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ORIGINAL

Assessing Research Excellence: How Data Literacy, Digital Literacy, and Humanism Influence Research Performance Through Academic Integrity

Evaluación de la excelencia en la investigación: cómo la alfabetización de datos, la alfabetización digital y el humanismo influyen en el rendimiento de la investigación a través de la integridad académica

Suharsiwi[1], Fauzi[2], Laila Yumna[3], Imam Hanafi[4], Rd Heri Solehudin[5], Adiyati Fathu Roshonah[1], Muhammad Choirin[6], Diah Andika Sari[1]

[1]Universitas Muhammadiyah Jakarta, Early Childhood Education Teacher Education, Jakarta. Indonesia.
[2]Universitas Islam Negeri Prof. Saifudin Zuhri, FITK, Purwokerto. Indonesia.
[3]Universitas Muhammadiyah Jakarta, Elementary Madrasah Teacher Education, Jakarta. Indonesia.
[4]Universitas Brawijaya, Department of Public Administration, Malang. Indonesia.
[5]Universitas Muhammadiyah Prof. Dr. Hamka, Jakarta. Indonesia.
[6]Universitas Muhammadiyah Jakarta, Islamic Broadcasting Communication, Jakarta. Indonesia.

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Corresponding author: Suharsiwi

ABSTRACT

Introduction: in the context of higher education, the quality of research is paramount for institutional development and knowledge advancement.
Objectives: this study aims to explore the interrelationships between data literacy, digital literacy, humanism literacy, academic integrity, system accessibility, and research performance among university lecturers.
Method: employing a quantitative research design, data were collected through a structured survey distributed to 75 respondents via Google Forms and WhatsApp. The analysis utilized Structural Equation Modeling (SEM) with Warp-PLS software to assess the proposed relationships.
Results: the findings indicate that data literacy and digital literacy significantly enhance research performance, while humanistic literacy does not exhibit a direct effect. Furthermore, academic integrity emerged as a critical factor positively influencing research performance, underscoring its importance in fostering a culture of ethical research practices. The results suggest that improving lecturers' competencies in data and digital literacy can lead to enhanced research outputs, ultimately contributing to the academic integrity of higher education institutions.
Conclusion: in conclusion, this research highlights the necessity of integrating data and digital literacy training into professional development programs for lecturers, as these competencies are essential for promoting high-quality research and maintaining academic integrity. The study provides valuable insights for policymakers and educational leaders aiming to enhance research performance in higher education settings.

Keywords: Data Literacy; Digital Literacy; Humanism Literacy; Integrity; Research Performance.

RESUMEN

Introducción: en el contexto de la educación superior, la calidad de la investigación es primordial para el desarrollo institucional y el avance del conocimiento.

Objetivos: este estudio tiene como objetivo explorar las interrelaciones entre la alfabetización de datos, la alfabetización digital, la alfabetización en humanismo, la integridad académica, la accesibilidad del sistema y el desempeño de la investigación entre los profesores universitarios.
Método: empleando un diseño de investigación cuantitativa, los datos se recopilaron a través de una encuesta estructurada distribuida a 75 encuestados a través de Google Forms y WhatsApp. El análisis utilizó el Modelado de Ecuaciones Estructurales (SEM) con el software warp-PLS para evaluar las relaciones propuestas.
Resultados: los hallazgos indican que la alfabetización de datos y la alfabetización digital mejoran significativamente el desempeño de la investigación, mientras que la alfabetización en humanismo no exhibe un efecto directo. Además, la integridad académica emergió como un factor crítico que influye positivamente en el desempeño de la investigación, lo que subraya su importancia para fomentar una cultura de prácticas de investigación éticas. Los resultados sugieren que mejorar las competencias de los profesores en alfabetización de datos y digital puede conducir a mejores resultados de investigación, lo que en última instancia contribuye a la integridad académica de las instituciones de educación superior.
Conclusión: en conclusión, esta investigación destaca la necesidad de integrar la formación en alfabetización digital y de datos en los programas de desarrollo profesional de los docentes, ya que estas competencias son esenciales para promover la investigación de alta calidad y mantener la integridad académica. El estudio proporciona información valiosa para los responsables de la formulación de políticas y los líderes educativos que buscan mejorar el rendimiento de la investigación en los entornos de educación superior.

