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The Influence of Digital Competence and Personality Competence on the Creativity of Madrasah Ibtidaiyah Teachers in Dukun Subdistrict

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ABSTRACT

Education 4.0 requires teachers to possess high creativity supported by digital competence and a mature personality. This study aims to analyze the influence of digital competence and personality competence on the creativity of Madrasah Ibtidaiyah teachers in Dukun District. This study employs a quantitative approach with a descriptive correlational design. The population comprised 554 teachers, with a sample of 232 teachers selected using Cluster Area Probability Random Sampling technique. Data collection instruments included a test for digital competence and questionnaires for personality and creativity variables, which were analyzed using multiple linear regression. The results indicated that the levels of digital competence, personality competence, and teacher creativity were in the moderate category. Statistically, there is a significant influence, both partially and simultaneously, of digital competence and personality competence on teacher creativity. The conclusion emphasizes that the integration of technological mastery and personality maturity is a fundamental factor that must be enhanced continuously to foster teacher creativity in creating innovative learning.

1. Introduction

The World of education is undergoing rapid transformation driven by the Industrial Revolution 4.0 and the transition toward Society 5.0. Digital technology has become a core element in teaching and learning, requiring teachers to continuously adapt their instructional practices to prepare students for complex future challenges (Putri Husma et al., 2023). These changes emphasize not only technical abilities but also essential 21st-century skills such as creativity, critical thinking, communication, and collaboration. In response, Indonesia has implemented curriculum reforms through the Independent Curriculum developed by the Ministry of Education, Culture, Research, and Technology and supported by the Ministry of

Religious Affairs for madrasa education. This curriculum focuses on conceptual understanding, interdisciplinary learning, and real-life application to develop adaptive and independent learners (Rahma et al., 2024).

Despite these reforms, the effectiveness of curriculum implementation depends heavily on teacher creativity. Creative teachers are able to design interactive learning environments, apply varied teaching strategies, and actively engage students in meaningful learning processes (Damanik, 2019; Istiqomah et al., 2023). In contrast, teachers with limited creativity often rely on conventional, teacher-centered methods that reduce student engagement and deeper understanding. Previous studies indicate that weak learning outcomes are more closely related to a lack of teacher creativity than to insufficient teaching competence (Fauziah et al., 2022). This condition suggests that strengthening teacher creativity is a critical issue in improving learning quality.

Teacher creativity is strongly influenced by digital competence and personality competence. Digital competence, defined as the confident, critical, and creative use of information and communication technology, enables teachers to design innovative and interactive learning experiences (Anusca, 2013; Muhtadi et al., 2022). Empirical studies show that teachers with high digital competence tend to demonstrate higher creativity in instructional design (Aisyah et al., 2025). However, national reports reveal that Indonesia's digital literacy level remains moderate, indicating persistent gaps among teachers (Nada, 2023). In addition, personality competence plays an important role in shaping creativity. Teachers with stable, mature, and open personalities are more willing to innovate and create positive classroom climates that encourage student participation (Mukroma, 2020; Sopandi, 2020).

Although various professional development programs have been implemented in Dukun District, empirical evidence regarding their impact on teacher creativity remains limited. Most previous studies examine digital competence or personality competence separately, while integrated studies focus on both variables simultaneously, particularly in the context of Islamic elementary schools, are still scarce (Rafika, 2025). Therefore, this study aims to examine the influence of digital competence and personality competence on the creativity of elementary madrasah teachers in Dukun District, both partially and simultaneously. This research is urgent given the moderate level of learning quality in Indonesia and the need to enhance creative teaching practices (Zayas & Rofi'ah, 2022). The novelty of this study lies in its integrated approach, providing empirical evidence that can support teacher development policies and improve creative and innovative learning in Islamic elementary education.

2. Methodology

This study adopts a quantitative approach using a descriptive correlational research design. Descriptive correlational research aims to provide a systematic and accurate description of the characteristics of individuals, groups, or situations without

manipulating variables (Sugiyono, 2019). This type of research focuses on describing actual conditions and examining relationships among variables within a specific population. According to (Creswell, 2022), correlational descriptive research is conducted on particular groups, objects, situations, or systems of thought as they exist at the time of the study.

The purpose of this research is to present a systematic, factual, and accurate depiction of the characteristics and relationships among the analyzed variables. Data analysis in this study includes descriptive analysis, simple linear regression, and multiple linear regression. The research stages consist of: (1) prerequisite analysis tests (validity, reliability, normality, linearity, multicollinearity, and heteroscedasticity tests), (2) descriptive analysis, (3) simple linear regression analysis, and (4) multiple linear regression analysis.

