

Digital Literacy, Tax Knowledge, and Compliance in Annual Tax Return Reporting: Evidence from Civil Servants in North Minahasa Regency, Indonesia

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Abstract

Indonesia's tax administration has moved to digital services such as DGT Online and Coretax, yet the filing of Annual Tax Return (SPT) by individual taxpayers remains incomplete, including among civil servants. Earlier studies mostly examined digital tax systems or tax knowledge separately, and few tested digital literacy and tax knowledge together for regional civil servants. This study analyzes the effect of digital literacy and tax knowledge on individual taxpayer compliance in reporting Annual Tax Return among civil servants in North Minahasa Regency, using the Technology Acceptance Model (TAM) and Compliance Theory as complementary perspectives. A quantitative explanatory design was applied. From a population of 4,205 civil servants, 98 respondents were determined with the Slovin formula (10% margin of error) and selected through purposive sampling. Data were collected by questionnaire and analyzed with multiple linear regression. Digital literacy ($B = 0.411$; $t = 4.925$; $p < 0.001$) and tax knowledge ($B = 0.554$; $t = 6.560$; $p < 0.001$) were each positively and significantly associated with taxpayer compliance, and jointly significant ($F = 49.305$; $p < 0.001$). The model explained 50.9% of the variance in compliance (adjusted $R^2 = 0.499$), and tax knowledge had the larger standardized coefficient ($\beta = 0.499$ versus 0.374). The study contributes by testing a digital-capability factor and a cognitive factor in one model for a regional civil servant population, and it suggests that tax education and digital-skills assistance are best delivered together.

Keywords: *Digital Literacy, Tax Knowledge, Taxpayer Compliance, Annual Tax Return for Individuals, Civil Servants.*

A. INTRODUCTION

Taxation plays an important role in generating state revenue used to finance development and government administration (Anfal et al., 2026). Individual taxpayers are obliged to comply with tax provisions, one of which is the filing of the Annual Tax Return (Surat Pemberitahuan, SPT). Annual Tax Return reporting is part of the self-assessment system, which places the responsibility on taxpayers to calculate, pay, and report their tax liabilities independently (Hegy Suryana & Pratiwi, 2024).

Along with technological developments, the Directorate General of Taxes (DGT) has continued to transform tax administration through digital services such as e-Filing, e-Form, DGT Online, and Coretax, which were developed to make it easier for taxpayers to fulfil their obligations (Neo et al., 2023). However, the availability of these services alone does not ensure compliance, because their effectiveness depends partly on how well taxpayers understand and operate digital technology. Previous

studies indicate that the use of electronic tax systems is associated with higher taxpayer compliance (Ponto et al., 2022; Khairunnisa et al., 2022).

Two individual capabilities are therefore central. The first is digital literacy, which covers not only technical skills in using digital devices but also the ability to access digital information, understand instructions for using services, evaluate the correctness of information, use digital features, and maintain data security. In taxation, these skills allow taxpayers to use digital tax services independently and correctly (Al Khoir & Muid, 2025). The second is tax knowledge, which includes an understanding of reporting obligations, taxpayer rights and obligations, tax sanctions, income tax rates, payment and reporting procedures, and the provisions for filing Annual Tax Return. Taxpayers who understand tax provisions have a better basis for carrying out their obligations, and Jumriyah and Faisol (2023) and Lolombulan et al. (2023) highlight the importance of such understanding for compliance.

Taxpayer compliance in Indonesia remains incomplete. The Directorate General of Taxes (2025) reported that 15.04 million of 19.78 million individual taxpayers required to file an Annual Tax Return had submitted it, corresponding to a formal compliance rate of 76.07%, below the national target of 81.92%.

A similar gap is evident in North Minahasa Regency. Data from KPP Pratama Bitung (2025) record 4,205 civil servants, of whom 3,369 (80.12%) were registered taxpayers and 836 (19.88%) were not registered as active taxpayers. Among the 3,369 registered civil servants, 2,400 (71.24%) had filed an Annual Tax Return and 969 (28.76%) had not. Thus, the number who had filed represented approximately 57.07% of all 4,205 civil servants. These administrative figures describe the local context; they are distinct from the questionnaire-based measure of compliance used in this study.