Palabras clave: Alfabetización de Datos; Alfabetización Digital; Alfabetización en Humanismo; Integridad; Desempeño de la Investigación.

INTRODUCTION

Improving the quality 2020 of higher education is one of the main pillars in a country's development. The role of lecturers at universities is very crucial. Lecturers are not only teachers, but also researchers who have a strategic role in generating new knowledge, developing innovation, and increasing the competitiveness of educational institutions.

Lecturer performance at universities involves various aspects, including teaching, research, community service, and contribution to institutional development. However, the focus of this research article will be on the research aspect, which is a key component in the university's mission as a center of knowledge.[1]

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 vital. Lecturers, as the spearhead in the learning and teaching process, play a key role in forming the next generation of quality and integrity.[2]

In the context of higher education, several factors become the main concern in efforts to improve the integrity of lecturers.[3] First, data literacy is very important considering that data has become an integral part of almost every field of science.[4] 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.

Data literacy refers to an individual's capability to collect, manage, analyze, and interpret data effectively.[5] 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.[6]

Technological literacy refers to an individual's capability to use and interact with information and communication technologies (ICTs) effectively.[7] This includes an understanding of software, hardware, applications, and technology services relevant to solving problems, communicating, and gaining access to information.[8] In the era of increasingly developing information and knowledge, literacy is no longer limited to the ability to read and write only. Literacy today includes a deeper understanding of human values and how these values can be applied in various aspects of life, including in the world of research. Humanistic literacy is an important key in establishing integrity and quality research performance.

Humanistic literacy is not just the ability to understand classical literature or philosophy; it also involves the ability to appreciate the cultural diversity, human values, and ethics that underlie each step of research. Research carried out with full integrity and awareness of human values will produce more meaningful contributions to society and the scientific world. System Accessibility refers to all elements and services in an environment that ensure equal access and opportunities for all individuals[9], including lecturers, to participate in academic and institutional processes without barriers or discrimination.[10] This includes aspects of physical accessibility, technology, information, and other supporting services.

Integrity refers to one's honesty, morality, and morality in acting and making decisions.[11] Lecturers who have high integrity demonstrate consistency between espoused values and daily actions and uphold ethical

principles in all aspects of their professional life.[12] Apart from data literacy, emotional intelligence also has an important role in forming the integrity of lecturers. Emotional intelligence includes the ability to recognize, understand, and manage one's own emotions as well as those of others.[13] Lecturers who have good emotional intelligence will be better able to manage relationships with students, colleagues, and other related parties more effectively and ethically.

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.[14] Apart from data literacy, digital literacy, and humanism literacy must also be considered in forming the integrity of lecturers. It is also possible for the accessibility system to influence the research performance of lecturers at universities.

Finally, 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.[15] In the context mentioned above, it is necessary to conduct comprehensive research to explore the relationship between data literacy, emotional intelligence, technological literacy, spirituality, system accessibility, and lecturer integrity. This study aims to understand how these factors are interrelated and influence the integrity of lecturers in the context of higher education.

This study aims to: (1) Analyze the relationship between data literacy and lecturer integrity in the research process, (2) Examine the impact of data literacy on lecturer research performance, (3) analyze the impact of digital literacy on lecturer integrity, (4) examine the impact of digital literacy on lecturers' research performance, (5) Identifying how humanism literacy influences lecturers' integrity, (6) examining the influence of humanism literacy on lecturers' research performance, (7) Evaluating the influence of integrity in influencing lecturers' research performance on campus.

The objective of this research is to enhance comprehension of the factors impacting the integrity and research performance of educators in higher education. The findings from this study are expected to serve as a valuable resource for universities, enabling them to formulate programs for faculty development that focus on enhancing data literacy, technological proficiency, and humanistic understanding. This, in turn, will produce educators with both integrity and a high level of research performance.