Research Location

This research was conducted at an elementary madrasah in Dukun District, Gresik Regency. The researchers chose this location to determine the influence of digital competence and personality competence on teacher creativity.

Population and Sample

The population in this study was all elementary school teachers in Dukun District. The following table 1 is a breakdown of the population in this study:

Table 1. School Population Data

Area	School name	Number of Teachers
Middle	MI Al-Islami	11
	Islamic MI Mojopetung	13
	MI Tarbiyatul Falahiyah	19
	MI Tarbiyatus Shibyan Mentaras	24
	MI Taswirul Afkar	21
	MI Al-Karimi	25
	MI Hidayatul Mubtadiin	17
	MI Ihyaul Islam	21
	MI Mishbahul Ulum	16
	Muhammadiyah Islamic Elementary School	22
West	MI Nurul Hidayah	22
	MI Darul Ulum	15
	MI Miftahul Ulum Bulangan	17
	MI Nurul Huda	13
	MI Tarbiyatul Athfal 2	13
	MI Hidayatus Greetings	20
	MI Ma'arif Nu Tanwirul Qulub	19
	MI Tanwirul Qulub Yppmu	26
East	MI Tarbiyatul Athfal	17
	MI Mathlabul Huda I	20
	MI Mathlabul Huda II	21
	MI Thoriqotul Ashfiya'	19
	MI YKUI Putri Sambogunung	18

	MI YKUI Sekargadung	19
	MI Ihyaul Ulum	24
	MI YKUI Babakbsari	20
	MI YKUI Maskumambang Putra	20
	MI YKUI Maskumambang Putri	21
	MI YKUI Putra Sambogunung	21
Amount		554

Looking at the population numbers above, researchers are guided by research conducted by (Arikunto, 2010), that is, if the subjects are less than 100 then all can be taken and it is called population research, and if the subjects are larger or more than 100 then the sample taken as a representative, must be able to truly represent the population. Therefore, researchers in determining the sample use the Cluster Area Probability Random Sampling technique. Area Probability Random Sampling is one of the sampling techniques in which the population is divided into groups or clusters based on a specific geographic area or region (Sudaryono, 2018). Each elementary school (Madrasah Ibtidaiyah) in Dukun District was divided into three groups or clusters: east, central, and west. All teachers from each selected cluster were then sampled for the study, ensuring that the data obtained remained representative of each region. Based on the Cluster Area Probability Random Sampling technique employed, the calculation of the number of sampled schools and teachers in each regional cluster in Dukun District is presented in Table 2.

Table 2. School Sample Calculation

	Number of Teachers per Cluster	Average	Number Teacher Samples	of Number of School Samples
Middle	211	19.1	88	5
West	140	17.5	59	4
East	203	20.3	85	5

$$\text{Average} = \frac{\text{Jumlah Populasi per Cluster}}{\text{Jumlah Sekolah per Cluster}}$$

$$\text{Number of Teacher Samples} = \text{x Number of Samples} \frac{\text{Jmlh Populasi cluster}}{\text{Jumlah Populasi}}$$

$$\text{Number of School Samples} = \frac{\text{Jmlh Sampel Guru}}{\text{Rata-Rata}}$$

Based on these calculations, the schools that were sampled from each randomly selected cluster were as follows in table 3:

Table 3. School Sample

Area	School name	Number of Teachers
Middle	MI Al-Islami	11
	Islamic MI Mojopetung	13
	MI Tarbiyatul Falahiyah	19
	MI Tarbiyatus Shibyan Mentaras	24
	MI Taswirul Afkar	21
West	MI Darul Ulum	15
	MI Miftahul Ulum Bulangan	17
	MI Nurul Huda	13
	MI Tarbiyatul Athfal 2	13

East	MI Mathlabul Huda I	20
	MI Mathlabul Huda II	21
	MI Thoriqotul Ashfiya'	19
	MI YKUI Putri Sambogunung	18
	MI YKUI Sekargadung	19
Amount		232

Data collection technique

The data collection technique in this study used a questionnaire or closed questionnaire type to make it easier for respondents to provide answers, taking into account material, time, and thoughts. This questionnaire was used to collect data from the personality competency variables (X2) and Teacher Creativity (Y). Researchers shared the questionnaire data to complement the data from other researchers. This research instrument used a questionnaire with a Likert scale as a measurement tool. According to (Arifin, 2016; Emzir, 2020), The Likert scale can be used to assess a person's attitudes, opinions, and perceptions of an event, which aligns with the objectives of this study. This study used a scale of 1-4, known as a modified Likert scale. Umar The purpose of using a modified Likert scale is to eliminate the weaknesses of the five-level scale. The scoring criteria for respondents' answers based on the modified Likert scale used in this study are presented in Table 4.