Civil servants are an informative group for examining this problem. They receive a fixed salary from which income tax is withheld through the government treasurer under Article 21, so their tax position is relatively transparent and their compliance would normatively be expected to be comparatively high. Their work also involves routine use of digital administrative systems. Nevertheless, filing remains incomplete, which suggests that compliance among civil servants is not explained by withholding or system availability alone, and that individual capabilities such as digital literacy and tax knowledge deserve closer examination. As state apparatus, civil servants are also often expected to set an example in fulfilling civic obligations, which makes their compliance relevant to public trust in tax administration.

Previous research leaves three gaps. First, digital literacy and tax knowledge have mostly been studied separately or alongside digital tax systems, so evidence that tests both together on Annual Tax Return reporting is limited (Fernandez et al., 2024). Second, earlier studies concentrate on general taxpayers, micro, small, and medium enterprises (MSMEs), and urban communities (Aryawan et al., 2022; Supriyadi et al., 2023), while civil servants across regional government agencies have received little attention. Third, the findings are inconsistent. Digital literacy, tax e-systems, and tax knowledge were significant in several studies (Adellya & Markhumah, 2026; Al Khoir & Muid, 2025), whereas e-filing was not significant in Hegy Suryana and Pratiwi

(2024) and tax knowledge was not significant in Suratminingsih et al. (2021). Other studies also report that the results depend on context and respondent characteristics (Hanum & Mulyawan, 2024; Sidauruk et al., 2024).

Evidence on the joint role of the two capabilities is emerging. Adellya and Markhumah (2026) found that digital literacy and tax knowledge were positively and significantly associated with MSME taxpayer compliance. Al Khoir and Muid (2025) reached a similar conclusion for individual taxpayers who were state high school teachers in Semarang, together with the application of tax e-systems. Muvidah and Andriani (2022) reported that tax knowledge and tax digitalization were associated with higher voluntary compliance among small and medium industries in East Java. These studies, however, involve MSME taxpayers or a single occupational group in other regions. The present study differs in three respects: its respondents are civil servants from various regional government agencies in North Minahasa Regency, where the filing gap described above is observable; it tests digital literacy and tax knowledge as the two explanatory variables in one model, which allows their relative contribution to be compared; and it grounds the model in both TAM and Compliance Theory.

Based on these conditions, this study analyzes the effect of digital literacy and tax knowledge on individual taxpayer compliance in reporting Annual Tax Return among civil servants in North Minahasa Regency, both partially and simultaneously. It contributes in three ways. It tests digital literacy and tax knowledge jointly in one model of Annual Tax Return compliance. It extends the evidence to regional civil servants, a group whose tax is withheld at source but whose filing remains incomplete. It also compares the relative size of the two factors, which can inform whether tax education or digital-skills assistance should be prioritized.

B. LITERATURE REVIEW

1. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) to explain why individuals accept and use information technology. TAM holds that two beliefs, perceived usefulness (the belief that using a system improves performance) and perceived ease of use (the belief that using it requires little effort), shape attitudes and intention, and thereby the actual use of a system. Davis (1989) positioned external variables as antecedents of these two beliefs, and Venkatesh and Davis (2000) showed that perceived usefulness is in turn shaped by factors such as social influence, job relevance, and user experience. In taxation, TAM has been used to explain the uptake of electronic tax services such as DGT Online and Coretax (Safitri & Aisyiah, 2020).

In this study, digital literacy is treated as one such antecedent. A taxpayer with higher digital literacy can find and understand tax information online, follow the instructions of DGT Online or Coretax, use its features, and protect personal data. This lowers the effort needed to file, which raises perceived ease of use, and it helps the taxpayer recognize the benefits of online filing, such as time efficiency and accuracy, which raises perceived usefulness. Taxpayers who perceive the system in this way are

more likely to use it to file their Annual Tax Return. Tax knowledge supports the same process indirectly, because taxpayers who know what must be reported and how are better able to see what the system helps them to accomplish.

Two clarifications are needed. First, TAM is used here as a conceptual perspective and not as a tested model. Perceived usefulness and perceived ease of use were not measured, and the empirical model tests only the direct association between digital literacy and compliance. The mediating role of these perceptions is therefore proposed as an explanatory mechanism, not demonstrated by the data. Second, TAM explains technology use, whereas the outcome here is compliance in reporting. The two are connected because Annual Tax Return are now filed mainly through digital channels, so the ability to use those channels is a practical condition for filing.

