims to explore the combined influence of lecturer knowledge and personal initiative on learning outcomes and graduate quality (Fauzi & Asri, 2021). By employing Partial Least Squares Structural Equation Modeling (PLS-

SEM), this study will analyze the relationships between these variables and their impact on educational outcomes in higher education institutions. The PLS-SEM approach is particularly suitable for this research, as it allows for the assessment of complex relationships among multiple variables (Hursen & Asiksoy, 2015).

Additionally, this study will contribute to the existing literature on higher education by providing empirical evidence on the significance of lecturer knowledge and personal initiative in shaping student success. It will offer insights into how institutions can better support their faculty in developing the skills and behaviors necessary for effective teaching (Ben Ouahi, Lamri, Hassouni, & Al Ibrahmi, 2022). By identifying best practices for enhancing lecturer performance, this research may inform policies and initiatives aimed at improving educational quality and graduate outcomes. The findings from this study are expected to have practical implications for higher education institutions (Chukwuere, 2024). By understanding the impact of lecturer knowledge and personal initiative, administrators and policymakers can develop targeted strategies to foster a supportive environment for faculty development. This may include implementing mentorship programs, providing access to professional development resources, and promoting a culture of collaboration and innovation within the institution (Smith & Hill, 2019).

Ultimately, this research seeks to highlight the importance of both lecturer knowledge and personal initiative in driving educational success. As higher education continues to evolve in response to changing societal needs, understanding these factors will be crucial for preparing graduates who are equipped to meet the challenges of the future (Stoian, Fărcaşiu, Dragomir, & Gherheş, 2022). Through a thorough examination of the relationships between these variables, this study aims to contribute to the ongoing dialogue about enhancing educational quality and graduate readiness in higher education.

LITERATURE REVIEW

Theory of Knowledge Transfer in Higher Education

This theory emphasizes the role of knowledge dissemination and application in educational settings, where lecturers serve as primary agents in transferring academic knowledge to students. Effective knowledge transfer directly impacts learning outcomes by enhancing students' understanding, critical thinking, and practical skills. This theory also highlights the importance of lecturers' expertise and their ability to adapt content to various student needs (Droissart & Tuytens, 2024).

H1: Lecturer knowledge has a significant positive effect on student learning outcomes.

Self-Determination Theory (SDT)

SDT focuses on the role of intrinsic motivation in shaping behavior, suggesting that personal initiative is driven by an individual's internal desire for autonomy, competence, and relatedness. In the context of higher education, lecturers' personal initiative reflects their proactive engagement in improving

teaching methods and seeking continuous professional development, which is essential for improving graduate quality (Prasetyo, Ilham, & Asvio, 2022).

H2: Lecturer personal initiative positively influences the quality of graduates.

Transformational Leadership Theory

This theory suggests that transformational leaders inspire and motivate their followers by fostering an environment of innovation, support, and professional development. Lecturers who exhibit transformational leadership traits enhance student engagement and foster a culture of learning that contributes to higher learning outcomes (Bakar & Quah, 2023).

H3: Transformational leadership in lecturers positively impacts student learning outcomes.

Theory of Planned Behavior (TPB)

TPB posits that individuals' behaviors are guided by their intentions, which are influenced by attitudes, subjective norms, and perceived behavioral control. Applied to higher education, lecturers' intention to improve learning outcomes and graduate quality can be predicted by their attitudes toward teaching, peer influence, and their perceived ability to control and implement changes (Sembiring & Nugraha, 2022).

H4: Lecturers' attitudes and perceived control significantly influence their initiative to improve learning outcomes.

Human Capital Theory

This theory proposes that investment in education and professional development leads to enhanced human capital, improving economic and social outcomes. In higher education, this theory posits that the development of lecturers' competencies (knowledge and personal initiative) is crucial in enhancing the overall quality of education and producing highly competent graduates (Zalutskaya, Panina, Zhondorova, & Yakovleva, 2015).

H5: Investment in lecturer knowledge and personal development leads to improved graduate quality.