Table 4. Likert Scale

Answer	Score
Strongly agree	4
Agree	3
Don't agree	2
Strongly Disagree	1

In addition, data collection also uses a digital mastery test to collect data from the digital competency variable (X1). Tests were chosen because they produce more objective, measurable, and reliable data than perception questionnaires. Through these tests, researchers can realistically assess teachers' digital competency levels and identify areas of strength and weakness using quantitative analysis. The following table 5 are the types of answer scores.

Table 5. Answer Scores

Answer	Score
Correct	1
Wrong	0

The instrument grid as a guideline for collecting data from each variable is as follows in table 6:

Table 6. Research Instrument Grid

Variables	Sub Variables	Indicator
Digital Competence (X1) (Anusca Ferrari, 2013)	Information	Browsing, searching and filtering information
		Evaluating Information

		Storing & retrieving information
		Interacting through technologies
		Sharing Information & Content
		Engaging in online citizenship
		Collaborating through digital channels
		Netiquette
		Managing Digital Identity
		Developing Content
		Integrating & Re-elaborating
		Copyright & Licenses
		Programming
		Protecting Devices
		Protecting Personal Data
		Protecting Health
		Protecting the Environment
	Communication	Solving Technical Problems
		Identifying Needs & Technological Responses
		Innovating and Creatively Using Technology
		Identifying Digital Competence Gaps
	Content Creation	Respect students regardless of background
		Be in accordance with religious norms, laws, social norms, and Indonesian national culture.
		Be honest, firm and humanely.
		Behaving in a way that reflects piety and noble morals
		Behaving in a way that can be emulated by students and the community
	Safety	Show yourself as a steady, stable, mature, wise and authoritative person
		Present yourself as a mature, wise and authoritative person
		Demonstrate high work ethics and responsibility
		Proud to be a teacher and believe in yourself
	Problem Solving	
Personality Competence (X2) (Minister of National Education Regulation Number 16 of 2007)	Act according to religious, legal, social and cultural norms	

Teacher Creativity (Y) (Utami Munandar 1992:47)	Upholding the code of ethics of the teaching profession	Work independently in a professional manner
		Understanding the code of ethics of the teaching profession
		Implementing the code of ethics for the teaching profession
		Behave according to the teacher's code of ethics
	Person (Creative Person)	Self-confident
		Perseverance
		Preparation
		Incubation
	Process (Creative Process)	Illumination
		Verification
		Giving Encouragement
		Never give up
	Press (Push)	
	Product (Creative Product)	Knowledge

Data Analysis Techniques

Validity and Reliability Test

The criteria for interpreting the reliability coefficients used in this study are presented in Table 7.

Table 7. Reliability Test Guidelines

The magnitude of r	Interpretation
Between 0.81 and 1.00	Very strong (very reliable)
Between 0.61 to 0.80	Strong (reliable)
Between 0.41 to 0.60	Strong enough (reliable enough)
Between 0.21 to 0.40	Low (somewhat reliable)
Between 0.00 to 0.20	Very low (less reliable)

The results of the reliability test for each research variable are presented in Table 8. The findings indicate that all variables meet the reliability criteria, as the Cronbach's Alpha values exceed the minimum threshold of 0.60, demonstrating that the research instruments are reliable for data collection.

Table 8. Reliability Test Results

Variables	Coefficient Value Alpha Sien	Test Cron Bach's Alpha	Number of Items	
Digital Competence (X1)	0.60	0.965	26	Reliable
Personality Competence (X2)	0.60	0.909	22	Reliable
Teacher Creativity (Y)	0.60	0.933	29	Reliable

3. Results and Discussion

General Conditions of Research Sample

This study involved the participation of Madrasah Ibtidaiyah teachers in Dukun District, Gresik Regency, representing the characteristics of the educational population in the region. Out of a total population of 554 teachers, 232 respondents were selected using the Cluster Area Probability Random Sampling technique. The sample was distributed proportionally across three main cluster regions: the Central region (88 teachers from 5 schools), the Western region (59 teachers from 4 schools), and the Eastern region (85 teachers from 5 schools). This even distribution across various geographical zones ensures that the data obtained reflects real-world conditions, accommodates the diversity of institutional backgrounds, and minimizes regional bias in measuring the competence and creativity variables.

Research Process and Data Collection

Data collection was conducted through a systematic quantitative approach employing two main types of instruments to ensure result objectivity. For the digital competence variable (X1), the researcher applied a test method to measure the teachers' technical abilities accurately and objectively, rather than relying solely on perception. Meanwhile, data regarding personality competence (X2) and teacher creativity (Y) were collected using closed-ended questionnaires using a modified Likert scale (1-4 scale) to facilitate respondents in taking a decisive stance by eliminating the neutral option. All instruments underwent rigorous validity and reliability testing stages before being distributed directly to respondents at the sampled schools. The collected data was subsequently verified for completeness before being further analyzed using prerequisite tests and multiple linear regression to address the research hypotheses.