2. Compliance Theory

Compliance theory has its roots in social psychology. Kelman (1958) distinguished three processes through which people comply with rules: compliance driven by reward or punishment, identification with the source of influence, and internalization of the underlying values. Milgram (1963, 1974) demonstrated experimentally how strongly individuals obey legitimate authority. These ideas were later developed into models of taxpayer behavior. The deterrence model of Allingham and Sandmo (1972) explains compliance through the probability of detection and the size of penalties, whereas Kirchler et al. (2008) distinguish enforced compliance, produced by the power of the authorities, from voluntary compliance, which rests on trust in the authorities.

In this study, tax compliance is understood as the extent to which taxpayers fulfil their reporting obligations correctly, completely, and on time. Compliance is shaped by internal factors, such as awareness, understanding of the rules, and motivation, and by external factors, such as sanctions and supervision (Al Khoir & Muid, 2025). Civil servants are subject to withholding at source and to the same tax authority, so the external pressure to comply can be expected to be relatively similar among them. Differences in filing are therefore more likely to reflect differences in individual capability, which is why this study focuses on two capability factors and not on sanctions.

Tax knowledge provides the cognitive basis for compliance, because it covers obligations, procedures, deadlines, and the consequences of non-compliance (Mohammed et al., 2022). Digital literacy provides the practical ability to act on that knowledge when filing is done through digital channels. Compliance Theory thus explains why tax knowledge is expected to matter, through awareness and the ability to comply, while TAM explains why digital literacy is expected to matter, through the ease and usefulness of using the filing system. Together they provide the basis for the three hypotheses developed below.

3. Hypothesis Development

Empirical studies generally support a positive link between digital capability and compliance. Adellya & Markhumah (2026) found that digital literacy was positively and significantly associated with MSME taxpayer compliance, and Al Khoir and Muid (2025) found the same for individual taxpayers who were state high school teachers. Evidence on digital tax systems is similar: e-Filing and related services were positively associated with compliance in Neo et al. (2023), Ponto et al. (2022), Khairunnisa et al. (2022), and Lolombulan et al. (2023), and Triansyah and Putra (2025) examined digital literacy as a moderator of the link between tax literacy and compliance. The evidence is not uniform, as Hegy Suryana and Pratiwi (2024) found no significant effect of e-filing. Such mixed results are consistent with the TAM view that the benefit of a digital system depends on whether users are able to operate it, which points to user capability and not system availability as the relevant factor. Taxpayers who can access digital tax information, understand usage instructions, use service features, and maintain data security are expected to find DGT Online and Coretax easier and more useful, and so to file more independently (Triansyah & Putra, 2025). Accordingly, the first research hypothesis is stated below:

H₁: Digital Literacy Has a Positive and Significant Effect on Taxpayer Compliance in Reporting Annual Personal Tax Return to Civil Servants in North Minahasa Regency

Tax knowledge is the most frequently examined determinant of compliance. Positive and significant associations were reported by Lambey and Datu (2024) for MSME owners in Manado, Lolombulan et al. (2023) for taxpayers at KPP Pratama Manado, Wardaini et al. (2025) for individual taxpayers in East Lombok, Hegy Suryana and Pratiwi (2024) for Annual Tax Return reporting in Boyolali, and Jumriyah and Faisol (2023). Suratminingsih et al. (2021), in contrast, found no significant effect of tax knowledge during the COVID-19 pandemic, a divergence that may reflect context and not a contradiction of the theory. From the perspective of Compliance Theory, taxpayers who understand reporting obligations, rights, sanctions, tax rates, and payment and reporting procedures are more aware of what is required and better able to comply (Saputri et al., 2025; Mohammed et al., 2022), so a positive association is expected among civil servants. Accordingly, the second research hypothesis is stated below:

H₂: Tax knowledge has a positive and significant effect on taxpayers' compliance in reporting the Annual Individual Tax Return to Civil Servants in North Minahasa Regency.

Studies that include both capabilities point to a joint contribution. Adellya and Markhumah (2026) and Al Khoir and Muid (2025) found digital literacy and tax knowledge to be significant, and Muvidah and Andriani (2022) and Saputri et al. (2025) found that tax knowledge and tax digitalization were associated with higher compliance, the latter with ability to pay as a moderating variable. These findings suggest that the two capabilities are complementary. Tax knowledge tells taxpayers what must be done and when, as Compliance Theory emphasizes, while digital literacy enables them to do it through the online system, as TAM implies. Taxpayers

need both to report independently and correctly. Drawing on the theoretical framework and the empirical evidence discussed above, the third research hypothesis is stated below:

H₃: Digital literacy and tax knowledge simultaneously have a significant effect on taxpayers' compliance in reporting the Annual Individual Tax Return to Civil Servants in North Minahasa Regency

C. METHOD

This study employed a quantitative explanatory research design to examine the effects of digital literacy and tax knowledge on taxpayer compliance in reporting Annual Individual Tax Return among civil servants in North Minahasa Regency, Indonesia. The study was grounded in the Technology Acceptance Model (TAM) and Compliance Theory.

