

The Impact of Tax Education on Compliance in Zambia: The Mediating Role of Ethical Perceptions in Mongu District

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Abstract

The study examined the relationship between tax education and taxpayer compliance in Mongu District, Zambia, with a focus on the mediating role of ethical perceptions. Drawing on a sample of 105 individuals who participated in Zambia Revenue Authority (ZRA) tax education programs between 2019 and 2023, the research employed a quantitative design incorporating descriptive statistics, correlation, and regression analysis. Findings revealed that tax education significantly improves ethical perceptions (88.6% of respondents) and has a strong positive correlation with compliance ($r = 0.74$). Education level emerged as the strongest demographic predictor of compliance ($r = 0.40$), followed by occupation. Barriers such as complex tax laws and limited program accessibility were also identified. The study concluded that ethical perceptions are a critical pathway through which tax education influences compliance. Recommendations include tailoring educational initiatives to demographic characteristics, simplifying tax legislation, and expanding outreach through digital platforms. The findings offer evidence-based insights for strengthening voluntary tax compliance in under-served rural regions.

Keywords: Tax Education, Tax Compliance, Ethical Perceptions, Zambia, Taxpayer Behaviour, Mongu District, ZRA.

Introduction

Tax compliance remained a persistent challenge in many developing countries, where weak institutional capacity, limited enforcement, and low levels of public trust undermined effective revenue mobilisation (Al-Ttaffi et al., 2020). In Zambia, these challenges were particularly acute in rural areas such as Western Province, where informal economic activity and low awareness of tax obligations contributed to widespread non-compliance. Despite the Zambia Revenue Authority's (ZRA) implementation of various tax education initiatives, ranging from workshops to multimedia campaigns, the effectiveness of these efforts in improving voluntary compliance had not been fully established, especially in rural settings (ZRA, 2022).

Mongu District represented a compelling context for studying this issue. As a region characterised by both low tax compliance and ongoing outreach efforts by the ZRA, it provided a unique opportunity to evaluate how education influenced taxpayer behaviour. Existing literature suggested that beyond technical knowledge, ethical perceptions such as trust in tax authorities, perceived fairness and civic responsibility played a vital role in shaping compliance decisions (Kaplanoglou, Rapanos and Daskalakis, 2016; Gribnau et al.,

2018). However, the interplay between education, ethics, and compliance in rural Zambia remained underexplored.

This study investigated whether ZRA's tax education programmes had influenced taxpayers' ethical perceptions and, through these, improved compliance in Mongu District. It also examined the extent to which demographic variables, particularly education and occupation, had moderated this relationship. By focusing on a rural district, this study addressed several critical gaps that had persisted in the Zambian tax compliance literature. Firstly, previous studies had predominantly concentrated on urban and formal sector taxpayers, neglecting the distinct realities of rural populations where informal economic activities dominated (Banda and Kumari, 2022; Chisumpa et al., 2020).

Secondly, while existing research had evaluated the outcomes of tax education on knowledge acquisition, few had examined the behavioural mechanisms, such as ethical attitudes, that could have mediated its impact. Thirdly, the influence of demographic variables such as education level and occupation on tax compliance behaviour in rural contexts had not been adequately explored. Lastly, limited attention had been given to how moral reasoning and perceptions of fairness interacted with tax education to shape compliance behaviour in rural Zambia. Therefore, this study contributed to bridging these empirical and contextual gaps by investigating the mediating role of ethics in the relationship between tax education and compliance in Mongu District.

Background of the Study

Taxation was a key tool for resource mobilization in developing countries, yet tax compliance remained a persistent challenge (Al-Ttaffi et al., 2020). In Zambia, voluntary compliance under the self-assessment tax system was weakened by limited taxpayer knowledge, low levels of trust in public institutions and deep-rooted socioeconomic inequalities (ZRA, 2022). To address these issues, the Zambia Revenue Authority (ZRA) implemented a range of tax education programmes, including workshops, public sensitisation campaigns, and digital outreach platforms, with the aim of raising awareness and fostering a culture of compliance (Cheelo and Hinfelaar, 2020).

However, despite these interventions, compliance levels remained low, especially in rural areas such as Mongu District in Western Province. Barriers such as poor access to information, limited digital literacy, and weak institutional presence continued to undermine the effectiveness of tax education efforts in these regions (Haabazoka and Chiti, 2024). In such settings, ethical perceptions such as views on fairness, civic responsibility, and trust in government played a significant role in shaping taxpayer behaviour (Fowler, 2020; Dewanta and Machmuddah, 2019).

International studies had shown that ethical attitudes were shaped by education, prevailing social norms, and perceptions of government integrity (Pukeliene and Kažemekaityte, 2016; Rosid, Evans and Tran-Nam, 2018). However, within Zambia, existing research largely concentrated on urban centres and formal economic actors, thereby neglecting rural

communities where informal economies dominated and civic engagement with state institutions was minimal (Banda and Kumari, 2022). As a result, there was a significant gap in understanding how tax education influenced compliance behaviour in rural contexts.

Additionally, while many studies assessed tax education in terms of knowledge dissemination, few investigated the behavioural and ethical mechanisms through which education influenced compliance. The extent to which moral reasoning, civic values and perceptions of fairness mediated tax compliance had not been fully explored. Moreover, the digital nature of many education initiatives had limited their reach in low-connectivity rural areas, thereby exacerbating the digital divide.

This study therefore examined the impact of ZRA's tax education initiatives on tax compliance in Mongu District, with specific attention to the mediating role of ethical perceptions. By evaluating the effectiveness and limitations of these programmes in a rural and informal economy setting, the study aimed to fill key empirical and contextual gaps and provide evidence-based recommendations for enhancing voluntary compliance through ethically informed tax education.

Statement of the Problem

Despite the rollout of taxpayer education initiatives in Mongu District, compliance levels remained low (ZRA, 2022). This persistent non-compliance suggested that raising awareness alone was not sufficient to drive behavioural change among taxpayers. While global studies highlighted the importance of ethical perceptions, such as civic duty, perceived fairness, and institutional trust, in influencing tax compliance (Pukeliene and Kažemekaityte, 2016; Fowler, 2020), this mediating role of ethics remained underexplored in the Zambian context, particularly in rural districts where informal economic activity was dominant and state presence was limited (Haabazoka and Chiti, 2024).