Questionnaire Questions List

Table 9. Questions List

No.	Question
1.	When searching for teaching materials on the internet, to get more appropriate search results, teachers should... - Typing long sentences - Use clear and concise keywords - Open all search results - Relying on friends' advice
2.	If there are too many search results, the quickest way to find what you need is... - Add more specific keywords - Open all search results pages - Using social media sites - Clicking on the ad that appears
3.	When you find teaching materials on social media, what should you do before using them in your learning? - Immediately used because it is interesting. - Checking the source and suitability of the material. - Asking fellow teachers for their opinions.

	d. Keep it without checking.
4.	When teachers send messages to parents via WhatsApp, a good way of communication is... - Write in all capital letters - Use polite and easy to understand language - Sending messages without mentioning the recipient's name - Using excessive emoticons
5.	In online meetings via Zoom, teachers should... - Interrupting a coworker's conversation - Keeps microphone on all the time - Waiting for your turn to speak and paying attention to the speaker - Ignoring other participants
6.	Teachers want to share digital lesson plans with colleagues. The correct way is... - Remove author name before sharing - Sharing without permission - Include the name of the compiler and the original source - Sending via social media without a description
7.	Before sharing other people's learning videos, teachers should... - Mention the name of the video maker and the source - Edit videos to make them look like your own - Re-downloading without permission - Sending videos without watching the content
8.	Teachers can use social media to improve their professionalism by... - Follow educational accounts and share teaching experiences - Sharing gossip between coworkers - Uploading excessive personal information - Delete all social media accounts
9.	Teachers can collaborate with colleagues digitally by... - Creating learning media together in Google Docs - Save files only on personal laptop - Teaching without discussing with colleagues - Refusing cooperation because busy
10.	If a teacher receives a hoax message about the school, the best thing to do is... - Share it immediately so others know - Deleted without checking the source - Check the veracity of the news before continuing - Add personal opinion and then share it
11.	To maintain a professional image on social media, teachers should... - Use your real name and a polite profile photo. - Uploading excessive personal photos - Using harsh language in status - Opening an account without privacy settings
12.	When creating digital teaching materials, teachers should... - Copy the entire contents of the internet without changes - Combine text, images, and video to make it engaging - Using images without regard to copyright - Writing material without paying attention to layout
13.	To improve the appearance of learning presentations, teachers can... - Overusing fonts and colors - Delete all images to keep it simple - Add illustrations and a neat layout - Write all the text on one slide
14.	When creating instructional videos, teachers combine several learning resources from the internet. The appropriate approach is... - Edit and adapt content to student needs - Uploading videos without citing the source - Using all videos without permission

	d. Remove the name of the original owner of the content
15.	When using images from the internet, teachers must... - Ensure the image is copyright free or openly licensed - Using any image for educational purposes - Remove sources to make them appear to be your own - Adding school logo without permission
16.	If a teacher creates digital learning media, the way to protect the copyright of his work is... - Provide the name and description of the creator of the media - Allowing others to edit without permission - Does not include who made it - Post to social media without privacy settings
17.	When teachers customize features in learning applications (eg, Google Forms or Canva), it includes... - Rebuilding the app from scratch - Customize the program according to user needs - Remove unrecognized code - Close access for all users
18.	To maintain the security of personal data and devices used in learning, teachers should... - Ignore system updates and open all incoming message links. - Use antivirus, and do not share codes or personal data with unknown parties. - Share the OTP code to speed up the process. - Disable antivirus to make your laptop lighter.
19.	To prevent misuse of personal data such as NIK and account numbers, teachers should... - Sharing personal data on social media - Store important data in a safe and encrypted place - Sending personal data to anyone who requests it - Uploading data to unofficial sites
20.	To avoid eye fatigue when using a laptop for a long time, teachers should... - Staring at the screen continuously without a break - Adjust screen brightness and take a break every 30 minutes - Using the screen at maximum brightness - Staring at a screen in a dark room
21.	In managing digital learning media, teachers can support environmental sustainability by... - Storing files on multiple servers for no reason - Delete unnecessary files to save storage energy - Download all videos even if they are not used - Ignoring the issue of e-waste
22.	When the learning video display does not appear on the projector screen, the first step the teacher should take is... - Restart the device and check the connection cable - Call a technician straight away without checking anything - Replacing a new laptop - Ignore the problem and continue the lesson without media
23.	If a teacher wants to create an online assessment that automatically grades students' answers, the most suitable application is... - Google Form or Quizizz - Canva - WhatsApp - Zoom
24.	To make learning more interesting, teachers can... - Using interactive videos or learning simulations - Teaching only with textbooks - Using a whiteboard without variation - Ban students from using gadgets at all