The population consisted of 4,205 civil servants in North Minahasa Regency, based on data from BPS-Statistics Minahasa Utara (2025). According to KPP Pratama Bitung (2025), 3,369 civil servants were registered as taxpayers, while 836 were not registered as active taxpayers. Among the registered taxpayers, 2,400 had filed their Annual Tax Return, whereas 969 had not. These figures illustrate the tax-reporting context of the study and provide a basis for examining the factors associated with taxpayer compliance.

The sample size was determined using the Slovin formula with a 10% margin of error, as follows:

$$n = \frac{N}{1 + N(e)^2}$$

where (n) represents the sample size, (N) represents the population, and (e) represents the margin of error. Substituting the population of 4,205 civil servants and a margin of error of 0.10 gives:

$$n = \frac{4205}{1 + 4205(0,1)^2}$$

$$n = \frac{4205}{1 + 43,05(0,01)}$$

$$n = \frac{4205}{43,05}$$

$$n = 97,68$$

The calculated sample size was rounded up to 98 respondents. Respondents were selected using a non-probability purposive sampling technique based on the following criteria: (1) active civil servants working in North Minahasa Regency; (2) registered as individual taxpayers; (3) possessing a Taxpayer Identification Number (NPWP); (4) receiving a regular salary as civil servants; (5) having previously filed or being required to file an Annual Tax Return; and (6) having used or being familiar

with digital tax services, such as DGT Online, Coretax, or other online tax services.

A total of 98 respondents meeting the research criteria were included in the analysis. Since purposive sampling does not provide every member of the population with an equal probability of selection, the findings should be interpreted in relation to the participating respondents rather than assumed to be statistically representative of all civil servants in North Minahasa Regency.

This study used quantitative data consisting of primary and secondary data. Primary data were collected through a structured online questionnaire distributed to civil servants in North Minahasa Regency who met the respondent-selection criteria. Secondary data were obtained from BPS-Statistics Minahasa Utara (2025), particularly information concerning the number and classification of civil servants in the regency. Taxpayer registration and Annual Tax Return reporting figures from KPP Pratama Bitung (2025) were used to describe the research context.

The questionnaire consisted of four sections. The first section collected respondents' characteristics, including gender, age, rank or grade, workplace or government agency, length of service, duration of NPWP ownership, and information concerning their tax-reporting practices. The second section measured digital literacy (X_1), the third measured tax knowledge (X_2), and the fourth measured taxpayer compliance in reporting Annual Individual Tax Return (Y).

The three research variables were measured using a four-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The scale was used to obtain respondents' levels of agreement without providing a neutral response option. The questionnaire contained 18 statements, comprising six items for each research variable.

Taxpayer compliance was measured using respondents' self-reported questionnaire responses. Individual tax-filing records were not independently verified as part of the measurement procedure. Therefore, the dependent variable reflects reported compliance as captured by the questionnaire and should not be interpreted as independently verified tax-filing behavior.

The data were analyzed using IBM SPSS Statistics version 23. The analysis included descriptive statistics, instrument validity and reliability testing, classical assumption testing, and multiple linear regression analysis. Descriptive statistics were used to summarize respondents' characteristics and the research variables through frequency distributions, percentages, minimum values, maximum values, means, and standard deviations. Item validity was assessed using Pearson product-moment correlations by comparing the calculated correlation coefficient (r -count) with the critical value (r -table) of 0.198. An item was considered valid when its r -count exceeded the r -table value. Instrument reliability was assessed using Cronbach's alpha, with values greater than 0.70 considered acceptable, following Ghazali (2021).

Classical assumption testing consisted of normality, multicollinearity, and heteroscedasticity tests. Normality was examined using the Normal P-P Plot and the Kolmogorov-Smirnov test. Multicollinearity was assessed using tolerance and the Variance Inflation Factor (VIF). Heteroscedasticity was examined through visual

inspection of the residual scatterplot.

