

The Relationship Between Data, Technology, and Humanism Literacy and Integrity in Lecturer Research Performance


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<p>Article History</p> <p>Received: November 14, 2023</p> <p>Revised: December 11, 2023</p> <p>Accepted: December 14, 2023</p> <p>Published: December 16, 2023</p> <p>Keyword: Technology, Humanism, Literacy, Integrity, Performance</p> <p>Copyright (c) 2023 Suharsiwi Suharsiwi, Fauzi, Laila Yumna, Rohimi Zamzam</p> 	<p>In an era driven by technological progress, lecturers, as the main agents in academic research, are faced with the demand to understand and integrate data, technology, and human values into their research. The purpose of writing this article is to describe the research performance of lecturers based on the factors of data literacy, technological literacy, and humanism literacy, as well as the integrity of lecturers in higher education. This research method involves surveys and data analysis by a number of lecturers who are active in research in various scientific disciplines. This research method also uses a quantitative approach and a cross-sectional study design. Data was collected through a <i>Google Form</i> questionnaire distributed via <i>WhatsApp</i>. The research data was analyzed using multiple regression (OLS). This article contributes to an understanding of the importance of integrating data literacy, technology, and human values into lecturers' research approaches. The practical implication of this research is the need to develop training programs and institutional support to increase literacy and integrity in the context of academic research. The research results show that literacy and data integrity have a significant effect on lecturers' research performance. Meanwhile, technological literacy and humanism literacy do not have a significant effect on lecturers' research performance. Lecturers' research performance through the results of this research is influenced by variations in data literacy, technological literacy, humanism literacy, and integrity by 36.1%.</p>
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Introduction

In the era of rapid development of technology and information, the world of education faces increasingly complex challenges. One sector that continues to transform is higher education, where the role of lecturers is very vital because they have a big impact on students' academic experience and development. Lecturers also act as academic advisors who guide students in selecting courses, developing study plans, and developing their academic careers and play an important role in forming the nation's next generation with quality and integrity (Battista et al., 2023).

In the modern era where science and technology continue to develop, the world of higher education faces increasingly complex challenges, both in terms of technology and the need for high data literacy (Haleem et al., 2022). The development of information and communication technology has accelerated the pace of scientific research and understanding (Serrat, 2016). Meanwhile, humanistic literacy remains the main pillar in the developing human capacity to understand and give meaning to science. In this context, the role of lecturers as agents of change and leaders in the world of education is very crucial. Lecturers' research performance is a benchmark for the success of higher education institutions in producing innovative and relevant knowledge (Qurtubi, 2023). However, in line with technological advances, data literacy and integrity have also become critical elements in ensuring that research results are reliable and have a positive impact.

This article aims to explore the relationship between data literacy, technology, humanism literacy, and integrity with lecturers' research performance. Technological developments have opened the door to greater data access, but to what extent are lecturers using it wisely and ethically? How can humanistic literacy, as a moral and ethical foundation, contribute to a holistic research approach?

By exploring this relationship, we can better understand the critical role of literacy in forming lecturers who are not only skilled in managing data and technology but are also able to bridge humanistic understanding in every research they conduct (Saliya et al., 2018). It is hoped that the findings from this research can provide a basis for developing training strategies and institutional policies that support improving the quality of lecturers' research performance in line with the changing demands of the times. Through a deep understanding of the complexity of the relationship between data literacy, technology, humanism literacy, and integrity, we can form lecturers who are not only drivers of innovation in the world of higher education but also leaders who can guide the next generation in facing rapid global change.

First, data literacy is very important, considering that data has become an integral part of almost every field of science (Schenider, 2013). Data literacy refers to an individual's ability to collect, manage, and analyze data appropriately so that decisions can be made based on strong evidence (Ongena, 2023). Literacy generally refers to a person's ability to read, write, and understand written texts. However, in a broader context, literacy can also include understanding information, critical thinking skills, and the ability to communicate effectively.

In particular, the Qur'an does not explicitly discuss the concept of literacy as it is understood in a modern context. However, the Qur'an teaches the values of knowledge, understanding, and reflection as part of Islamic teachings. Several verses of the Qur'an emphasize the importance of seeking knowledge, understanding the signs of Allah's greatness, and contemplating the meaning of life (Rayhan, 2022). Surah Al-'Alaq (96), The first verse revealed to the Prophet Muhammad SAW emphasizes the importance of reading and seeking knowledge. "*Read with (mentioning) the name of your Lord who created;*

He created humans from a clot of blood. Read, and your Lord is Most Gracious, Who teaches (humans) through kalam, teaches humans what they do not know."