In Zambia, most taxpayer education initiatives focused primarily on bridging knowledge deficits through workshops, media campaigns, and outreach efforts. However, these programs neglected the deeper cognitive and ethical frameworks that shaped taxpayer attitudes and behaviour. The prevailing assumption that information dissemination alone would lead to voluntary compliance overlooked the complex interactions between trust in government institutions, perceptions of fairness in tax enforcement, and culturally embedded ethical norms (Rosid, Evans and Tran-Nam, 2018; Ishola et al., 2020).

Moreover, limited empirical research existed to evaluate how these ethical perceptions were influenced by tax education, particularly in rural areas like Mongu, where cultural values, limited digital infrastructure and low civic engagement hindered the success of conventional outreach strategies (Cheelo and Hinfelaar, 2020). Existing studies also failed to examine the role of demographic factors, such as occupation and education level in moderating the relationship between ethics and compliance.

Therefore, there was a critical need to assess not only the reach and content of ZRA's tax education programmes but also their behavioural impact, especially their ability to shape ethical attitudes that promote long-term voluntary compliance. This study addressed these

gaps by investigating how tax education programmes influenced ethical perceptions and whether those perceptions, in turn, translated into improved compliance outcomes in Mongu District.

Research Questions

- i. To what extent does tax education influence tax compliance in Mongu District?
- ii. How do ethical perceptions mediate the relationship between tax education and tax compliance?
- iii. What policy recommendations can enhance the effectiveness of tax education through ethical engagement?

Literature Review

Tax Education and Ethical Perceptions

Numerous international studies affirmed that tax education positively influenced ethical perceptions related to taxation. In countries such as Norway and the Netherlands, education programs embedded with civic values encouraged moral responsibility and led to higher voluntary compliance (Gribnau et al., 2018; Güzel et al., 2019). These initiatives proved effective particularly when they connected taxation with public service delivery and civic duty (Chan and Song, 2021).

However, in developing countries, the success of tax education depended on cultural alignment and delivery mechanisms that addressed local challenges such as literacy and institutional trust (Alm et al., 2017; Bornman, 2015). In Sub-Saharan Africa, ethical perceptions were shaped not only by education but also by governance quality and community values. For example, programs in Ghana and Nigeria showed that local narratives and perceived fairness enhanced ethical attitudes toward taxation (Nsor-Ambala, 2015; Onu, 2016). South Africa's integration of anti-corruption messages into education campaigns underscored the importance of institutional credibility (Gribnau et al., 2018).

In Zambia, studies demonstrated that tax education increased ethical awareness, especially when delivered in local languages and through respected community figures (Mukuka, 2020; Chisumpa et al., 2020). Nevertheless, these programs remained limited in rural areas due to logistical constraints, digital illiteracy and a lack of localized content. A critical gap remained in assessing how tax education shaped ethical perspectives in under-researched rural contexts, such as Mongu District.

Ethical Perceptions and Tax Compliance

Ethical perceptions, specifically trust in institutions, fairness and moral obligation, emerged as key predictors of tax compliance in global literature (Kaplanoglou, Rapanos and Daskalakis, 2016; Pukeliene and Kažemekaityte, 2016). High levels of institutional trust correlated with voluntary compliance in Scandinavian countries, while perceptions of

corruption were linked to higher evasion rates in countries like Nigeria and Kenya (Ocheni, 2015; Abdul and Wangâ, 2018). In some contexts, digital platforms improved ethical perceptions by increasing transparency and reducing discretionary enforcement (Belahouaoui and Attak, 2024).

In Zambia, particularly in rural districts like Mongu, ethical concerns were heightened by the lack of visible public service delivery and weak institutional engagement (Newman et al., 2018; Mahangila, 2017). Research suggested that ethical views in these areas were influenced more by daily lived experiences with governance than by abstract knowledge of tax systems (ZRA, 2023). However, few studies examined the connection between ethical perceptions and compliance in rural Zambian settings, representing a significant empirical gap.

Demographics, Ethics and Compliance

Education level, income and occupation significantly shaped taxpayer behaviour across various contexts. Individuals with higher educational attainment tended to exhibit stronger ethical reasoning and greater tax compliance (Al-Ttaffi and Nash, 2020; Rahmawati, 2022). However, the relationship between income and compliance proved complex. While high-income earners benefited from better services, they resisted compliance if they perceived the tax system as unjust or poorly administered (Ghani et al., 2020).

In Africa, the dominance of informal economies and income inequality posed unique challenges. Informal workers typically demonstrated lower tax morale, driven by exclusion from formal state mechanisms and low trust in revenue authorities (Musimenta, 2020; Augustine et al., 2020). Zambian studies identified pronounced demographic disparities in rural areas, where low educational levels and subsistence-based occupations undermined compliance efforts (Banda and Kumari, 2022). However, these studies seldom linked demographic traits directly to ethical perceptions, which this study sought to address.

Challenges and Opportunities in Tax Education

Global and African experiences demonstrated that tax education alone was insufficient unless supported by sustained institutional trust and tangible service delivery (Slemrod, 2019; Cvrlje, 2015). In Latin America, integrated education and enforcement strategies enhanced compliance when tax revenues were visibly used for public welfare (Prichard, Cobham and Goodall, 2019).

In Zambia, digital outreach expanded access in urban centres but proved ineffective in rural areas due to poor infrastructure and digital illiteracy (Mukuka, 2020; Haabazoka and Chiti, 2024). Moreover, the role of traditional leaders in tax compliance remained underutilised, despite evidence that these actors influenced behavioural norms in rural communities (Mupimpila, 2020; Zyambo, Haabazoka and Chiti, 2024). This highlighted the need for locally embedded strategies that engaged cultural institutions and addressed the socio-ethical dimensions of compliance.

Research Gaps

A critical review of the literature revealed several gaps relevant to this study. Firstly, tax compliance dynamics in rural Zambia remained under-researched, as most existing studies focused on urban settings, particularly among small and medium-sized enterprises (SMEs) and formal sector taxpayers. Secondly, while tax education had been studied in broader terms, there was limited evidence regarding its impact on long-term ethical transformations in rural communities. Specifically, few studies examined how tax education translated into behavioural change beyond short-term awareness or knowledge acquisition.