Multiple linear regression was employed to examine the relationships between digital literacy, tax knowledge, and taxpayer compliance. The regression model was specified as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

In this equation, Y represents Taxpayer Compliance, X_1 represents Digital Literacy, and X_2 represents Tax Knowledge. The symbol α denotes the constant, β_1 and β_2 denote the regression coefficients, and ε denotes the error term.

The t-test was used to assess the partial relationship between each independent variable and taxpayer compliance, while the F-test was used to examine the joint relationship of digital literacy and tax knowledge with taxpayer compliance. The coefficient of determination (R^2) and adjusted R^2 were used to assess the proportion of variation in taxpayer compliance explained by the independent variables. Statistical decisions were evaluated at a significance level of 0.05.

Given the explanatory questionnaire-based design and the use of non-probability sampling, the regression results are interpreted as statistical relationships within the observed sample. They do not, by themselves, establish definitive causal effects or guarantee generalizability to the entire civil servant population.

D. RESULTS AND DISCUSSION

1. Respondent Characteristics

The study included 98 civil servants who met the respondent-selection criteria. Respondents' age distribution is presented in Table 1.

Table 1. Respondent Characteristics

Features	Category dominance	Frequency	Percentage
Class/Rank	III/D	42	42.9%
Age	41–45 years	28	28.6%
Age	46–50 years	28	28.6%
Gender	Women	62	63.3%
Tenure	10–20 years	67	68.4%
Long Have NPWP	10–20 years	73	74.5%
How to Report Tax Return SPT	Independent through DGT Online/Core tax	62	63.3%

Source: SPSS Data Processing Results 23, 2026.

As shown in Table 1, the largest age groups were respondents aged 41–45 and 46–50 years, each comprising 28 respondents (28.6%). Combined, these groups accounted for 56 respondents (57.1%). The respondents therefore represented several age groups, with more than half between 41 and 50 years old. This information describes the sample's age composition and does not, by itself, indicate the respondents' levels of digital literacy, tax knowledge, or compliance.

2. Descriptive Statistics

Descriptive statistics were used to summarize the distribution of the three research variables. The results are presented in Table 2.

Table 2. Descriptive Statistics Results

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy (X_1)	98	6	24	15.40	5.048
Tax Knowledge (X_2)	98	6	24	14.80	4.995
Taxpayer Compliance (Y)	98	6	24	15.24	5.548

Source: SPSS Data Processing Results 23, 2026.

The mean scores were 15.40 for Digital Literacy, 14.80 for Tax Knowledge, and 15.24 for Taxpayer Compliance. Since each variable was measured using six questionnaire items scored from 1 to 4, the possible total score ranged from 6 to 24. These descriptive results summarize respondents' scores but do not establish the relationships between the variables; those relationships were examined through regression analysis.

3. Validity and Reliability Tests

Item validity was assessed by comparing each item's Pearson correlation coefficient with the critical r-table value of 0.198. Reliability was assessed using Cronbach's alpha, with values above 0.70 considered acceptable. The results are presented in Table 3.

Table 3. Validity and Reliability Test Results

Variable	Item	r-count	r-table	Validity	Cronbach's Alpha	Reliability
Digital Literacy (X_1)	X1.1	0.723	0.198	Valid	0.848 > 0.70	Reliable
	X1.2	0.777	0.198	Valid		
	X1.3	0.770	0.198	Valid		
	X1.4	0.790	0.198	Valid		
	X1.5	0.731	0.198	Valid		
	X1.6	0.741	0.198	Valid		
Tax Knowledge (X_2)	X2.1	0.707	0.198	Valid	0.850 > 0.70	Reliable
	X2.2	0.755	0.198	Valid		
	X2.3	0.818	0.198	Valid		
	X2.4	0.731	0.198	Valid		
	X2.5	0.758	0.198	Valid		
	X2.6	0.768	0.198	Valid		
Taxpayer Compliance (Y)	Y.1	0.806	0.198	Valid	0.888 > 0.70	Reliable
	Y.2	0.840	0.198	Valid		
	Y.3	0.810	0.198	Valid		
	Y.4	0.768	0.198	Valid		
	Y.5	0.830	0.198	Valid		
	Y.6	0.753	0.198	Valid		

Source: SPSS Data Processing Results 23, 2026.