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

METHOD

Approach and Research Design

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.[16]

Samples and Data Collection

To determine the sample size, a power analysis was conducted based on the total number of lecturers at the university, which is approximately 150. Using a confidence level of 95 % and a margin of error of 5 %, the calculated sample size was 75 respondents, which is deemed representative of the population. The data collected will be self-reported by the respondents.

Research variable

Independent Variables: Data Literacy, digital literacy, and humanism literacy. The Mediation Variable is integrity. The Dependent Variable is the research performance of the Lecturer.

Measuring Instruments

The questionnaire instrument will be developed based on the relevant literature construct for each research variable. The validity and reliability of the instrument will be tested before distributing the questionnaire.[17]

Inclusion Criteria and Exclusion Criteria

Inclusion Criteria. Lecturers who have been employed at the university for at least one year and are actively involved in research activities were included in the study.

Exclusion Criteria. Lecturers on sabbatical leave, those not engaged in research, and those with less than one year of teaching experience were excluded from the study. This approach ensured that the selected participants had relevant experience and engagement in research activities, thereby enhancing the validity of the findings.

Data analysis

Data collected from the questionnaire will be processed using Structural Equation Modeling (SEM) analysis. SEM is a useful statistical technique for examining the relationship between variables by modeling the relationship between latent variables and observational variables.[18] The data collected were analyzed using Structural Equation Modeling (SEM) with Warp-PLS software. The intended statistical tests included path analysis to evaluate the relationships between the variables. A confidence level of 95 % was assigned, corresponding to a critical p-value of 0,05. This threshold was used to determine the statistical significance of the relationships examined in the study, with p-values less than 0,05 indicating significant effects

RESULTS

Respondent Characteristics

The characteristics of respondents, consisting of gender, age, education, and years of teaching, are presented in table 1

Table 1. Respondent Characteristic

	Frequency	Percentage
Gender		
Male	36	48
Female	39	52
Age		
21-30 years old	7	9,3
31-40 years old	16	21,3
41-50 years old	26	34,7
51-60 years old	22	29,3
> 60 years old	4	5,3
Education		
Undergraduate	0	0
Graduate (Master)	41	54,7
Postdoctoral (Ph.D.)	34	45,3
Teaching Period		
< 1 years	1	1,33
1-5 years	16	21,33
6-10 years	18	24
11-15 years	19	25,33
> 15 years	21	28

Table 1 shows the characteristics of respondents based on gender, dominated by women at 52 %, aged 41-50 years at 34,7 %; Master's degree education was 54,7 %, and teaching experience of more than 15 years was 28 %.

Evaluation of Measurement Model

The outer model in measurement analysis assesses the construct variables by examining the validity and reliability. To determine the consistency of responses within the instrument, an internal consistency analysis is performed. This involves evaluating composite reliability, where a construct is considered reliable if its composite reliability exceeds the threshold of 0,700. This approach ensures that the measurement instruments used in the study are both valid and reliable, thereby enhancing the credibility of the findings derived from the data collected.[19,20]

Table 2. Output of Internal Consistency

	Cronbach's Alpha	Composite reliability	Average Variance Extracted
Data Literacy	0,744	0,854	0,661
Digital Literacy	0,732	0,882	0,789
Humanism Literacy	0,788	0,877	0,703
Integrity	0,697	0,832	0,623
Performance Research	0,860	0,905	0,705

Table 2 presents the results of the internal consistency analysis, which evaluates the reliability of the measurement model for each variable. The analysis employs Cronbach's Alpha and composite reliability values to assess consistency. A construct is considered reliable if its composite reliability value exceeds 0,700. The findings reveal that all variables meet this criterion, with data literacy showing a composite reliability of 0,854, digital literacy at 0,882, humanism literacy at 0,877, integrity at 0,832, and research performance at 0,905. These results indicate that the measurement instruments used in the study are reliable, ensuring that the constructs are consistently measured across the sample