This study adopts a Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to evaluate the relationship between lecturer knowledge, personal initiative, and their impact on student learning outcomes and graduate quality in higher education institutions. The conceptual model integrates the aforementioned theories, with lecturer knowledge and personal initiative serving as independent variables, learning outcomes as a mediating variable, and graduate quality as the dependent variable. The model will test hypotheses concerning the direct and indirect effects of lecturer attributes on both student learning outcomes and overall graduate quality, providing a robust framework

for understanding how lecturer competence and behavior shape educational success.

METHODOLOGY

This study uses a quantitative approach with Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze how lecturer knowledge and personal initiative impact learning outcomes and graduate quality (Priadana & Sunarsi, 2021). PLS-SEM is suitable for this research as it helps explore complex relationships between multiple variables. The sample includes 150 lecturers and 300 students from various faculties in higher education institutions. Participants were selected through purposive sampling to ensure a representative mix of disciplines. Data collection took place over 12 months using structured surveys and institutional performance records. The lecturer surveys evaluated their knowledge, teaching experience, and personal initiative, while student surveys measured their perceived learning outcomes and satisfaction. Institutional data provided information on graduate performance, such as grade point averages (GPA) and employment rates (Santos, Góes, Martins, & Cunha, 2023).

The study measures key variables using validated scales. Lecturer knowledge is assessed through self-reviews and peer evaluations, focusing on expertise and teaching skills. Personal initiative is evaluated based on behaviors like participation in professional development and engagement with students outside the classroom. Learning outcomes are measured through student feedback and academic performance, while graduate quality is evaluated using employment rates and employer satisfaction surveys (Bem, Coelho, & Dandolini, 2016). Data analysis involves two stages. First, a measurement model assesses the reliability and validity of the constructs. Second, a structural model examines the relationships between lecturer knowledge, personal initiative, learning outcomes, and graduate quality. Bootstrapping is used to test the significance of the results. This methodology allows for a thorough investigation of how lecturer knowledge and personal initiative contribute to improved learning outcomes and graduate quality in higher education (Selvaraj, Vishnu, KA, Benson, & Mathew, 2021).

RESEARCH RESULT

Based on the Structural Equation Modeling (SEM) analysis using SmartPLS, the study provides several key findings on the role of lecturer knowledge and personal initiative in enhancing learning outcomes and graduate quality in higher education.