All 18 questionnaire items had r-count values greater than the r-table value of 0.198 and were therefore classified as valid under the study's criterion. Cronbach's

alpha values were 0.848 for Digital Literacy, 0.850 for Tax Knowledge, and 0.888 for Taxpayer Compliance. All three values exceeded 0.70, indicating acceptable internal consistency. These findings support the use of the questionnaire items and scales in the subsequent analyses.

4. Classic Assumption Test

Normality, multicollinearity, and heteroscedasticity were examined before interpreting the regression results. Table 4 summarizes the criteria and observed results.

Table 4. Classical Assumption Test Results

Test	Criteria	Results	Conclusion
Normality (Kolmogorov-Smirnov)	Sig. > 0,05	0.200	Normal
Multicollinearity	Tolerance > 0,10; VIF < 10	Tolerance = 0.895; VIF = 1.117	No multicollinearity
Heteroscedasticity	No systematic pattern in residual scatterplot	Residual points scattered above and below zero	There is no indication of heteroscedasticity

Source: SPSS Data Processing Results 23, 2026.

The Kolmogorov–Smirnov significance value was 0.200, which exceeded the 0.05 threshold. Thus, the test did not provide evidence against the assumption of normally distributed residuals. The tolerance values of 0.895 and VIF values of 1.117 were within the stated thresholds, indicating no evidence of multicollinearity between the independent variables.

The residual scatterplot showed points distributed above and below zero without a clear systematic pattern. Visual inspection therefore provided no indication of heteroscedasticity. This conclusion is based on the scatterplot rather than a formal statistical heteroscedasticity test. Taken together, the reported diagnostic results did not identify a clear violation of the assumptions examined.

5. Multiple Linear Regression Analysis, Hypothesis Test and Coefficient of Determination

The estimated regression model can be expressed as follows: $Y = 0.721 + 0.411X_1 + 0.554X_2$. The unstandardized regression coefficients were positive for both Digital Literacy ($B = 0.411$) and Tax Knowledge ($B = 0.554$). Holding the other predictor constant, a one-unit increase in the Digital Literacy score was associated with a 0.411-unit increase in the predicted self-reported compliance score; a one-unit increase in Tax Knowledge was associated with a 0.554-unit increase. These are associations estimated from the cross-sectional questionnaire data and should not be interpreted as proof of causality.

Table 5. Results of Multiple Linear Regression Analysis and t-Test

Variable	B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.721	1.526	—	0,427	0.638
Digital Literacy (X_1)	0.411	0.084	0.374	4.925	<0,001
Tax Knowledge (X_2)	0.554	0.084	0.499	6.560	<0,001

Source: SPSS Data Processing Results 23, 2026.

Digital Literacy had a positive unstandardized coefficient of 0.411, with a t-value of 4.925 and a significance value below 0.001. Thus, Digital Literacy was positively and statistically significantly associated with Taxpayer Compliance when Tax Knowledge was held constant. This result supports H_1 .

Tax Knowledge also had a positive unstandardized coefficient of 0.554, with a t-value of 6.560 and a significance value below 0.001. This indicates a positive and statistically significant association with Taxpayer Compliance when Digital Literacy was held constant, supporting H_2 .

The standardized beta coefficients were 0.374 for Digital Literacy and 0.499 for Tax Knowledge. Within this regression model, Tax Knowledge had the larger standardized coefficient, suggesting a stronger relative statistical association with Taxpayer Compliance than Digital Literacy. This comparison does not, by itself, establish that increasing Tax Knowledge would cause a greater improvement in compliance.

The constant was 0.721, with a standard error of 1.526, a t-value of 0.427, and a significance value of 0.638. The constant was not statistically significant at the 0.05 level. The estimated regression equation and the coefficients should therefore be interpreted as model estimates rather than definitive causal effects.

6. Simultaneous Test and Coefficient of Determination

The F-test was used to evaluate whether Digital Literacy and Tax Knowledge were jointly associated with Taxpayer Compliance. The model summary and simultaneous test results are presented in Table 6.

Table 6. F Test Results and Coefficient of Determination

F	Sig.	R	R Square	Adjusted R Square	Std. Error of the Estimate
49.305	<0,001	0.714	0.509	0.499	3.927

Source: SPSS Data Processing Results 23, 2026.