Table 3. Output of Convergent Validity

	LData	LDig	LHum	INT	P
LData1	0,816	-0,144	0,015	-0,123	0,017
LData2	0,834	-0,058	-0,063	-0,097	0,020
LData3	0,789	0,210	0,052	0,229	-0,039
LDig1	-0,049	0,888	-0,126	0,069	0,204
LDig2	0,049	0,888	0,126	-0,069	-0,204
LH1	-0,053	0,017	0,794	-0,118	-0,113
LH2	0,022	0,012	0,886	-0,020	-0,018
LH3	0,027	-0,030	0,833	0,134	0,127
I1	-0,057	-0,026	0,193	0,759	-0,189
I2	0,072	0,050	0,060	0,784	0,019
I4	-0,017	-0,024	-0,235	0,824	0,156
P3	-0,128	0,289	-0,103	0,297	0,792
P5	0,381	-0,340	0,084	-0,316	0,841
P6	-0,219	0,052	0,015	0,064	0,907
P7	-0,026	0,013	-0,003	-0,033	0,815

Table 3 shows that all coefficient values for the variable measurement model indicators are greater than 0,5, which shows that all the indicators are valid.

Inner Model Evaluation (Structural Model)

The structural model analysis is conducted to validate the research hypotheses by examining the coefficient of determination (R Square). This analysis assesses the relationships between the latent variables and evaluates how well the model explains the variance in the dependent variables. Additionally, a collinearity test is performed to determine the strength of the correlation between the latent constructs. A strong correlation may indicate methodological issues that could affect the estimated statistical significance.[21] The Variance Inflation Factor (VIF) is utilized for this analysis, where a VIF value exceeding 5,00 suggests potential collinearity problems, while a value below 5,00 indicates that collinearity is not a concern.[22]

Table 4. Colinierity

Ldata	LDig	LH	INT	P
2,227	2,246	1,576	2,644	2,339

Table 4 provides insights into the collinearity assessment among the latent variables in the structural model. The Variance Inflation Factor (VIF) values are presented for each variable, with all values falling below the

threshold of 5,00. Specifically, the VIF values for data literacy, digital literacy, humanism literacy, integrity, and research performance are 2,227, 2,246, 1,576, 2,644, and 2,339, respectively. These results indicate that there are no significant collinearity issues within the model, suggesting that the constructs are distinct and that the relationships among them can be reliably analyzed without methodological concerns.

Determining the Significance of Structural Path Estimates

In the section on examining the significance of the structural model path coefficients, the analysis is divided into two key stages: examining direct effects and assessing indirect effects. This significance testing is essential for understanding the strength and relevance of the relationships within the structural model. A positive path coefficient indicates a direct relationship where an increase in one variable corresponds to an increase in another, while a negative coefficient suggests an inverse relationship. The significance of these relationships is determined by the p-values associated with each path coefficient. If a probability value is less than the significance level of 0,05, the null hypothesis is rejected, confirming a significant impact of the variable on others. Conversely, if the p-value exceeds 0,05, the null hypothesis is not rejected, indicating that the variable does not have a significant effect on the others.