In Surah Al-Ankabut (29:20), Allah teaches the importance of thinking and contemplating the signs of His greatness in the universe. *"And some of the signs of His greatness are the night, day, sun, and moon. Do not bow down to the sun, and not also to the moon; bow down to Allah who created them, if it is truly Him you worship."*

It is important to remember that literacy in the modern context involves reading, writing, and understanding information skills. Although the Qur'an does not explicitly discuss literacy as it is understood today, the values contained in Islamic teachings can be interpreted as an encouragement to seek knowledge, understand the world, and reflect on the meaning of life. Data literacy refers to an individual's ability to collect, manage, analyze, and interpret data effectively (Ongena, 2023). Someone who has data literacy can recognize relevant information from various data sources, understand the context of the data, and use the data to make the right decisions (Prado & Marzal, 2013).

Technological literacy refers to an individual's ability to use and interact with information and communication technologies (ICTs) effectively (Saripudin et al., 2018). This includes an understanding of software, hardware, applications, and technology services relevant to solving problems, communicating, and gaining access to information (Fortier et al., 1998).

Humanism is an approach to or view of life that places humans and human values at the center of attention. Humanism emphasizes the development of human potential, moral values, and improving the quality of life. Humanist literacy can refer to a person's ability to read, write, and understand texts with an approach or understanding that is enriched by humanist values. This can include a deep understanding of humanity, moral values, and an emphasis on developing human potential.

Integrity refers to one's honesty and morality in acting and making decisions (Huberts, 2018). Lecturers who have high integrity demonstrate consistency between espoused values and daily actions and uphold ethical principles in all aspects of their professional lives (Conroy & Ehrensall, 2021). The concept of integrity, or honesty and faithfulness in behavior, is highly emphasized in Islam. The Qur'an and hadith provide many instructions and teachings about the importance of integrity in everyday life. Here are some verses of the Qur'an that highlight the principles of integrity: Surah Al-Baqarah (2:188): *"And do not consume one another's wealth unjustly or send it (in bribery) to the rulers in order that (they might aid) you (to) consume a portion of the wealth of the people in sin, while you know (it is unlawful)."*

This verse emphasizes that integrity is required in economic and business affairs and prohibits fraudulent and deceptive practices. Surah Al-Ma'idah (5:8): *"O you who believe, let you be a people who are true witnesses for Allah, even if it is towards yourself, your parents, and your relatives. If he is rich or poor, then Allah knows better about his position. So do not follow your desires because you want to deviate from the truth. And if you distort the words or reject them, then indeed Allah is all-knowing of what you do."* This verse emphasizes honesty in giving testimony and teaches not to be influenced by personal considerations or material interests. Surah Al-Muminun (23:8–11): *"Those who keep their mandates and their promises. And those who keep their prayers (times). They are the ones who will inherit (the blessings of heaven) paradise; they will remain eternal in it."*

This verse shows that people who maintain integrity, including fulfilling mandates and promises, will receive blessings from Allah. Surah Al-Ma'idah (5:1): *"O you who believe, fulfill all agreements. Among the livestock, there are those that are lawful for you, and there are also those that are not. So do not go beyond the limits in determining what is*

halal or haram. Indeed, Allah punishes anyone who is unjust."

This verse emphasizes the importance of fulfilling agreements and not violating the limits set by Allah. Thus, integrity is a value that is highly emphasized in Islamic teachings, and many verses in the Qur'an show the importance of being honest, fair, and fulfilling trust and promises.

Aside from data literacy, technology literacy is also an important component in supporting the integrity of lecturers. In the digital era, lecturers must master information and communication technology in order to adapt to change and utilize it in the learning and research process (Jo Shan Fu & Fu, 2013).

Apart from data literacy, technology literacy and humanism literacy factors must also be considered in determining the performance of lecturers. The integrity of lecturers is also influenced by the accessibility system that exists within the campus environment. The accessibility system includes all elements and services that ensure equal access and opportunities for all individuals, including lecturers, to participate in academic and institutional processes (Haleem et al., 2022).

The Qur'an, as the holy book of Muslims, does not directly provide specific instructions or verses that explicitly discuss performance in the context of modern work. However, the principles of ethics, justice, and responsibility contained in the Koran can be interpreted and applied in the world of work (Mokhtari & Shafitabar-Samakoosh, 2018). Some of these principles include: Fair and honest: the principles of justice and honesty are recognized and applied in Islam. Employees are expected to be fair in their work, impartial, and carry out their duties with honesty. People who are fair and honest tend to be more credible. They can be trusted because their behavior and decisions are based on strong ethical principles. Credibility and trust are important aspects of building good relationships in personal, professional, and social environments. Trust is an important principle in Islam. Employees are considered trustees in their work and are expected to carry out their duties with full responsibility (Mohamad Yunus, 2018).