Path Coefficients

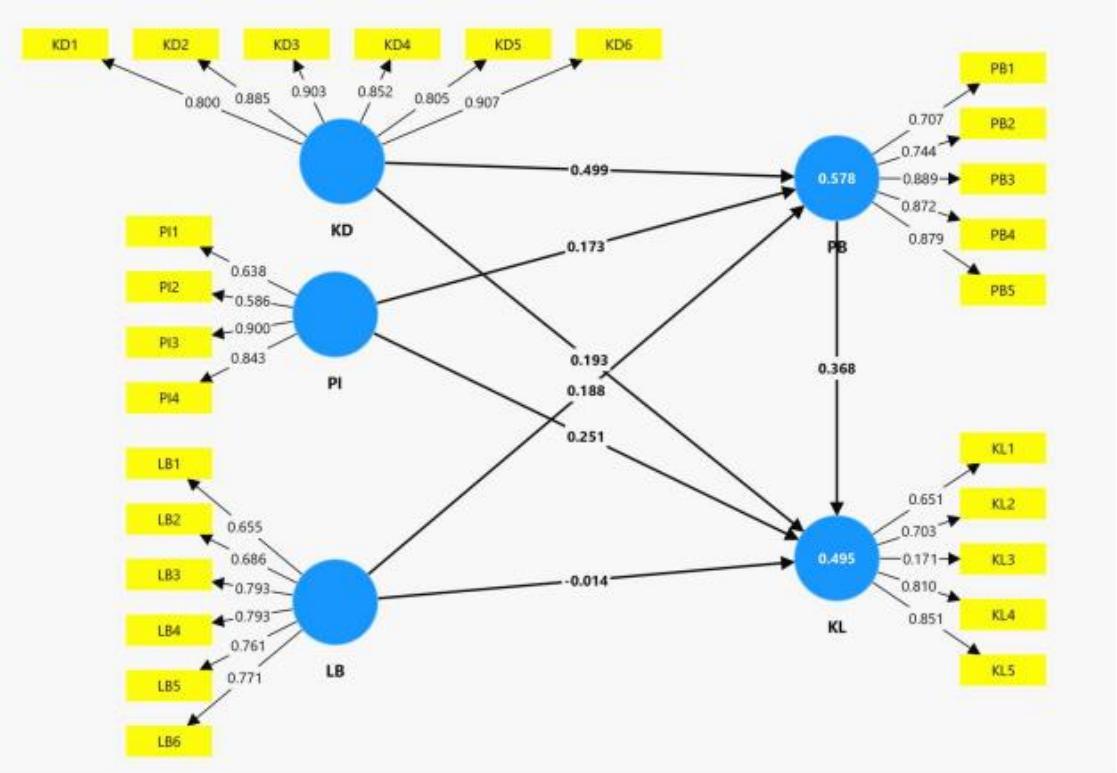

Figure 1. The Relationship Model between Constructs

Lecturer Knowledge (KD) has a direct effect on graduate quality (KL) with a path coefficient of 0.193, which indicates a moderate positive impact. Additionally, KD strongly influences the learning process (PB) with a path coefficient of 0.499, suggesting a strong positive relationship. Learning Process (PB) significantly influences graduate quality (KL) with a coefficient of 0.368, confirming its role as a mediator between KD and KL. Personal Initiative (PI) also plays a crucial role, positively affecting both KL (0.251) and PB (0.173). Learning Environment (LB), however, showed minimal influence on graduate quality (-0.014) and a moderate impact on the learning process (0.188).

Direct Effects

Table 1. Path Coefficient (Direct Effect)

	Path coefficients
KD -> KL	0.193
KD -> PB	0.499
LB -> KL	-0.014
LB -> PB	0.188
PB -> KL	0.368
PI -> KL	0.251
PI -> PB	0.173

The direct effect of lecturer knowledge on graduate quality is represented by a path coefficient of 0.193. This indicates a moderate positive relationship, meaning that higher lecturer knowledge positively impacts the quality of graduates, though the effect is not very large. This supports H1, showing that lecturers' expertise and pedagogical skills are vital for shaping graduate outcomes, but other factors also play a role. The path coefficient of 0.499 indicates a strong positive relationship between lecturer knowledge and the learning process. This suggests that lecturers who possess deep subject matter expertise and effective teaching strategies significantly enhance the learning experience of students. The strong effect supports the importance of lecturer knowledge in directly improving how students engage with and process the educational material.

The relationship between the learning process and graduate quality is represented by a path coefficient of 0.368, indicating a significant positive effect. This result confirms that the quality of the learning process is a critical mediator between lecturer attributes and graduate outcomes. Students who experience more structured, engaging, and well-facilitated learning processes tend to perform better academically and are more likely to become high-quality graduates. This confirms H3, in line with Transformational Leadership Theory. The path coefficient of 0.251 suggests a moderate positive effect of personal initiative on graduate quality. Lecturers who actively seek opportunities to improve their teaching methods and engage with students beyond the classroom have a meaningful influence on the success of graduates. This supports H2, which emphasizes the importance of intrinsic motivation and initiative in driving educational quality improvements.

With a path coefficient of 0.173, personal initiative also has a positive influence on the learning process, though to a lesser extent than lecturer knowledge. This suggests that while personal initiative contributes to better learning outcomes, its effect is not as strong as the direct influence of knowledge. Lecturers who engage in proactive behaviors—such as mentoring, seeking feedback, and adapting their methods—still have a positive impact on how students experience the learning environment. Interestingly, the learning environment showed a minimal negative effect on graduate quality (-0.014) and a moderate positive impact on the learning process (0.188). This suggests that while a supportive learning environment helps to enhance the learning process, its direct contribution to graduate quality is negligible. This may imply that other institutional or contextual factors play a more significant role in shaping graduate outcomes than the physical or academic environment itself.