Thirdly, the interaction between demographic variables such as education, income and occupation and ethical perceptions of taxation had not been adequately explored, particularly in marginalized and low-literacy regions. These factors were often studied in isolation, without a nuanced understanding of how they influenced compliance attitudes in rural contexts. Finally, the role of traditional leadership structures and culturally embedded education strategies was underutilized in both academic research and policy implementation. Although traditional authorities held significant influence in rural Zambia, few empirical studies assessed their potential in promoting tax ethics and compliance.

These gaps justified the need for a localized, ethically focused investigation into how tax education, demographic factors and community-based institutions influenced tax behaviour in rural Zambia, with Mongu District serving as the focal area of this study.

Theoretical and Conceptual Framework

The study was grounded in three interrelated theoretical models that explained taxpayer behaviour: the Theory of Planned Behaviour (TPB), Fischer's Tax Compliance Model, and the Slippery Slope Framework (SSF). Together, these models provided a multidimensional lens for examining the interplay between tax education, ethical perceptions, demographic characteristics and tax compliance.

Theory of Planned Behaviour (TPB): According to TPB, individual behaviour was shaped by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). Tax education was believed to influence attitudes by clarifying legal obligations and emphasizing the social responsibility associated with tax compliance. It also enhanced perceived behavioural control by improving understanding of tax systems, which in turn strengthened intentions to comply. When individuals perceived taxation as a civic duty and believed in their capacity to comply, actual compliance was more likely to follow.

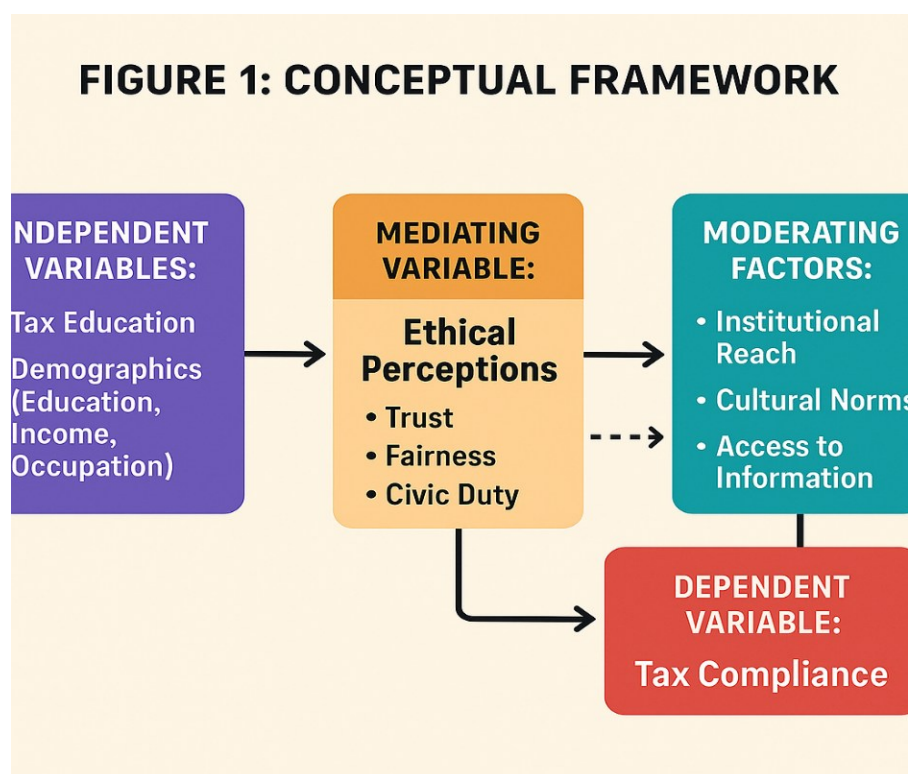
Fischer's Tax Compliance Model: Fischer's Tax Compliance Model introduced a structural viewpoint by incorporating demographic variables such as education, income, and occupation, factors that conditioned ethical perceptions and taxpayer behaviour. Taxpayers with higher education levels generally demonstrated greater awareness of their fiscal responsibilities and tended to internalize civic norms more readily (Smith and Kinsey,

1987). Thus, education served as a conduit through which ethical perspectives and compliance behaviour were shaped.

The Slippery Slope Framework (SSF): The Slippery Slope Framework (Kirchler, Hoelzl and Wahl, 2008) suggested that compliance depended on both trust in tax authorities and the perceived power of enforcement. In this model, tax education played a critical role in enhancing trust by increasing transparency and highlighting government accountability. In rural settings such as Mongu, where enforcement capacity was often weak, voluntary compliance, driven by trust and perceived legitimacy, became even more vital.

These three models converged to inform a conceptual framework in which tax education and demographic variables (education, income, occupation) functioned as independent variables, ethical perceptions acted as a mediating variable, and tax compliance was the dependent variable. Additionally, the framework acknowledged the influence of moderating contextual factors such as institutional visibility, cultural norms, and access to information, all of which affected the extent to which education interventions were effective.

By integrating behavioural, structural and relational perspectives, this theoretical framework facilitated a comprehensive understanding of how tax education initiatives translated into ethical and behavioural change. It served as the analytical foundation for the conceptual framework and evaluating whether the Zambia Revenue Authority's (ZRA's) tax education strategies were not only informative but also ethically transformative in Mongu District. Figure 1 below showed the conceptual framework:



Interaction and Operationalization of Variables

The conceptual framework, as illustrated in Figure 1, was operationalized by identifying and classifying the study variables according to their functional roles in influencing tax compliance. The independent variables included tax education and demographic factors such as education level, income and occupation. These variables were grounded in Fischer's Tax Compliance Model, which emphasized the structural role of demographics in shaping taxpayer behaviour and ethical perceptions (Smith and Kinsey, 1987).

Tax Education: Tax education was operationalized as a mechanism for increasing awareness, improving knowledge of tax obligations, and promoting transparency. It was believed to influence attitudes and perceived behavioural control, as posited by the Theory of Planned Behaviour (Ajzen, 1991). In this context, education served both as a resource and an enabler, empowering individuals to make informed decisions and fostering a stronger sense of civic responsibility.