25.	The teacher realized the difficulty in creating instructional videos, so he took digital training. This shows...
	a. Lack of self-confidence
	b. Awareness to improve digital competence
	c. Reluctance to learn new things
	d. Dependence on the coach
26.	When fellow teachers are struggling to manage online classes, more experienced teachers should...
	a. Let him learn on his own
	b. Providing guidance and sharing experiences in using technology
	c. Criticizing in public
	d. Hiding the way, he knows

Results

The normality test in this study was conducted using the One-Sample Kolmogorov–Smirnov test with IBM SPSS version 25 at a significance level of 5% ($\alpha = 0.05$). The results of the One-Sample Kolmogorov–Smirnov normality test for the research data are presented in Table 10.

Table 10. Normality Test

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		232
Normal Parameters	Mean	.0000000
	Standard deviation	1.69768128
Most Extreme Differences	Absolute	.046
	Positive	.046
	Negative	-.030
Test Statistics		.046
Asymp. Sig (2-tailed)		.200 cd

The significance level used in this test is 5% or 0.05 using One Sample Kolmogorov-Smirnov with IBM SPSS 25. Researchers use the Asymp. Sig (2-tailed) guideline, assuming that if P-Value/Sig > 0.05 then the data is normally distributed. Based on the normality test, it is known that the significance value of $0.200 > 0.05$, it can be concluded that the data in this study is normally distributed. The results of the linearity test between digital competence (X1) and teacher creativity (Y), as well as between personality competence (X2) and teacher creativity (Y), are presented in Table 11.

Table 11. Results of Linearity Test of X1 and X2 against Y

ANOVA Table							
			Sum of Square	df	Mean Square	F	Sig
Digital Competence	Between Group	(combined)	654,123	21	31,149	1,776	.023
		Linearity Deviation from	426,100	1	426,100	24,289	.000
Teacher Creativity		Linearity	228,022	20	11,401	.650	.871
	Within Groups		3683.978	210	17,543		

Total			4338.099	231			
ANOVA Table							
			Sum of Square	df	Mean Square	F	Sig
Teacher Creativity	Between Group	(combined)	103,509	16	6,469	2,020	.013
		Linearity Deviation from Linearity	45,485	1	45,485	14,204	.000
Personality Competence	Within Groups		58,024	15	3,868	1,208	.267
			688,474	215	3,202		
		Total	791.983	231			

Researchers identified data through two criteria, namely through the linearity significance column and deviation from linearity. The criteria for data to be considered linear are if the linearity Sig. value is <0.05 and the deviation Sig. value of linearity must be >0.05 . The results showed that the variables of digital competence and teacher creativity produced a linearity significance value of $0.00 < 0.05$, and the deviation from linearity significance result was $0.871 > 0.05$. Thus, between variables X1 and Y can be said to be linear. Then, for the variables of personality competence and teacher creativity, the linearity significance value was $0.00 < 0.05$, and the deviation from linearity significance result was $0.267 > 0.05$. Thus, it is also said to be linear between variables X2. The next step is a multicollinearity test. The results of the multicollinearity test are presented in Table 12.

Table 12. Multicollinearity Test Results

Coefficients		
		Collinearity Statistics
Model		Tolerance VIF
1 Digital Competence		.997 1,003
Personality Competence		.997 1,003

The guideline in this test is if the tolerance value is > 0.1 , and the variance inflation factor (VIF) value is < 10 , then there is no multicollinearity or correlation between the independent variables, and vice versa. Based on the calculation obtained for the digital competence variable, the Tolerance Value is $0.997 > 0.10$, meaning there is no multicollinearity, and the VIF value is $1.003 < 10.00$, meaning there is also no multicollinearity. Similarly, the personality competence variable has a Tolerance Value of $0.997 > 0.10$ and a VIF value of $1.003 < 10.00$, meaning there is also no multicollinearity. So, it can be said to be good, because there is no correlation between the two independent variables. The next step is heteroscedasticity. The results of the heteroscedasticity test are presented in Table 13.

Table 13. Heteroscedasticity Test Results

Coefficients				
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig
	B	Beta		
(Constant)	2,959		.971	.332

Digital Competence	.034	.035	.065	.978	.329
Personality Competence	-.025	.052	-.032	.475	.635

This test was conducted with the assumption that if the P-Value/Sig <0.05, the data experiences heteroscedasticity, and vice versa. The results showed that the independent variables of digital competence and personality competence did not experience heteroscedasticity. The significance value for the digital competence variable was $0.329 > 0.05$, and the significance value for the personality competence variable was $0.635 > 0.05$. The next step is descriptive analysis. The results of the descriptive statistical analysis for digital competence, personality competence, and teacher creativity are presented in Table 14.