Ihsan (kindness), namely doing good or doing something as well as possible, can be applied in every aspect of life, including work (Rokhman, 2022). Employees are expected to give their best in their duties. Islam encourages its followers to work hard and be serious about seeking sustenance. Employees are expected to have high dedication to their work (Noer et al., 2019).

The concept of teamwork and collaboration is also emphasized in Islam. The concept of "*ta'awun*," or helping each other, is an important value in Islam. Building synergy and working together with a team to achieve a common goal are considered good deeds. Employees are expected to work together with their colleagues to achieve common goals (Irajpour et al., 2015).

Although there are no verses that specifically discuss employees in the context of modern work, ethical and moral principles in the Qur'an can guide employee behavior. Implementing these values can create a healthy and productive work environment where employees contribute positively to society and humanity as a whole. In the context mentioned above, it is necessary to carry out comprehensive research to explore the relationship between data literacy, technological literacy, humanism literacy, and integrity in the research performance of lecturers at universities. This research aims to understand how these factors are interrelated and influence the research performance of lecturers in higher education.

The aims of this research are to: (1) analyze the relationship between data literacy and lecturer research performance. (2) Assessing the influence of technological literacy

on lecturers' research performance; (3) Identifying the influence of humanism literacy on lecturers' research performance; (4) Analyzing the influence of integrity on lecturers' research performance; and evaluating the influence of data literacy, technology, humanism literacy, and integrity on the research performance of lecturers at universities.

This research is expected to make an important contribution to increasing understanding of the factors that affect the research performance of lecturers in the context of higher education. It is hoped that the results of this research can become a reference for higher education institutions to develop lecturer development programs that are oriented towards improving data literacy, technological literacy, humanism literacy, and integrity in order to create lecturers who have high integrity and quality.

This research will be focused on lecturers at the Muhammadiyah University of Jakarta. In addition, this research will limit certain aspects of data literacy, technological literacy, humanism literacy, and integrity that are relevant to the context of higher education. This research is expected to provide a meaningful scientific contribution to the development of human resources in the higher education sector, particularly in enhancing the integrity of lecturers.

Research Method

This study uses a quantitative research design that is exploratory and causal in nature. The quantitative approach is used to measure the relationship between the variables studied quantitatively, while the exploratory approach is used to understand the relationship between variables in depth. Causal design is used to identify the extent to which the independent variables affect the dependent variable in the presence of a mediating variable (Sidhu et al., 2021). The sample for this research is 75 lecturers from the University of Muhammadiyah Jakarta. Data collection was carried out using a questionnaire distributed via Google Form. The questionnaire will include questions related to data literacy, technology literacy, humanism literacy, integrity, and the research performance of lecturers. The data collected will be self-reported by the respondents. The research uses independent variables (data literacy, technology literacy, humanism literacy, and integrity) and dependent variables (research performance).

The questionnaire instrument will be developed based on the relevant literature construct with each research variable. The validity and reliability of the instrument will be tested before distributing the questionnaire (Md Ghazali, 2016). The data collected from the questionnaire will undergo a comprehensive analysis through multiple Regression (OLS) as outlined in the stages of data analysis (Almgren, 2021) (Gujarati, 2013). Initially, the process involves determining both dependent and independent variables, wherein the dependent variable (response) to be predicted is identified, alongside the selection of independent variables (predictors) instrumental in predicting the dependent variable. Subsequently, data collection is executed for all variables earmarked for regression analysis. Following this, a meticulous data exploration is undertaken to comprehend variable distribution, pinpoint outliers, and scrutinize correlations between variables (Shrestha, 2020).

The subsequent step involves creating a regression model, encompassing the formulation of a mathematical equation elucidating the relationship between the dependent and independent variables—exemplified by the equation $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_zX_z + \varepsilon$, where Y is the dependent variable, X_1 is the regression coefficient, and ε represents the error. Coefficient estimation ensues using the OLS method, aiming to minimize the sum of squared errors between observed and predicted values. Then it

continues with a coefficient significance test, involving hypothesis tests to determine the statistical significance of each regression coefficient, employing a t test for each coefficient. Further evaluations in the form of regression assumption tests, such as residual normality tests, homoscedasticity tests, and residual independence tests, contribute to assessing the suitability of the regression model. Ultimately, the obtained model is employed for predictions about the dependent variable's value based on the independent variable, allowing for conclusions about the relationship between variables through regression analysis (Almgren, 2021)(Gujarati, 2013).