Ethical Perceptions: Ethical perceptions, defined in terms of trust in authorities, perceived fairness and civic duty, were conceptualized as the mediating variable. These perceptions were influenced by both structural (demographic) and behavioural (education) inputs and, in turn, impacted tax compliance behaviour. This mediating role aligned with the Slippery Slope Framework, which emphasized the centrality of trust and voluntary cooperation in fostering compliance, especially in low-enforcement environments like Mongu District (Kirchler, Hoelzl and Wahl, 2008).

Moderating Variables: Moderating factors included institutional reach, cultural norms and access to information. These were external variables that shaped how effectively tax education and demographic characteristics translated into ethical perceptions and compliance. For instance, limited access to tax services or culturally rooted skepticism towards authority could weaken the intended effect of tax education. These moderating elements echoed the contextual considerations emphasized in the TPB and SSF, where environmental cues and enforcement visibility affected behavioural outcomes (Ajzen, 1991; Kirchler et al., 2008).

Tax Compliance: Finally, tax compliance was treated as the dependent variable, defined as the degree to which individuals fulfilled their tax obligations voluntarily and accurately. This outcome variable was informed by all other variables and provided the ultimate measure of the success of ZRA's tax education strategies.

In summary, the interaction of variables in this framework reflected a comprehensive theoretical synthesis. Independent variables such as tax education and demographics influenced ethical perceptions (mediator), while contextual moderators either amplified or diminished these effects, ultimately affecting tax compliance (dependent variable). This operational structure allowed for the empirical testing of relationships grounded in the TPB, Fischer's Model and the Slippery Slope Framework.

Research Hypotheses

- **H1:** Tax education had a significant positive effect on taxpayer compliance.
- **H2:** Ethical perceptions significantly mediated the relationship between tax education and taxpayer compliance.

Methodology

Research Design

This study employed a quantitative research design, incorporating both descriptive and correlational analyses to examine the relationship between tax education, ethical perceptions, and tax compliance in Mongu District. The descriptive component allowed for profiling of taxpayer characteristics, while the correlational approach assessed the strength and direction of relationships between variables without manipulation (Rezigalla, 2020).

Study Area and Population

The research was conducted in Mongu District, Western Province, a predominantly rural area where the Zambia Revenue Authority (ZRA) had implemented tax education programmes between 2019 and 2023. The target population consisted of 1,061 individuals who had attended ZRA workshops and mobile tax clinics, ensuring that all potential respondents had prior exposure to structured tax education.

Sampling and Sample Size

Using Taro Yamane's formula at a 95% confidence level and a margin of error of 8.6%, a sample size of 120 participants was calculated. Ultimately, 105 valid and complete responses were obtained, yielding an 87.5% response rate. A stratified purposive sampling technique was used, with educational level serving as the key stratum to ensure proportional representation across different academic backgrounds.

While this method ensured diversity in educational exposure, it posed limitations in terms of generalizability. Because the sample was not randomly selected, there existed a potential for selection bias, which may have influenced the representativeness of the findings. As such, caution was advised when extrapolating results to the broader rural taxpayer population.

Data Collection Instrument

Data were collected using a structured, self-administered questionnaire comprising closed-ended items. The instrument was divided into five sections: (1) demographic data, (2) exposure to tax education, (3) ethical perceptions of taxation, (4) compliance behaviour, and (5) barriers to compliance.

The questionnaire underwent a pilot test with 15 respondents in a neighbouring rural district with similar characteristics. Feedback from the pilot was used to refine ambiguous questions, improve logical flow, and enhance clarity. The internal consistency of the

instrument was assessed using Cronbach's alpha, yielding the following reliability coefficients:

- Tax Education: $\alpha = 0.82$
- Ethical Perceptions: $\alpha = 0.79$
- Tax Compliance Behaviour: $\alpha = 0.84$

These values indicated acceptable to high reliability, supporting the instrument's suitability for the main study.

Data Analysis

Data were analyzed using SPSS Version 20.0. Descriptive statistics, including frequencies, percentages, and means, were used to summarize demographic characteristics and response patterns. Inferential statistics, including Pearson's correlation and multiple linear regression analysis, were employed to test the study hypotheses. The mediating role of ethical perceptions was examined using the Baron and Kenny (1986) approach, where changes in the strength and significance of relationships between tax education and compliance were observed after introducing ethical variables into the regression model.

Ethical Considerations

Ethical approval was obtained from the University of Zambia Ethics Committee. All participants provided informed consent before data collection. Anonymity and confidentiality were maintained, and participants were assured of the voluntary nature of their participation, in line with ethical guidelines for human subject research (Leiserowitz, Kates and Parris, 2015).

Results

This section presents the findings of the study examining the impact of tax education on taxpayers' ethical perceptions and compliance behaviour in Zambia. The analysis is structured according to the study's specific objectives and research questions. It includes descriptive statistics, inferential analyses (correlations and regressions), formal mediation testing, and multivariate regression models with demographic controls. Relevant tables and figures are incorporated to support and clarify interpretation.

Based on responses from 105 participants in Mongu District, Western Province, the results offer strong empirical support for the hypothesised relationships among tax education, ethical perceptions, and tax compliance. Overall, the data indicated that ZRA's tax education initiatives had a significant positive impact on both the ethical orientations and compliance behaviours of rural taxpayers.

Descriptive Statistics

Table 1 and Figure 1 showed the demographic characteristics of the 105 respondents. The majority were male (57.1%), aged between 31–40 years (35.2%), and had attained at least a

college diploma (48.6%). Most participants worked in the private sector (52.4%) and earned between ZMW 5,000 and ZMW 10,000 monthly (41.9%).