The F-statistic was 49.305, with a significance value below 0.001. This result indicates that Digital Literacy and Tax Knowledge were jointly statistically significantly associated with Taxpayer Compliance in the estimated model. Accordingly, H_3 was supported. The F-statistic was 49.305, with a significance value below 0.001. This result indicates that Digital Literacy and Tax Knowledge were jointly statistically significantly associated with Taxpayer Compliance in the estimated model. Accordingly, H_3 was supported.

The coefficient of determination (R^2) was 0.509, indicating that the two independent variables jointly accounted for 50.9% of the observed variation in Taxpayer Compliance within the sample. The adjusted R^2 was 0.499, or 49.9%, after

adjustment for the number of predictors and sample size. The remaining 49.1% based on R^2 represents variation not explained by the model; it cannot be attributed to any particular omitted variable without further analysis.

These results indicate that Digital Literacy and Tax Knowledge jointly explain a substantial proportion of variation in self-reported Taxpayer Compliance among the respondents. However, because the study used cross-sectional questionnaire data and purposive sampling, the findings demonstrate statistical associations within the sample rather than definitive causal effects or guaranteed generalizability to all civil servants in North Minahasa Regency.

The results indicate that Digital Literacy was positively and significantly associated with self-reported Taxpayer Compliance in Annual Tax Return reporting ($B = 0.411$, $\beta = 0.374$, $t = 4.925$, $p < 0.001$). This finding suggests that respondents who reported greater ability to access, understand, and use digital information also tended to report higher levels of tax compliance. In the context of digital tax administration, digital literacy may help taxpayers navigate electronic tax services, understand digital instructions, and complete reporting procedures. However, digital literacy alone does not necessarily ensure that taxpayers understand which tax obligations apply to them or how those obligations should be fulfilled.

The finding is consistent with Al Khoir and Muid (2025), who reported a significant relationship between digital literacy and individual taxpayer compliance, and with studies examining electronic tax services and compliance, including Lolombulan et al. (2023) and Ponto et al. (2022). These similarities suggest that digital capability is a relevant consideration in the implementation of digital tax reporting. Nevertheless, differences in research populations, settings, and variable measurements mean that the findings should be compared cautiously rather than assumed to be directly equivalent.

The Technology Acceptance Model (TAM) provides a useful perspective for interpreting this relationship because taxpayers' ability to use digital systems may support their engagement with electronic tax services. Nevertheless, this study did not directly measure perceived usefulness, perceived ease of use, or actual system-use behavior as separate constructs. Therefore, the results do not establish that these TAM mechanisms explain the observed association. In addition, because the study used a cross-sectional questionnaire, it cannot determine whether digital literacy preceded compliance or whether other factors contributed to both.

Tax Knowledge was also positively and significantly associated with self-reported Taxpayer Compliance ($B = 0.554$, $\beta = 0.499$, $t = 6.560$, $p < 0.001$). Respondents reporting a stronger understanding of tax obligations and procedures also tended to report higher compliance. Tax knowledge may help individuals recognize their reporting responsibilities, understand applicable procedures and deadlines, and identify the steps required to submit an Annual Tax Return.

This result is consistent with Lambey and Datu (2024), who reported a positive relationship between tax understanding and individual taxpayer compliance among micro, small, and medium-sized enterprise owners in Manado. It is also relevant to

Wardaini et al. (2025), whose research examined Annual Tax Return reporting compliance in East Lombok. The consistency of these findings across different taxpayer groups and locations supports the relevance of tax knowledge to compliance research. However, the differences between the study populations and research designs limit direct comparisons, and the present results should not be interpreted as demonstrating that knowledge alone is sufficient to ensure compliance.

Compliance Theory helps explain why understanding reporting obligations and procedures may be associated with compliance. Taxpayers who understand what they are required to do may be better equipped to fulfill their obligations. However, this study did not directly measure other possible mechanisms, such as trust in tax authorities, perceived fairness, deterrence, or internalization of tax obligations. Consequently, the analysis cannot determine which specific mechanism accounts for the observed relationship.

An important finding is that Tax Knowledge had a larger standardized regression coefficient than Digital Literacy ($\beta = 0.499$ compared with $\beta = 0.374$). Because the standardized coefficients express the associations in standard-deviation units, this result indicates that Tax Knowledge had the stronger estimated association with self-reported Taxpayer Compliance within the fitted model, holding Digital Literacy constant. It does not, by itself, demonstrate that the difference between the two coefficients is statistically significant, nor does it establish that tax education would always be more effective than digital assistance.