Table 14. Descriptive Analysis Results

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Standard Deviation
Digital Competence	232	4	26	23.59	4,085
Personality Competence	232	47	63	54.73	3,093
Teacher Creativity	232	72	85	77.49	1,852
Valid N (listwise)	232				

The purpose of this descriptive analysis is to describe the digital competency level of elementary school teachers in Dukun District. The descriptive analysis used in this study utilizes data categorization, namely hypothetical statistics using descriptive statistics. According to (Azwar, 2012) explains that hypothetical statistics is the categorization of data using statistical materials to present the general distribution of research subjects' scores and to compare scores between subjects. Based on the results of the descriptive analysis test, the researcher used descriptive statistical formulas to determine the high, medium, and low scores of the data. The next step is data categorization. The results of the data category analysis for digital competence, personality competence, and teacher creativity are presented in Table 15.

Table 15. Data Categories

	Digital Competence (X1)	Personality Competence (X2)	Teacher Creativity (Y)
Low	$X < M - 1 \text{ SD}$ $X < 23.59 - 4.08$ $X < 19.51$	$X < M - 1 \text{ SD}$ $X < 54.7 - 3.09$ $X < 51.61$	$X < M - 1 \text{ SD}$ $X < 77.49 - 1.85$ $X < 75.64$
Currently	$M - 1 \text{ SD} \leq X < M + 1 \text{ SD}$ $23.59 - 4.08 \leq X < 23.59 + 4.08$ $19.51 \leq X < 27.67$	$M - 1 \text{ SD} \leq X < M + 1 \text{ SD}$ $54.7 - 3.09 \leq X < 54.7 + 3.09$ $51.61 \leq X < 57.79$	$M - 1 \text{ SD} \leq X < M + 1 \text{ SD}$ $77.49 - 1.85 \leq 75.64 \leq X < 79.34$
Tall	$M + 1 \text{ SD} \leq X$ $23.59 + 4.08 \leq X$ $27.67 \leq X$	$M + 1 \text{ SD} \leq X$ $54.7 + 3.09 \leq X$ $57.79 \leq X$	$M + 1 \text{ SD} \leq X$ $77.49 + 1.85 \leq X$ $79.34 \leq X$

Based on the calculation table above which uses the data categorization formula. The next step is frequency analysis. The results of the frequency distribution for digital competence is presented in Table 15.

Table 15. Frequency of Data Variables X1

Valid	Digital Competence		Valid Percent	Cumulative Percent
	Frequency	Percent		
Low	23	9.9	9.9	9.9
Currently	209	90.1	90.1	100.0
Total	232	100.0	100.1	

The next step in the data analysis is conducting a frequency analysis. The results of the frequency distribution for personality competence (Variable X2) are presented in Table 16. This analysis aims to describe the tendency and spread of respondents' personality competence levels by classifying them into several categories, thereby providing an overview of how this variable is distributed among the research participants and serving as a basis for subsequent analysis and interpretation.

Table 16. Frequency of Data Variables X2

Valid	Personality Competence		Valid Percent	Cumulative Percent
	Frequency	Percent		
Low	36	15.1	15.1	15.1
Currently	154	66.4	66.4	81.5
Tall	43	18.5	18.5	100.0
Total	232	100.0	100.1	

The next step in the data analysis is conducting a frequency analysis. The results of the frequency distribution for teacher creativity (Variable X3) are presented in Table 17. This analysis is intended to describe the tendency and distribution of teacher creativity levels among respondents, providing a general overview of how this variable is categorized and serving as a foundation for further statistical analysis and discussion.

Table 17. Frequency of Data Variables X3

Valid	Teacher Creativity		Valid Percent	Cumulative Percent
	Frequency	Percent		
Low	26	11.2	11.2	11.2
Currently	182	78.4	78.4	89.7
Tall	24	10.3	10.3	100.0
Total	232	100.0	100.1	

Based on the frequency of the data presented above, shows that for digital competence it has an average (mean) of 23.59 which is in the medium category with a frequency of 209. Then for the level of personality competence it shows an average (mean) of 54.7, with a frequency of 154. Meanwhile, for the level of creativity of Elementary Madrasah teachers in Dukun District it is also in the

medium category with an average (mean) of 77.49 which has a frequency of 182. The next step is hypothesis testing using ANOVA. The results of the ANOVA test examining the effect of digital competence (X1) on teacher creativity (Y) are presented in table 16.