Result and Discussion

The results of data analysis are presented in the tables below:

Table 1. Data Description

	N	Mean	Std. Deviation	Minimum	Maximum
LiDa	75	12.56	1.702	9	15
LDig	75	11.97	1.959	7	15
LH	75	12.71	1.916	6	15
INT	75	12.85	1.753	7	15
P	75	27.85	2.860	21	35

Table 1 shows that among the independent variables observed, the average value of integrity is the highest with 12.85 compared to other independent variables.

Table 2 Partial Test (t-test)

Model	B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	11.699	2.427		4.821	.000
	LiDa	.535	.197	.318	2.720	.008
	LDig	.163	.177	.111	.921	.360
	LH	.130	.173	.087	.751	.455
	INT	.454	.182	.278	2.488	.015

a. Dependent Variable: P

Table 2 shows the results of the partial test with a t-test, which shows that the data literacy variable has an influence on research performance, as evidenced by a significant value of $0.008 < 0.05$. The integrity variable also has a significant influence on lecturers' research performance (P), as evidenced by a significant value (p value) of $0.015 < 0.05$.

Table 3. Simultan test (Anova)

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	239.203	4	59.801	11.432	.000 ^a
	Residual	366.183	70	5.231		
	Total	605.387	74			

a. Predictors: (Constant), INT, LDig, LH, LiDa

b. Dependent Variable: P

Table 3 shows the results of the simultaneous test analysis, which shows that the independent variables (data literacy, digital literacy, and humanism literacy) simultaneously influence lecturers' research performance, as evidenced by a significant value of $0.000 < 0.05$.

Table 4. Determination Coefficient

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.629 ^a	.395	.361	2.287	1.921

a. Predictors: (Constant), INT, LDig, LH, LiDa

b. Dependent Variable: P

Table 4 shows the results of the analysis of the coefficient of determination test, which shows that the adjusted R square value of 0.361, or 36.10%, of lecturer research performance variables can be influenced by variations in data literacy, digital literacy, and humanism literacy variables, while the remaining 63.9% is influenced by other variables outside this study.

Discussion

The Effect of Data Literacy on Research Performance

Good data literacy can have a significant impact on lecturers' research performance for various reasons. Here are some of the main reasons why data literacy is so important in a research context: Data literacy allows lecturers to understand data in more depth. This includes the ability to explore and analyze data in a way that provides additional insight and a better understanding of observed phenomena (Wolff et al., 2016). With good data literacy, lecturers can make more informed and focused decisions. They can use data to support or refute hypotheses, make policy recommendations, or design further research.

Data literacy includes skills in designing research, collecting data correctly, and applying appropriate analytical methods. This increases the validity of the research and allows the research to be reproduced or checked by others (Suryadi et al., 2021). Lecturers with good data literacy can use statistical analysis techniques correctly. This allows them to interpret research results accurately and give statistical significance to their findings.

Data literacy includes understanding various data analysis tools and technologies. By using data analysis software, lecturers can increase the efficiency of their research and save time in managing and analyzing data (Henderson & Corry, 2021). Research supported by solid data analysis has a better chance of being published in academic journals. High-quality and reliable research can also improve the academic reputation and recognition of lecturers in the scientific community.

Data literacy allows lecturers to more easily adapt to technological changes and innovations in data analysis. This is important considering that technology and research methodologies continue to develop (Mardiana, 2020). By having strong data literacy, lecturers can be more effective in conducting their research, produce more meaningful findings, and contribute to the advancement of knowledge in their field. As a result, data literacy plays a key role in improving lecturers' research performance.

The Effect of Technological Literacy

This question may refer to the observation that digital literacy does not appear to have a significant impact on lecturers' research performance. Some reasons that may explain this phenomenon are: Limitations of Technology Integration in Research: It is possible that, in some cases, lecturers do not fully integrate digital literacy into their research processes. If technology is not used effectively or relevantly in a research context, its impact on research performance may be limited (Wiannastiti et al., 2019). Lecturers may experience obstacles in accessing or utilizing the technological resources needed to

support their research. The availability of infrastructure and technological support in an institution or research environment can also play a role in the development of digital literacy.

Lecturers may lack awareness or skills for optimally using digital literacy in their research. Limitations in understanding or practical skills can hinder the ability to apply digital literacy effectively (Zhang, 2023). In some fields of study, technology may not be considered a critical element in research, and therefore, digital literacy does not have a significant impact on research performance.