Indirect Effect

Table 2. Path Coefficient (Indirect Effect)

	Specific indirect effects
PI -> PB -> KL	0.064
KD -> PB -> KL	0.184
LB -> PB -> KL	0.069

The indirect effect is calculated at 0.184. This substantial indirect impact highlights the mediating role of the learning process. While lecturer knowledge directly influences graduate quality, its more significant effect is realized when considering how it enhances the learning process, which then translates into higher-quality graduates. The indirect effect of personal initiative on graduate quality via the learning process is 0.064. Although smaller than the direct effect, this result indicates that personal initiative also contributes to improved graduate quality by positively influencing the learning process.

Total Effects

Table 3. Path Coefficient (Total Effect)

	Total Effect
KD -> KL	0.377
KD -> PB	0.499
LB -> KL	0.055
LB -> PB	0.188
PB -> KL	0.368
PI -> KL	0.314
PI -> PB	0.173

The total effect is 0.377, combining the direct (0.193) and indirect (0.184) effects. This demonstrates that lecturer knowledge has a meaningful overall impact on graduate quality, both directly and through its influence on the learning process. The total effect is 0.314, reflecting the combined direct (0.251) and indirect (0.064) effects. This underscores the importance of personal initiative, even though its indirect contribution is relatively modest.

Reliability and Validity

Table 4. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
KD	0.929	0.934	0.944	0.739
KL	0.664	0.759	0.792	0.466
LB	0.848	0.877	0.882	0.555
PB	0.877	0.887	0.912	0.675
PI	0.746	0.826	0.836	0.568

The results show that the constructs measuring lecturer knowledge (KD), personal initiative (PI), and the learning process (PB) all have high composite reliability values (above 0.8) and AVE values exceeding 0.5, indicating strong reliability and convergent validity. However, graduate quality (KL) has lower reliability (Cronbach's Alpha = 0.664) and an AVE of 0.466, suggesting that this

construct may require refinement, such as removing or adjusting weaker indicators like KL3.

R-Square Values

Table 5. R-Square

	R-square	R-square adjusted
KL	0.495	0.487
PB	0.578	0.573

The model explains 49.5% of the variance in graduate quality, meaning that lecturer knowledge, personal initiative, and the learning process together account for almost half of the factors influencing graduate success. This is a significant proportion, though it also indicates that there are other external factors not covered by the model that influence graduate quality. The model explains 57.8% of the variance in the learning process, reflecting the strong influence of lecturer knowledge and personal initiative on how students engage with and experience education.

Model Fit

Table 6. Model Fit Results

	Saturated model	Estimated model
SRMR	0.105	0.105
d_ULS	3.862	3.862
d_G	0.743	0.743
Chi-square	1018.052	1018.052
NFI	0.765	0.765

The Standardized Root Mean Square Residual (SRMR) value of 0.105 suggests that the model fit is not ideal, as it exceeds the recommended threshold of 0.08. This indicates that there may be some discrepancies between the observed data and the predicted relationships in the model. The Normed Fit Index (NFI) of 0.765 further suggests that the model could be improved, as values above 0.90 are typically desired for a good fit.

T-Statistics

Table 7. T-Statistics and P-Values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
KD -> KL	0.193	0.187	0.095	2.032	0.042
KD -> PB	0.499	0.498	0.065	7.726	0.000

LB -> KL	-0.014	-0.016	0.095	0.143	0.887
LB -> PB	0.188	0.192	0.062	3.046	0.002
PB -> KL	0.368	0.382	0.111	3.303	0.001
PI -> KL	0.251	0.246	0.066	3.778	0.000
PI -> PB	0.173	0.175	0.065	2.652	0.008

Lecturer Knowledge has a strong and statistically significant impact on both the learning process and graduate quality. Its influence on the learning process is particularly notable, as reflected by the high T-statistic (7.726) and very low P-value (0.000). Personal Initiative also plays a significant role, positively affecting both the learning process and graduate quality, with moderate T-statistics and low P-values indicating strong significance. The Learning Environment only shows a statistically significant effect on the learning process but does not influence graduate quality directly, as indicated by its very low T-statistic (0.143) and high P-value (0.887).