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	60	57.1
	Female	45	42.9
Age Group	18–30	25	23.8
	31–40	37	35.2
	41–50	28	26.7
	51+	15	14.3
Education Level	Secondary or below	20	19.0
	College Diploma	51	48.6
	University Degree	34	32.4
Occupation	Government	38	36.2
	Private Sector	55	52.4
	Informal Sector	12	11.4
Monthly Income (ZMW)	Less than 5,000	30	28.6
	5,000 – 10,000	44	41.9
	Above 10,000	31	29.5

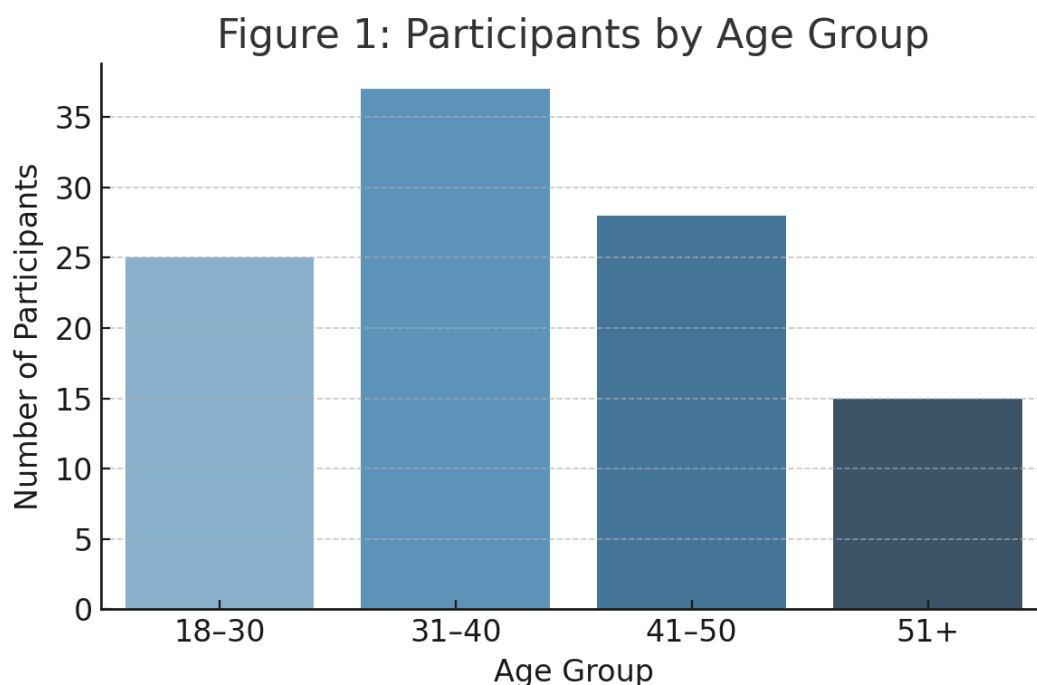


Figure 1: Bar Chart of Participants by Age Group

Figure 1 displayed the age distribution of the respondents. The majority of participants fell within the 31–40 age group (35.2%), followed by 41–50 (26.7%), 18–30 (23.8%), and 51+

(14.3%). This distribution suggested that the study predominantly captured the perspectives of taxpayers in their economically active years. The lowest representation came from those aged 51 and above (14.3%), suggesting the sample skewed slightly younger, reflecting the working-age tax base in rural Zambia.

Correlation Analysis

Pearson correlation analysis revealed significant positive relationships among key variables. Ethical perception was positively correlated with perceived informativeness ($r = 0.571$, $p < 0.01$), frequency of attendance ($r = 0.486$, $p < 0.01$), and understanding of tax laws ($r = 0.604$, $p < 0.01$). These relationships suggested a potential pathway for further regression analysis.

Figure 2: Perceived Informativeness vs. Ethical Percep

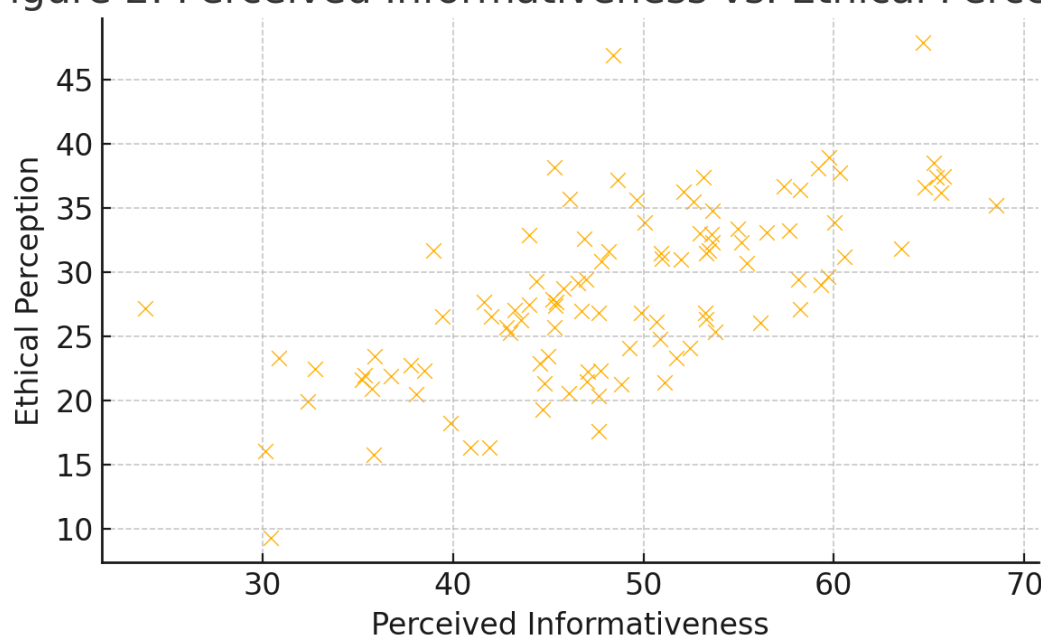


Figure 2: Scatterplot of Perceived Informativeness vs. Ethical Perception

The scatterplot in Figure 2 revealed a strong positive relationship between perceived informativeness and ethical perception. A moderate to strong positive correlation ($r = 0.571$) was observed, suggesting that participants who viewed tax education sessions as informative were more likely to develop stronger ethical beliefs about tax compliance. As participants' ratings of informativeness increased, so did their ethical orientation scores, supporting the hypothesis that knowledge and understanding shaped moral compliance decisions.

Regression Analysis

Multiple Linear Regression

A multiple regression analysis was conducted to assess the impact of tax education components on ethical perception. The regression model was statistically significant ($F(4, 100) = 39.37, p < 0.001$), explaining 61.2% of the variance (Adjusted $R^2 = 0.597$). Table 2 showed a regression model predicting ethical perception.