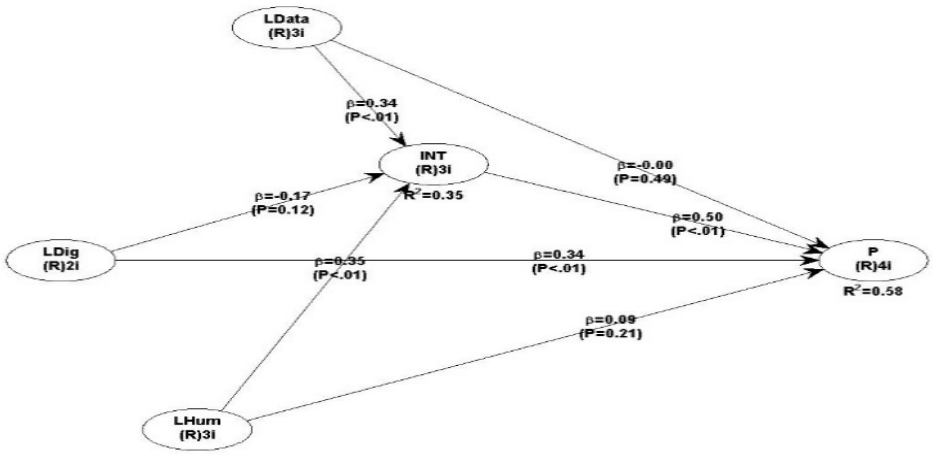

Figure 1. Hypothesis test

Direct Effect Testing

The purpose of examining the direct effect hypothesis is to assess the extent to which one variable exerts a direct influence on another. A positive path coefficient signifies that an increase in the predictor variable is associated with an increase in the outcome variable.[23] In contrast, a negative path coefficient indicates that as the predictor variable increases, the outcome variable decreases. Statistical significance is determined by the p-value in relation to the predefined significance level (α = 0,05). If the p-value is below this threshold, the null hypothesis (H_0) is rejected, suggesting a statistically significant effect. Conversely, a p-value exceeding 0,05 implies that the null hypothesis cannot be rejected, indicating the absence of a significant direct effect.[24]

Table 5. Path Coefficient Analysis Output

Interaction between Variables	Original sample	P-values
Data Literacy -> Integrity	0,343	0,003
Data Literacy -> Research Performance	-0,002	0,492
Digital Literacy -> Integrity	-0,171	0,123
Digital Literacy -> Research Performance	0,337	< 0,001
Humanism Literacy -> Integrity	0,349	0,001
Humanism Literacy -> Research Performance	0,091	0,206
Integrity -> Research Performance	0,500	< 0,001

The analysis employs path coefficients to quantify these relationships, with a focus on determining statistical

significance through p-values.

Key findings from the analysis include:

The path coefficient of 0,343 indicates a positive relationship with integrity, suggesting that higher data literacy correlates with increased integrity. This relationship is statistically significant (p-value = 0,003), affirming the hypothesis that data literacy enhances integrity.

The path coefficient of 0,337 shows a strong positive effect on research performance, with a highly significant p-value (< 0,001). This indicates that improved digital literacy is associated with better research outcomes.

A path coefficient of 0,349 reflects a positive influence on integrity, with a significant p-value (0,001). However, its effect on research performance is less pronounced (coefficient = 0,091, p-value = 0,206), suggesting that while humanism literacy supports integrity, its direct impact on research performance is not statistically significant.

The analysis reveals a strong positive path coefficient of 0,500 with research performance, indicating that maintaining integrity is crucial for achieving high-quality research outcomes, supported by a significant p-value (< 0,001).

DISCUSSION

The Impact of Data Literacy on Lecturer Integrity

In this research, it was found that data literacy had a significant impact on lecturers' academic integrity. Data literacy has a significant impact on the integrity of lecturers because there are several interrelated and supportive factors. The following are several reasons why data literacy affects the integrity of lecturers.

Data literacy enables lecturers to access, collect, and analyze data properly.[25] Thus, lecturers can speak and teach based on accurate facts and evidence. The use of data as a basis for decision making and argumentation in teaching and research processes will give the impression of high integrity[26], because lecturers show accuracy in conveying information to students and other academic members.

Data literacy helps lecturers to avoid data manipulation or biased interpretation, because lecturers who have good data literacy will be committed to being transparent and honest in presenting data and research results.[27] This reflects academic integrity and professionalism. Data literacy enables lecturers to be more responsible in using data and information in their academic activities.[28] Lecturers who are responsible for managing, storing, and using data will reflect the quality of professional integrity.