One possible interpretation is that tax knowledge addresses the substantive requirements of compliance, including understanding obligations and reporting procedures, whereas digital literacy supports taxpayers in carrying out those requirements through electronic channels. A taxpayer may be able to operate a digital platform but still lack sufficient knowledge of the information or obligations involved in filing a return. Conversely, a taxpayer may understand tax rules but experience difficulty completing an electronic filing process. These possibilities suggest that knowledge and digital capability may serve complementary roles.

This interpretation should be treated as a plausible explanation rather than a mechanism demonstrated by the present data. The study did not experimentally compare tax education with digital assistance, and it did not directly test whether digital literacy mediates or moderates the relationship between tax knowledge and compliance. The larger coefficient for Tax Knowledge therefore provides evidence of a stronger relative statistical association in this sample, not conclusive evidence of greater causal effectiveness.

The comparison with previous studies also requires caution. Research reporting a positive relationship between tax understanding and compliance, such as Lambey and Datu (2024), is consistent with the present finding. Similarly, research linking digital literacy or electronic tax services with compliance supports the relevance of digital capability. However, unless the studies use comparable samples, measures, and statistical models, their results cannot establish which factor is generally more influential across different taxpayer populations.

The joint regression test showed that Digital Literacy and Tax Knowledge were statistically associated with Taxpayer Compliance when considered together ($F = 49.305$, $p < 0.001$). The model's R^2 was 0.509, while its adjusted R^2 was 0.499. Thus, the two predictors accounted for 50.9% of the observed variation in self-reported compliance in the sample before adjustment for model size and 49.9% after adjustment. The remaining variation may be related to factors not included in the model, measurement limitations, or differences among respondents. The study does not estimate the individual contribution of omitted factors such as tax awareness, trust, income, sanctions, or tax socialization.

The study contributes to tax-compliance research by examining digital literacy and tax knowledge together among civil servants in North Minahasa Regency. This population and local setting provide context-specific evidence on compliance with Annual Tax Return reporting in an environment where digital tax services are available. The findings suggest that studies of digital tax administration should consider not only taxpayers' ability to use electronic services but also their understanding of the tax obligations those services are intended to facilitate.

From a practical perspective, the results support considering tax education and digital-service assistance as complementary components of taxpayer support. The Directorate General of Taxes and KPP Pratama Bitung could provide clear explanations of filing obligations, deadlines, and procedures alongside practical guidance on using electronic tax services, including DGT Online and Coretax. Government agencies in North Minahasa Regency could also facilitate tax briefings or assistance sessions before the Annual Tax Return deadline. These are practical implications consistent with the observed associations; the present study did not test the effectiveness of these interventions.

Respondents' duration of NPWP ownership and experience with digital tax services should be interpreted as descriptive or contextual characteristics rather than evidence that either factor causes compliance. The analysis did not establish temporal order or isolate the effects of these characteristics. Similarly, the cross-sectional design captures responses at one point in time and cannot demonstrate causal relationships. Because compliance was self-reported, the results may also be affected by recall or social-desirability bias and should not be treated as verified evidence of actual filing behavior. Future research could use longitudinal designs, probability-based sampling where feasible, and administrative filing records to examine how changes in tax knowledge and digital capability relate to subsequent compliance. Studies could also test whether factors such as tax awareness, trust, sanctions, and tax socialization help explain these relationships. Such approaches would provide stronger evidence about temporal relationships and the mechanisms that may connect digital literacy and tax knowledge with taxpayer compliance.

E. CONCLUSION

This study examined the relationships between Digital Literacy, Tax Knowledge, and Taxpayer Compliance in Annual Tax Return reporting among civil

servants in North Minahasa Regency. The findings indicate that Digital Literacy was positively and significantly associated with self-reported Taxpayer Compliance ($B = 0.411$, $\beta = 0.374$, $p < 0.001$). Tax Knowledge also showed a positive and significant association with compliance ($B = 0.554$, $\beta = 0.499$, $p < 0.001$). Furthermore, both variables were jointly associated with compliance ($F = 49.305$, $p < 0.001$). The model explained 50.9% of the variation in self-reported compliance ($R^2 = 0.509$), with an adjusted R^2 of 0.499. The findings contribute context-specific evidence on the relevance of digital capability and tax knowledge to Annual Tax Return reporting among civil servants. The larger standardized coefficient for Tax Knowledge indicates a stronger relative statistical association within the estimated model; however, it does not establish that tax knowledge has a greater causal effect than digital literacy.

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