Table 16. ANOVA Table of the Effect of X1 on Y

Model	ANOVA		Mean Squares	F	Sig.
	Sum of Squares	df			
Regression	64,342	1	64,342	20,338	.000
Residual	727,641	230	3,164		
Total	791,983	231			

Based on the ANOVA table, it is known that the calculated F value = 20.338 with a significance level of $0.000 < 0.05$, so it is concluded that there is an influence between the Digital Competence variable (X1) and the Teacher Creativity variable (Y). The next step is hypothesis testing using ANOVA. The results of the ANOVA test examining the effect of personality competence (X2) on teacher creativity (Y) are presented in Table 17.

Table 17. ANOVA Table of the Effect of X2 on Y

Model	ANOVA		Mean Squares	F	Sig.
	Sum of Squares	df			
Regression	45,485	1	45,485	14,014	.000
Residual	764,498	230	3,246		
Total	791,983	231			

Based on the ANOVA table, it is known that the calculated F value = 14.014 with a significance level of $0.000 < 0.05$, so it is concluded that there is an influence between the Personality Competence variable (X2) on the Teacher Creativity variable (Y). The next step is hypothesis testing using ANOVA. The results of the ANOVA test examining the simultaneous effect of digital competence (X1) and personality competence (X2) on teacher creativity (Y) are presented in Table 18.

Table 18. ANOVA Table of the Effect of X1 and X2 on Y

Model	ANOVA		Mean Squares	F	Sig.
	Sum of Squares	df			
Regression	104,256	2	52,128	17,358	.000
Residual	687,726	229	3,003		
Total	791,983	231			

Based on the test results in the table above, it can be seen that the significance level is $0.000 < 0.05$, so H_0 is rejected and H_1 is accepted. Thus, it can be concluded that the digital competence (X1) and Personality Competence (X2) variables together have a significant effect on the Creativity of Elementary Madrasah Teachers in Dukun District. The next step is the coefficient of determination analysis. The results of the coefficient of determination test are presented in Table 19. The table

shows that the correlation coefficient (R) is 0.363, indicating a low level of relationship between the independent variables (digital competence and personality competence) and teacher creativity.

Table 19. Results of the Determination Coefficient

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.363a	.132	.124	1,733

a. Predictors: (constant), Personality Competence, Digital Competence

The table above explains the magnitude of the correlation or relationship value (R), which is 0.363, meaning that the two independent variables have a low influence.

Discussions

Digital Competence Level of Elementary Madrasah Teachers in Dukun District

This study aimed to examine the level of digital competence among elementary Madrasah teachers in Dukun District. The results show a mean score of 23.59, which falls into the moderate category. This finding indicates that teachers generally understand and use digital technology in learning, although not optimally. Teachers with adequate digital competence can utilize online platforms, interactive applications, and digital media to create more engaging learning experiences (Aisyah et al., 2025). This result is also consistent with Indonesia's 2023 National Digital Literacy Index, which reported a moderate average score of 3.65.

Based on the Digital Competence Framework (DIGCOMP) proposed by (Anusca, 2013), teachers demonstrate moderate mastery across five indicators: information, communication, digital content creation, safety, and problem-solving. Teachers are generally able to search and manage digital information but still face limitations in evaluating information credibility. In terms of communication, teachers are accustomed to digital interaction but show limited participation in digital communities and digital identity management. For digital content creation, teachers tend to adapt existing materials rather than develop original digital content (Christine, 2022).

The safety indicator reveals that awareness of data privacy, digital footprints, and health implications of technology use is not yet fully developed. Meanwhile, in the problem-solving dimension, teachers can handle basic technical issues but have limited ability to innovate or choose the most effective digital solutions (Livingstone & Helsper, 2020). These findings align with previous studies showing that elementary school teachers' digital competence in Indonesia remains at a moderate level due to limited ICT training, unequal access to technology, and geographical factors, particularly in semi-rural areas such as Dukun District (Syahid et al., 2020).

Personality Competence Level of Elementary Madrasah Teachers in Dukun District

The personality competence of elementary Madrasah teachers in Dukun District was also found to be in the moderate category, with a mean score of 54.70. Personality competence refers to teachers' emotional stability, maturity, integrity, and ability to serve as role models, as regulated in the Ministry of National Education Regulation No. 16 of 2007. Teachers with stronger personality competence tend to be more open, confident, and willing to experiment with new teaching strategies (Sopandi, 2020). The moderate category indicates that teachers are still developing openness, initiative, and courage to innovate. This result supports previous research showing that while many teachers demonstrate emotional maturity, they often lack confidence in taking pedagogical risks or leading innovation (Issom & Sari, 2023; Nazmi et al., 2025). Teachers generally understand professional ethics and moral values, particularly in the madrasa context, but consistency in applying these values in daily practice still needs strengthening. Overall, teachers show a reasonable level of responsibility and work commitment, yet emotional stability and adaptability under pressure have not been fully developed. This suggests that personality competence among teachers is established but requires continuous reinforcement to support innovation and creativity in learning.