Data literacy helps lecturers understand the context of data used in academic activities. Thus, lecturers can realize the impact of the information and data they use in their decisions or teaching.[29] Awareness of this impact can encourage lecturers to consider more ethical and moral values in every action they take. In the context of research, data literacy affects the quality of research conducted by lecturers. The ability to process data correctly and interpret research results correctly will support the integrity of the research conducted.[30]

Data literacy enables lecturers to avoid data analysis mistakes or data misuse, which can lead to inaccurate conclusions. By avoiding these kinds of mistakes, lecturers maintain the integrity of their work.[31] Overall, data literacy helps create an environment where lecturers act with high integrity in teaching, research, and interactions with students and peers. Lecturers who prioritize integrity in the use and interpretation of data will make a positive contribution to the quality of education and the reputation of higher education institutions.

The Effect of Data Literacy on Research Performance

This research shows that data literacy has no effect on lecturers' research performance, with an output p-value > 0,05. There are several possible causes, namely: If research is conducted with a relatively small sample, it may be difficult to detect a significant effect, especially if the effect of data literacy is indeed small. In statistics, a small sample size can result in a larger p-value.[32] If the variability in the research data is high, it will be more difficult to find significant effects. A high p-value may indicate that the high variation in the data makes it difficult to identify consistent effects.[33] There may be other factors that influence lecturers' research performance that are not taken into account in the analysis. These variables may cause the effect of data literacy to be insignificant when analyzed simultaneously.[34]

In situations such as these, it is important to reconsider the research design, sample size, measurements, and statistical methods used to ensure that analyses properly reflect the relationship between data literacy and faculty research performance. If possible, consult a statistician to gain further insight into your research results.

The Effect of Digital Literacy on Lecturer Integrity

The results of this research indicate that digital literacy has no effect on lecturers' academic integrity. Several reasons why digital literacy may not directly affect lecturers' academic integrity:

Academic integrity is primarily an ethical and moral issue. This relates to actions and decisions carried out by individuals consciously, including actions such as plagiarism, falsification of data, and other academic

fraud.[35] Digital literacy, while important, is more related to the technical ability to use technology and digital resources.[36] Although digital literacy can influence how lecturers access information and interact online, it does not directly influence their ethical behavior.

Digital literacy is basically a tool or skill that allows a person to operate in the digital world.[37] Although important for achieving efficiency and effectiveness in academic work, academic integrity depends more on an individual's values, norms, and ethical decisions than on their technical skills. Academic integrity involves many more complex factors, such as moral awareness, honesty, responsibility, and the values inherent in academic culture.[38] Digital literacy may not directly change a person's values or responsibility for academic integrity.

However, it is important to remember that digital literacy can have a secondary impact on academic integrity if used for unethical purposes. For example, faculty who have high digital literacy may have easier access to materials that could be used for plagiarism, or they may be more likely to engage in ethically questionable practices in online research.

In this context, it is important to teach lecturers about digital ethics and promote an understanding of academic integrity in the digital environment. However, digital literacy alone is not enough to ensure academic integrity. This requires special attention to values and ethics in the academic world.

The Effect of Digital Literacy on Research Performance

The results of this research show that digital literacy has a significant effect on lecturers' research performance, which explains the positive relationship between digital literacy and the ability to conduct effective research. Here are several reasons why digital literacy can have a significant impact on lecturers' research performance:

Digital literacy allows lecturers to access various information sources, scientific journals, databases, and online references easily.[39] This helps them gather more relevant information for their research. The ability to use different computer hardware and software allows lecturers to manage data, analyze data, and compile research results more efficiently.[40] It also allows them to use statistical tools and data analysis software necessary for their research. Digital literacy allows lecturers to communicate with fellow researchers, students, and experts around the world. They can share ideas, research results, and get input from others, which can improve the quality of their research.[41] Lecturers can use digital literacy to design online surveys, online data collection, and more sophisticated data analysis. This can save time and resources in their research.