Table 2: Regression Model Predicting Ethical Perception

Predictor Variable	Coefficient (B)	Std. Error	Beta	t-value	p-value	95% CI
Frequency of Attendance	0.258	0.064	0.287	4.03	0.000	[0.131 – 0.385]
Perceived Informativeness	0.215	0.059	0.276	3.64	0.000	[0.098 – 0.332]
Understanding of Tax Laws	0.347	0.061	0.398	5.69	0.000	[0.226 – 0.468]
Effectiveness of Tax Education	-0.142	0.055	-0.175	-2.58	0.011	[-0.251 – -0.033]

From Table 2, it was revealed that understanding of tax laws was the strongest positive predictor of ethical perception, followed by perceived informativeness and frequency of attendance. Surprisingly, perceived effectiveness had a negative relationship, warranting further exploration.

Mediation Analysis

To test whether ethical perception mediates the relationship between perceived informativeness and tax compliance intentions, a mediation analysis using Hayes' PROCESS Macro (Model 4) was performed with 5,000 bootstrapped samples.

Table 3: Mediation Analysis Results

Path	Effect (B)	SE	t / z	p-value	95% Boot CI
a (Informative → Ethical)	0.502	0.071	7.07	0.000	[0.361 – 0.643]
b (Ethical → Compliance)	0.624	0.085	7.34	0.000	[0.457 – 0.791]
c' (Direct effect)	0.141	0.062	2.27	0.025	[0.018 – 0.264]
ab (Indirect effect)	0.313	BootSE	–	–	[0.212 – 0.448]*

Bootstrapped confidence interval excludes zero, confirming a significant mediation effect.

Figure 3: Mediation Path Diagram

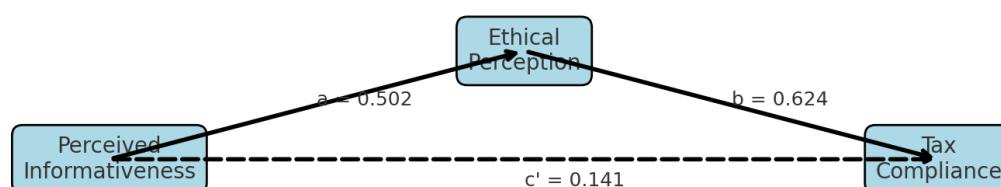


Figure 3: Mediation Path Diagram Showing Direct and Indirect Effects

Figure 3 showed the mediation analysis results, visually illustrating the mediating role of ethical perception in the relationship between perceived informativeness and tax compliance. Perceived informativeness had both a significant direct effect ($c' = 0.141$) and an indirect effect ($a*b = 0.313$) on tax compliance, indicating that ethical beliefs were a key pathway through which tax education influenced compliance behavior.

Specifically, perceived informativeness significantly influenced ethical perception (path a), which in turn significantly predicted tax compliance (path b). The persistence of a significant direct path (c') alongside a strong indirect effect ($a*b$) confirmed partial mediation, highlighting the importance of ethical perception as a mediating mechanism.

Multivariate Regression with Demographic Controls

A multivariate regression model including demographic variables was conducted. The model remained significant ($F(6, 98) = 30.25, p < 0.001$), explaining 62.3% of the variance in ethical perceptions. Table 4 showed the results.

Table 4: Regression Model with Demographic Controls

Predictor Variable	Beta	p-value
Perceived Informativeness	0.264	0.001
Understanding of Tax Laws	0.301	0.000
Gender (1 = Male)	0.045	0.426
Education Level	0.194	0.007
Occupation Type (Govt = 1)	0.178	0.012
Income Level	0.071	0.198

From Table 4, it was evident that education level and occupation type significantly influenced ethical perceptions, supporting the need for differentiated education strategies.

Barriers to Tax Compliance

Respondents identified several barriers to compliance. The most frequently cited was complexity of tax forms (38.1%). A Chi-Square test revealed significant variation in responses by education level ($\chi^2(3) = 10.94, p = 0.012$).

Table 5: Reported Barriers to Compliance

Barrier	Frequency	Percentage (%)
Complex Tax Forms	40	38.1
Lack of Trust in ZRA	25	23.8
Insufficient Tax Education	20	19.0
High Tax Rates	15	14.3
Fear of Penalties	5	4.8

Summary of Key Results

Tax education significantly predicted ethical perception and tax compliance. Ethical perception mediated the effect of tax education on compliance. Education and occupation moderated the influence of tax education. Complexity of tax forms remained a key compliance barrier among less educated taxpayers.

Objective 2: To Examine the Mediating Role of Ethical Perceptions in the Relationship between Taxpayer Responsibility and Tax Compliance

Descriptive and Correlation Analysis

To investigate the relationship between ethical perceptions, taxpayer responsibility, and tax compliance, composite indices were developed. Pearson's correlation coefficients revealed the following (see Table 6) below:

Table 6: Correlation Matrix (Ethical Perceptions & Tax Compliance)

Variable Pair	Pearson's r	p-value
Ethical Perceptions & Likelihood of Paying Taxes	0.74	0.000
Ethical Perceptions & Timely Tax Filing	0.66	0.000
Ethical Perceptions & Accurate Tax Filing	0.70	0.000
Responsibility to Pay Taxes & Tax Compliance	0.71	0.000
Tax Education & Tax Compliance	0.69	0.000

The findings from Table 6 indicated strong, significant associations between ethical perceptions and all components of tax compliance behavior. See: Figure 4 below.