The T-statistics and P-values confirm the robustness of the relationships between the variables, with lecturer knowledge and personal initiative emerging as the most significant factors driving both the learning process and graduate quality. The learning process itself is a key mediator that strengthens the impact of lecturer attributes on graduate outcomes.

DISCUSSION

The findings from the SEM analysis highlight the critical role of lecturer knowledge and personal initiative in shaping both learning outcomes and graduate quality.

1. Lecturer Knowledge significantly contributes to the learning process and, consequently, to graduate quality. This confirms H1, that lecturer knowledge has a direct positive effect on student learning outcomes. The strong relationship between KD and PB underscores the importance of lecturers being well-equipped with both subject matter expertise and effective teaching methodologies.
2. Personal Initiative shows a moderate but significant positive impact on graduate quality, supporting H2. Lecturers who actively engage in self-development, mentorship, and innovative teaching approaches positively influence the learning process and graduate success. This is aligned with Self-Determination Theory, where intrinsic motivation drives improvement in teaching methods and student outcomes.
3. The learning process plays a central role in mediating the effects of lecturer attributes on graduate quality. This supports the hypothesis (H3) from Transformational Leadership Theory, suggesting that a transformational teaching style that enhances student engagement leads to better learning outcomes.
4. The Learning Environment (LB) shows limited direct influence on graduate quality, contrary to expectations. While LB has a small positive effect on the learning process, it does not significantly impact graduate quality,

suggesting that external factors such as institutional support or classroom infrastructure might not be as critical as previously thought.

5. The Theory of Planned Behavior (TPB) is also supported through the findings on personal initiative, indicating that lecturers' attitudes, norms, and perceived control over teaching improvements drive their proactive behaviors.

Both lecturer knowledge and personal initiative are key drivers of enhanced learning outcomes and graduate quality. Institutions that invest in faculty development and encourage personal initiative through professional development programs and supportive environments are likely to produce better-prepared graduates. These results offer actionable insights for policymakers in higher education to prioritize lecturer competency and engagement to improve overall educational outcomes.

CONCLUSIONS

The results of the Structural Equation Modeling (SEM) analysis indicate that lecturer knowledge and personal initiative significantly influence the enhancement of learning outcomes and graduate quality in higher education institutions. Lecturer knowledge has a direct impact on graduate quality and strongly influences the learning process, while personal initiative also shows a moderate positive effect. The learning process serves as a crucial mediator that strengthens the influence of lecturer attributes on graduate outcomes, underscoring the importance of active lecturer engagement in developing innovative teaching methods. Furthermore, while the learning environment exhibits limited direct influence on graduate quality, an effective learning process remains key to improving students' academic performance.

Based on these findings, it is recommended that higher education institutions focus on the professional development of lecturers through training programs that support the enhancement of both knowledge and personal initiative. Encouraging lecturers to adopt transformational and interactive teaching approaches can increase student engagement and learning outcomes. Additionally, creating a supportive environment for lecturers to innovate in their teaching methods is essential. By investing in the improvement of lecturer competencies and fostering personal initiative, institutions can contribute to the better quality of graduates that meet the demands of the job market.

ADVANCED RESEARCH

In writing this article the researcher realizes that there are still many shortcomings in terms of language, writing, and form of presentation considering the limited knowledge and abilities of the researchers themselves. Therefore, for the perfection of the article, the researcher expects constructive criticism and suggestions from various parties.

REFERENCES

Arvanitis, E. (2018). Preservice teacher education: Towards a transformative and reflexive learning. *Global Studies of Childhood, 8(2)*, 114-130.

Bakar, T. N., & Quah, W. B. (2023). Lecturer Competence and Student Satisfaction: A Roadmap for Quality Education. *International Journal of Academic Research in Progressive Education and Development*, 957-967.