Digital literacy allows lecturers to utilize educational technology in the learning process, such as online learning platforms, online lectures, and digital learning resources.[42] This can improve the quality of their teaching and optimize their time. Lecturers can use digital literacy to publish their research online through digital scientific journals, institutional repositories, and scientific social media. This can increase the visibility of their research.[43] In many scientific disciplines, big data is becoming increasingly important. Digital literacy enables lecturers to better manage, analyze, and interpret big data. Digital literacy also includes an understanding of digital ethics, including copyright, academic integrity, and privacy issues. Digitally literate lecturers can avoid ethical issues that could impact their research performance.[44] In other words, digital literacy helps lecturers optimize the use of technology and digital resources in their research activities. This ability can increase the efficiency, productivity, and overall impact of their research, thereby having a significant influence on lecturers' research performance.

The effect of Humanism literacy on Lecturer Integrity

The results of this research show that humanistic literacy has a significant effect on lecturers' academic integrity. Humanistic literacy can have a significant influence on lecturers' academic integrity because it involves a deeper understanding of ethical, moral, and human values. Here are several reasons why humanistic literacy can influence lecturers' academic integrity:

Humanistic literacy helps lecturers to develop a deep understanding of ethics. They will be better able to understand values such as honesty, justice, and social responsibility that are inherent in academic culture.[45] Lecturers who have good humanism literacy tend to be more aware of the importance of integrity in their academic work. Humanistic literacy also involves the ability to appreciate and understand diverse perspectives, cultures, and worldviews.[46] This can influence how lecturers respect copyright and other people's intellectual resources, as well as avoid practices such as plagiarism that undermine academic integrity.

Humanist literacy often focuses on understanding how academic work can have social and humanitarian impacts.[47] Lecturers who have strong humanistic literacy may be more likely to prioritize positive values and impact in their research, and this may encourage them to avoid actions that violate integrity. Humanistic literacy can help lecturers in developing personal character and morals. This creates a strong foundation for academic integrity because they will be more likely to follow moral principles in their work, even when they face pressure or temptation to violate integrity.[48] As part of humanism literacy, lecturers can take training or courses that focus on research ethics and academic integrity. This can provide a better understanding of the

academic norms to follow and how to avoid ethical violations.

In developing academic integrity, humanistic literacy is not only about theoretical knowledge but also about the application of human values in daily actions. Therefore, humanism literacy can have a significant impact in ensuring that lecturers adhere to the principles of academic ethics and maintain integrity in their research work.

The Influence of Humanism Literacy on Research Performance

Lecturers' research performance may not be directly related to humanism literacy, especially if the research they conduct focuses on more technical or scientific fields. Humanistic literacy tends to be more related to understanding and appreciation of humanistic aspects such as literature, art, philosophy, or history, and may not have direct relevance to the lecturer's research methods or results.

The influence of humanist literacy can vary depending on the lecturer's academic discipline. Some disciplines may emphasize more humanistic aspects in their research, while others are more oriented towards scientific or technical methods.[49] Therefore, the impact of humanist literacy may be more pronounced in some fields than others. In faculty research, variability in topics, methods, and research focus can be important factors influencing the relationship between humanism literacy and research performance. In some studies, humanistic knowledge may not be a significant determining factor.[50] Evaluation of faculty performance is often based on a number of different criteria, including scholarly publications, funded research, teaching, and other contributions to the university or academic community.[51] Humanistic literacy may be more relevant in the context of teaching or cultural contribution than in the assessment of research performance

The influence of humanistic literacy on research performance may not be accurately measured in existing lecturer performance assessment metrics. Therefore, its impact may not be visible in formal performance evaluations. Apart from humanistic literacy, there are many other factors that can influence lecturers' research performance, such as motivation, research skills, and available resources.[52] These variables can dominate the influence on research performance.

In statistical analysis, it is important to ensure that the variables studied are truly relevant to the results being measured. If humanism literacy data is not relevant to the research performance being measured, then the results may indicate that there is no significant effect.