Creativity Level of Elementary Madrasah Teachers in Dukun District

The creativity level of elementary Madrasah teachers in Dukun District is also classified as moderate, with a mean score of 77.49. Teacher creativity plays a crucial role in improving learning quality, student engagement, and critical thinking (Damanik, 2019). However, moderate creativity indicates that teachers' potential has not been fully maximized. Several factors contribute to this condition, including limited learning facilities, high administrative workloads, and school cultures that do not fully support innovation (Rizky et al., 2023; Stenberg, 2022). Teachers with moderate creativity are generally capable of generating ideas but are not consistent in implementing varied and innovative teaching methods (Rahmatika, 2023). These findings are consistent with previous studies stating that suboptimal learning outcomes are often linked to limited teacher creativity rather than a lack of teaching ability. Using Rhodes' (1961) Four P's of Creativity framework, teachers' creativity is influenced by personality (person), thinking processes (process), environmental support (press), and learning outputs (product). The moderate level across these dimensions indicates that while teachers are capable of producing creative learning products, their originality and innovation can still be enhanced (Wulandari, 2021). International studies also confirm that teacher creativity improves with strong digital skills and institutional support (Adams et al., 2025).

The Influence of Digital Competence on Teacher Creativity

The results of the ANOVA test show that digital competence (X1) has a significant effect on teacher creativity (Y), with a significance value of 0.000 (< 0.05) (Ghozali, 2018; Rizky et al., 2024). However, the correlation coefficient indicates a low level

of influence. This finding suggests that digital competence contributes to creativity but is not the sole determining factor. These results are consistent with previous research showing that teachers with higher digital competence tend to demonstrate higher creativity in designing interactive and innovative learning (Triwahyuni et al., 2025). Digital competence supports teachers' ability to integrate technology, pedagogy, and content knowledge, which enhances creative teaching practices (Mukroma, 2020).

The Influence of Personality Competence on Teacher Creativity

Personality competence (X2) also has a significant effect on teacher creativity (Y), as indicated by the ANOVA results (Sig. = 0.000). This finding supports previous studies that emphasize personality competence as a key internal factor influencing creativity (Permata et al., 2022). Teachers who are emotionally stable, open to experience, and confident are more likely to explore new ideas and implement innovative learning strategies. In the madrasa context, personality competence is closely related to moral integrity and religious values, which strengthen teachers' psychological readiness to innovate (Hapsari, 2016). Teachers with strong personal character tend to create more positive learning environments and demonstrate higher creativity.

The Combined Influence of Digital and Personality Competence on Teacher Creativity

The simultaneous analysis shows that digital competence (X1) and personality competence (X2) together have a significant effect on teacher creativity (Y), although the overall strength of the relationship is low ($R = 0.363$). This indicates that teacher creativity is shaped by a combination of technical skills and personal characteristics, along with environmental factors. These findings are in line with previous studies highlighting the interaction traits between digital literacy, personality, and teaching performance (Dalifa et al., 2023). According to (Munandar, 2009) creativity theory, personality competence represents the person aspect, while digital competence supports the process aspect, both of which contribute to creative learning products. Environmental support (press), such as school culture and leadership, further strengthens this relationship (Ertmer & Leftwich, 2020). In conclusion, teacher creativity in Dukun District can be enhanced through continuous digital competence development, strengthening personality competence, and creating a supportive school environment that encourages innovation and experimentation.

4. Conclusion

This study concludes that the digital competence, personality competence, and creativity levels of elementary school teachers in Dukun District are generally in the moderate category. The main findings indicate a significant influence, both partially and simultaneously, between digital competence and personality competence on teacher creativity. This means that the better a teacher's ability to

utilize technology and the more mature their personality, the higher their creativity in designing learning. However, the analysis also reveals that the contribution or relationship between these two variables to creativity is relatively low, indicating that teachers are still in the transition phase of technology adaptation and character building. The limitations of this study lie in its focus on semi-rural areas and the low correlation values, which indicate that other factors beyond the studied variables may be more dominant in influencing creativity. Therefore, further research is recommended to expand the scope of variables or study areas to obtain a more holistic picture. Practically, these results imply the need for school principals to develop evaluation systems that are not only administrative but also oriented towards the real impact of student learning. Furthermore, policymakers are expected to formulate new competency standards that are more relevant to the demands of the 21st century to optimally encourage the integration of digital skills and teacher personality maturity.

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