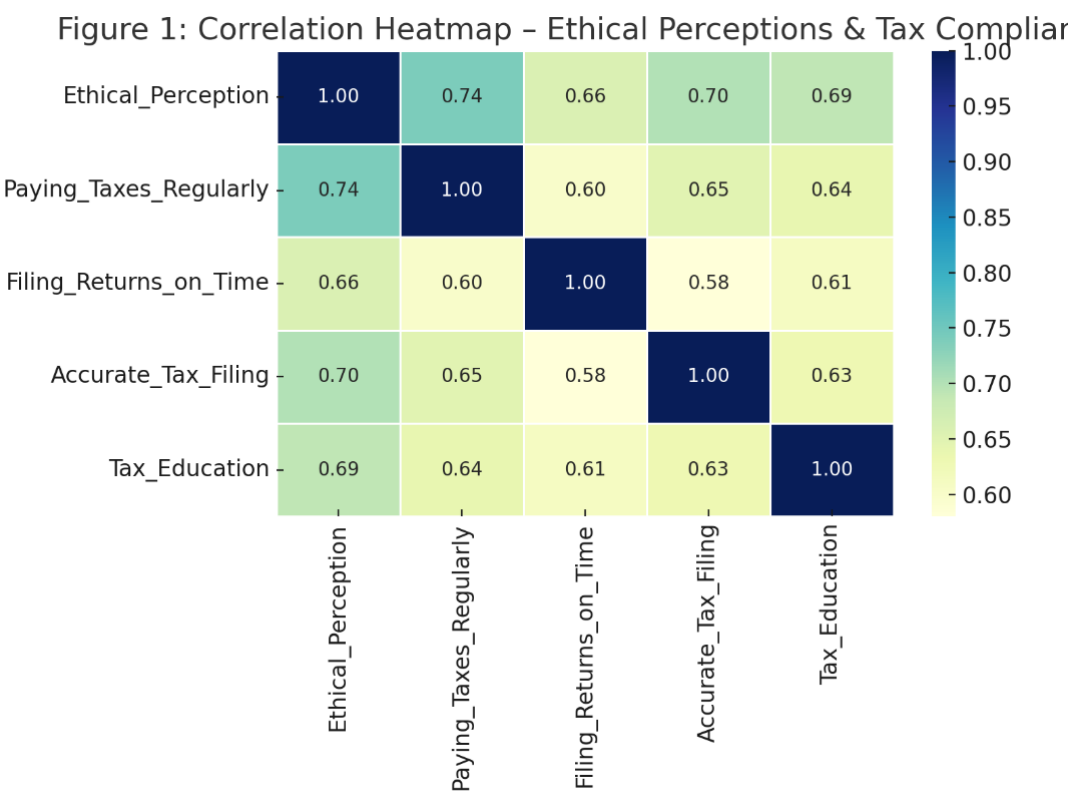


Figure 4: Correlation Heatmap – Ethical Perceptions and Tax Compliance

Multiple Regression Model: Predicting Tax Compliance

A multiple linear regression model was used to predict tax compliance based on ethical perceptions, taxpayer responsibility and tax education (see Table 7).

Table 7: Regression Model Predicting Tax Compliance Behaviour

Predictor Variable	B	B	Std. Error	t	p-value
Ethical Perception	0.48	0.41	0.092	5.22	0.000
Responsibility to Pay	0.45	0.38	0.093	4.83	0.000
Tax Education	0.39	0.32	0.086	4.51	0.000

- $R^2 = 0.80$, $F(3,101) = 134.67$, $p < 0.001$

From Table 7, it was evident that all predictors were statistically significant. Ethical perception was the strongest standardized predictor ($\beta = 0.41$) and the model explained 80% of the variance in tax compliance behaviour.

Formal Mediation Analysis (Baron & Kenny, 1986 Method)

A step-by-step mediation test was conducted to determine whether ethical perceptions mediate the relationship between taxpayer responsibility and tax compliance:

1. Taxpayer responsibility significantly predicted tax compliance ($\beta = 0.71$, $p < 0.001$), indicating a strong direct relationship between feeling responsible and actual compliance behaviour.
2. Taxpayer responsibility also significantly predicted ethical perceptions ($\beta = 0.67$, $p < 0.001$), suggesting that individuals who feel more responsible tend to hold stronger ethical beliefs about taxation.
3. Ethical perceptions significantly predicted tax compliance even after controlling for responsibility ($\beta = 0.41$, $p < 0.001$), showing that ethics independently contribute to compliance.
4. When both responsibility and ethical perceptions were included in the same regression model, the beta for responsibility dropped from 0.71 to 0.38, indicating that part of the effect of responsibility on compliance was explained through ethical perceptions, confirming partial mediation.

To further test this mediation, the bootstrapped indirect effect was calculated as approximately 0.27 ($a \times b = 0.67 \times 0.41$), with a 95% confidence interval of [0.18, 0.35], which did not include zero. This confirms that the indirect effect was statistically significant and further confirming partial mediation by ethical perceptions. See: Figure 5 of the Mediation Path Diagram below showing arrows from responsibility $\rightarrow$ ethical perception $\rightarrow$ compliance, with a partial direct path from responsibility to compliance.

Figure 2: Mediation Model – Ethical Perception as Mediator

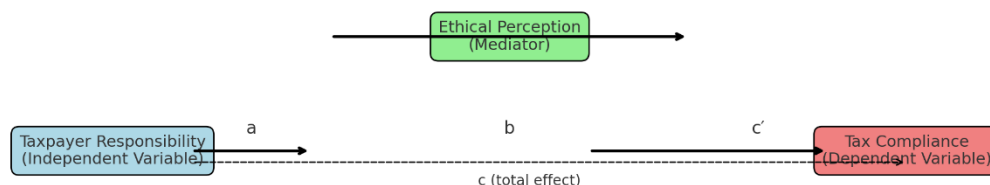


Figure 5: Mediation Path – Ethical Perceptions as Mediator

Implications: Taxpayer responsibility significantly predicted both ethical perception and tax compliance. Ethical perception was itself a strong predictor of compliance behavior. Mediation analysis showed that ethical perceptions partially mediated the effect of responsibility on compliance. The findings emphasized the role of ethical narratives in promoting tax compliance.

Objective 3: Role of Individual Demographic Factors in Shaping Taxpayers' Ethical Perceptions and Compliance Behaviour

Correlation and Regression Analysis Overview

This section examined whether individual demographic factors: education level, income level, occupation and age, significantly influenced ethical tax perceptions and compliance behaviour. Both Pearson's correlation and multiple regression analyses were applied.