The Effect of Integrity on Research Performance

The results of this research show that integrity influences lecturers' research performance. Integrity is a very important aspect in lecturers' research and has a significant influence on their research performance. Here are several reasons why integrity has a significant effect on lecturers' research performance:

Integrity is the basis of public trust in scientific research. When lecturers maintain integrity in their research, the public and fellow researchers can trust the results of their research.[53] This is important in maintaining academic reputation and professionalism. Integrity includes aspects such as reporting data honestly, using correct research methods, and not engaging in data manipulation or plagiarism. All of this is important to confirm the research's validity. Dishonest or manipulative research can produce unreliable findings.

Integrity includes adherence to research ethical standards that have been established by the scientific community. This includes respecting copyright, treating research subjects fairly, and maintaining the confidentiality of sensitive data.[54] Violating research ethics can have serious consequences for a lecturer's performance and reputation. Lecturers often collaborate with other research colleagues on research projects. Integrity in collaboration is the key to success in research teams.[55] Faculty who are respected for their integrity are more likely to attract high-quality research colleagues.

Research produced with integrity has higher value in the advancement of knowledge. Honest and valid research results make a significant contribution to scientific literature and society.[56] Scientific journals and academic conferences often require authors to demonstrate integrity in their research. Significant scientific publications are an important component of lecturers' academic performance.

Integrity is one of the qualities evaluated by assessment committees and superiors in academic careers. Research performance related to good integrity can help lecturers advance their careers.[57] Lecturers also serve as models for students and young researchers. When faculty demonstrate integrity in research, they inspire others to follow the same example, creating a culture of ethical and honest research.[58]

Integrity is not only about maintaining honesty in research but also about committing to adhering to the principles of research ethics and good practices in the academic world.[59] Overall, integrity is the basis for the quality and impact of a lecturer's research performance in the scientific community and wider society.

CONCLUSIONS

In conclusion, the findings of this study underscore the critical role of various literacy types in enhancing research performance among lecturers. Specifically, data literacy is shown to significantly influence integrity,

which in turn has a notable impact on research performance. Additionally, digital literacy emerges as a key factor that significantly affects research performance, highlighting the importance of effectively utilizing technology and digital resources to improve research quality and productivity. Furthermore, the study reveals that humanistic literacy significantly contributes to integrity, suggesting that an understanding of human values and ethics is essential for fostering ethical behavior in research practices. Although humanism literacy doesn't have a significant direct impact on research performance, its influence on integrity emphasizes the interconnectedness of these constructs. Overall, these insights provide valuable implications for higher education institutions, suggesting the need for targeted training programs and policies that promote literacy development, uphold research ethics, and ultimately enhance the research capabilities of lecturers.

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AUTHORSHIP CONTRIBUTION

Conceptualization: Suharsiwi, Fauzi.
Data curation: Suharsiwi, Fauzi, Laila Yumna, Imam Hanafi.
Formal analysis: Suharsiwi, Fauzi, Laila Yumna, Muhammad Choirin.
Acquisition of funds: Suharsiwi, Fauzi, Laila Yumna, Imam Hanafi, Rd Heri Solehudin.
Research: Suharsiwi. Laila Yumna, Adiyati Fathu Roshonah, Diah Andika Sari.
Methodology: Suharsiwi, Fauzi, Laila Yumna, Adiyati Fathu Roshonah.
Project management: Suharsiwi, Fauzi, Laila Yumna, Rd Heri Solehudin.
Resources: Suharsiwi, Fauzi, Laila Yumna, Imam Hanafi, Rd Heri Solehudin.
Software: Suharsiwi, Laila Yumna, Muhammad Choirin.
Supervision: Suharsiwi, Fauzi, Rd Heri Solehudin, Imam Hanafi.
Validation: Suharsiwi, Fauzi, Laila Yumna, Imam Hanafi, Adiyati Fathu Roshonah.
Display: Suharsiwi, Rd Heri Solehudin, Diah Andika Sari.
Drafting - original draft: Suharsiwi, Laila Yumna, Muhammad Choirin.
Writing - proofreading and editing: Suharsiwi, Fauzi, Laila Yumna.