Lecturer performance assessment criteria may not explicitly include digital literacy as a significant indicator. If the performance assessment does not emphasize digital literacy aspects, then the impact may not be visible in the lecturer's performance evaluation. Some academic environments may experience slow changes in adopting new technologies in research practices. Lecturers in this environment may not experience the significant impact of digital literacy on their research performance. It is important to remember that the impact of digital literacy on lecturers' research performance can vary greatly depending on the specific context and discipline. Further study and in-depth understanding of the use of technology in lecturers' research can provide better insights.

The Effect of Humanism Literacy

Several reasons may explain why humanist literacy is not considered influential: Lecturers may have a deeper research focus in certain areas of study that are not directly related to humanistic literacy. Therefore, the impact of humanism literacy may not be significantly visible in their research performance. Lecturer performance assessment criteria can vary at each institution (B et al., 2022). If the assessment criteria do not place special emphasis on humanistic literacy, then perhaps this literacy is not considered a determining factor in performance.

The diversity of lecturers' research, including methodological approaches, research topics, and literature sources used, can influence the extent to which humanism literacy can have a significant impact on research performance (Dressman, 2008).

Level of Understanding and Implementation: There may be differences in the understanding and implementation of humanistic literacy among lecturers. If this literacy is not well understood or implemented appropriately in a research context, its impact may not be as significant.

In-Depth Research Review Required: More in-depth research is needed to understand the relationship between humanistic literacy and lecturer research performance, specifically. Literature reviews and further research can provide a better understanding of the potential impact of humanist literacy. It is important to remember that each institutional and individual context can have different variables and factors, so further research is needed to answer this question more specifically.

The Effect of Integrity

Integrity has a significant impact on lecturers' research performance because it creates a solid foundation for trust and quality in the context of research activities. The following are several reasons why integrity plays an important role in influencing lecturer research performance: **Trust and Reputation:** Integrity is the basis of trust. Trust from fellow researchers, fellow lecturers, and the scientific community is generally built on integrity. Faculty who demonstrate integrity in their research tend to have a good reputation, which can influence their academic and professional recognition (Haven et al., 2019).

Research Ethics: Integrity is closely related to research ethics. Lecturers who

uphold integrity will ensure that their research is conducted with high ethical standards, including fair treatment of research subjects, avoidance of plagiarism, and honest reporting of research results.

Research Quality and Reliability: Integrity helps ensure the quality and reliability of research. Lecturers who maintain integrity will conduct research in good faith, minimize bias, and ensure that their research methods comply with scientific standards.

Ethical Publication: Lecturers with integrity will ensure that their publications comply with research and publishing ethical standards. They will not engage in practices such as plagiarism or data manipulation that could harm the integrity of the research.

Cooperation and Collaboration: Integrity supports positive cooperation and collaboration between lecturers, researchers and research institutions. People are more likely to work with individuals they trust and who have integrity in their work. Lecturers have a social and academic responsibility to contribute knowledge that is reliable and beneficial to society. Integrity ensures that lecturers' research contributions are reliable, and lecturers are responsible for their impact on society (Santoso & Cahaya, 2019).

Compliance with Institutional Rules and Ethics: Integrity involves compliance with the rules and ethics of the institution where the lecturer works. Lecturers with integrity will adhere to the guidelines and norms set by their institutions, ensuring that their research conforms to certain standards. In this series, integrity is not only a moral issue, but is also closely related to reliability, trustworthiness, and quality in research. As a result, integrity plays a key role in shaping and maintaining lecturers' research performance.

Conclusion

The conclusion from the discussion above is that various factors which include data literacy, technological literacy, humanis literacy, and integrity have significant influence on lecturers research performance in higher education. Each of these factors makes a different but interrelated contribution to shaping the integrity of lecturers in interacting with students, colleagues, and the academic environment.

Data literacy enables lecturers to make decisions based on accurate evidence, maintain transparency, and act honestly in the learning and research process. The ability to properly manage and analyze data is an important foundation for lecturer academic integrity. Technological literacy helps lecturers to adapt to the development of information and communication technology, so that they can utilize it in the learning and research process. The use of technology with ethics and effectiveness contributes to the integrity of lecturers in the use of technological resources.

The integrity of lecturers in the context of higher education is influenced by the combination and interrelationships of these various factors. Lecturers who have good data literacy, qualified technological literacy, strong humanism literacy and integrity are supported through an accessibility system will be able to enhance research performance, face academic challenges and assignments with ethics, integrity, and awareness of responsibility morals in an academic environment.

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