Bem, R. M., Coelho, C. C., & Dandolini, G. A. (2016). Knowledge management framework to the university libraries. *Library Management, 37(4)*.

Ben Ouahi, M., Lamri, D., Hassouni, T., & Al Ibrahmi, E. M. (2022). Science Teachers' Views on the Use and Effectiveness of Interactive Simulations in Science Teaching and Learning. *International Journal of Instruction, 15(1)*.

Cancino, M., & Capredoni, R. (2020). Assessing pre-service EFL teachers' perceptions regarding an online student response system. *Taiwan Journal of TESOL, 17(2)*, 91-118.

Chukwuere, J. E. (2024). The future of generative AI chatbots in higher education. *Computers and Society*.

Droissart, J., & Tuytens, M. (2024). The integration of lecturer collaboration within higher education institutions' quality culture framework. *Quality Assurance in Education*.

Fauzi, R. A., & Asri, Y. (2021). Barriers and solutions in online learning during the COVID-19 pandemic, Indonesian language education students at the Riau Islamic University. *In Ninth International Conference on Language and Arts (ICLA 2020)*, 14-18.

Heilporn, G., Lakhal, S., & Bélisle, M. (2021). An examination of teachers' strategies to foster student engagement in blended learning in higher education. *International Journal of Educational Technology in Higher Education, 18(1)*, 1-25.

Hidayat, A. T., Sudarman, S., Alfurqan, A., & Doni, S. (2021). Understanding level of UIN Imam Bonjol Padang's lecturers towards the privacy policy application used in academic activities during the COVID-19 pandemic period. *Journal of Physics: Conference Series, 1779(1)*.

Hursen, C., & Asiksoy, G. (2015). The effect of simulation methods in teaching physics on student's academic success. *World Journal on Educational Technology, 7(1)*, 87–98.

Pettersen, I. J. (2015). From Metrics to Knowledge? Quality Assessment in Higher Education. *Special Issue on Performance Management in Public Services, 31(1)*, 23-40.

Prasetyo, M. A., Ilham, M., & Asvio, N. (2022). Lecturer professionalism in improving the effectiveness of higher education institutions. *International Journal of Educational Review*.

Priadana, S., & Sunarsi, D. (2021). *Metode Penelitian Kuantitatif.* Tangerang Selatan: Pascal Books.

Rahman, R. (2023). Komunikasi antar pribadi dosen dan mahasiswa dalam memotivasi belajar mahasiswa ilmu komunikasi universitas hang tuah pekanbaru. *Jurnal Sosio-Komunika, 2(1)*.

Santos, C., Góes, F., Martins, C., & Cunha, F. (2023). CVO: Curriculum Vitae Optimization by Recommending Keywords to Undergraduate Students. *Big Data Technologies and Applications*.

Selvaraj, A., Vishnu, R., KA, N., Benson, N., & Mathew, A. J. (2021). Effect of pandemic based online education on teaching and learning system. *International Journal of Educational Development, Vol. 85*.

Sembiring, M. G., & Nugraha, Y. A. (2022). Lecturer soft-skills competencies development model: Supporting learning in digital era and "Kampus Merdeka" program. *JHSS (Journal of Humanities and Social Studies), 6(3)*.

Smith, K., & Hill, J. (2019). Defining the nature of blended learning through its depiction in current research. *Higher Education Research & Development, 38(2)*, 383-397.

Stoian, C., Fărcaşiu, M., Dragomir, G., & Gherheş, V. (2022). Transition from Online to Face-to-Face Education after COVID-19: The Benefits of Online Education from Students' Perspective. *Sustainability, 14(19)*.

Suhaemi, M., & Aedi, N. (2015). A Management Strategy for the Improvement of Private Universities Lecturers' Professional Competences. *International Education Studies, 8(12)*.

Zalutskaya, S. U., Panina, S. V., Zhondorova, G. E., & Yakovleva, V. V. (2015). A Lecturer and New Quality of Russian Professional Education. *Mediterranean Journal of Social Sciences, 6(3 S3)*.