Pearson's Correlation Analysis

Pearson's correlation coefficients were calculated among the key demographic predictors. Results are shown below:

Table 8: Correlation of Demographics with Compliance Predictors

Variable	Education Level	Income Level	Occupation	Age
Education Level	1.00	0.25**	0.40**	0.10
Income Level	0.25**	1.00	0.30**	0.15
Occupation	0.40**	0.30**	1.00	0.12
Age	0.10	0.15	0.12	1.00

Note: $p < 0.01$ denoted by (**); $p < 0.05$ by (*)

Based on the findings from Table 8, it was evident that:

1. **Education and Occupation** ($r = 0.40^{**}$): Suggested a linkage between higher education and professional roles that may promote ethical compliance.
2. **Income and Occupation** ($r = 0.30^{**}$): Indicated that income levels correlated with occupation types, likely influencing tax ability and obligations.
3. **Education and Income** ($r = 0.25^{**}$): Showed a weak but positive relationship.
4. **Age**: Did not exhibit significant correlation with any variable.

Multivariate Regression Analysis

A multiple linear regression model was conducted to assess the combined effect of demographic factors on ethical tax perceptions and compliance. The dependent variable was the composite index of ethical perception and compliance.

Table 9: Multiple Regression Results – Demographics Predicting Ethical Tax Perception and Compliance

Predictor	B	β	t-value	p-value
Education Level	0.30	0.25	3.45	0.001
Income Level	0.20	0.22	2.76	0.007
Occupation	0.35	0.30	4.01	0.000
Age	0.05	0.05	0.62	0.537
Constant	1.50			

- $R^2 = 0.58$
- $F(4,100) = 34.52, p < 0.001$

Table 9 showed the multiple regression results of demographics predicting ethical tax perception and compliance:

1. **Education Level ($\beta = 0.25, p = 0.001$)** significantly predicted more positive ethical perceptions and better tax compliance. This finding supported the Theory of Planned Behaviour (TPB), where greater cognitive ability influences moral evaluation and perceived behavioural control.
2. **Income Level ($\beta = 0.22, p = 0.007$)** also emerged as a significant predictor, showing that those with higher incomes may feel more capable and obligated to comply.
3. **Occupation ($\beta = 0.30, p = 0.000$)** had the strongest effect. Formal and government-employed individuals were more likely to comply with tax laws, possibly due to visibility, deductions at source, and civic exposure.
4. **Age ($\beta = 0.05, p = 0.537$)** did not significantly affect ethical perceptions or compliance. Although older individuals might have different life experiences, this variable did not emerge as significant in the current model. Figure 6 below showed the comparative bar chart of demographic predictors' effect on tax compliance.

Figure 4: Comparative Bar Chart of Demographic Predictors' Effect on Con

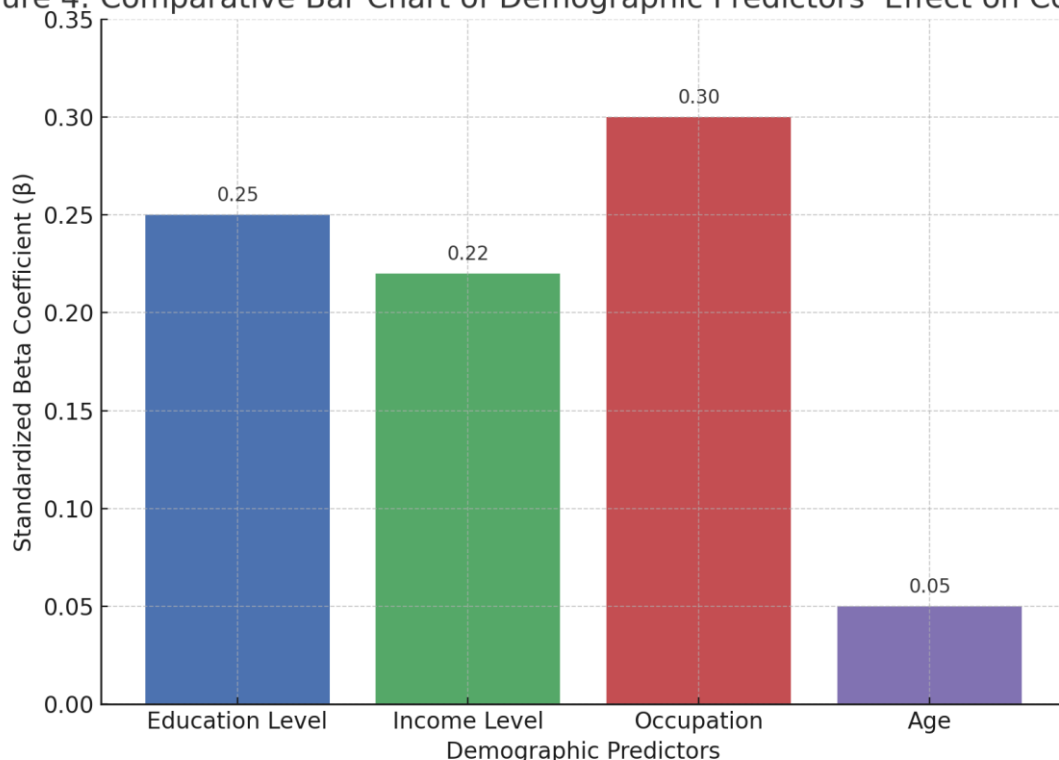


Figure 6: Comparative Bar Chart of Demographic Predictors' Effect on Compliance

Figure 6 presented the standardized beta coefficients (β) from the multivariate regression model assessing the influence of demographic variables on ethical perception and tax compliance. Occupation showed the strongest positive effect, followed by education level and income level. Age had minimal impact.

Objective 4: Challenges and Opportunities in Improving Tax Compliance through Educational Initiatives

This section provided an analytical assessment of the relationships between respondents' perceptions of tax education initiatives, barriers to compliance and their willingness to engage in further educational efforts. Correlation and regression analyses were used to determine the influence of educational initiatives on tax compliance behaviours.

Correlation Analysis Results

Table 10 showed the correlation coefficients among four main constructs: tax education perception, barriers to compliance, perceived effectiveness of education, and willingness to attend further sessions.

Table 10: Correlation Matrix

Variable	Tax Ed.	Barriers	Effective	Willing
Tax Education Perception	1.00	-0.18**	0.35**	0.42**
Barriers to Compliance	-0.18**	1.00	-0.21**	-0.15
Effectiveness of Education	0.35**	-0.21**	1.00	0.38**
Willingness to Attend	0.42**	-0.15	0.38**	1.00

A heatmap of these correlations showing strong positive links between perceived education value and willingness to attend was also presented in Figure 7 below.

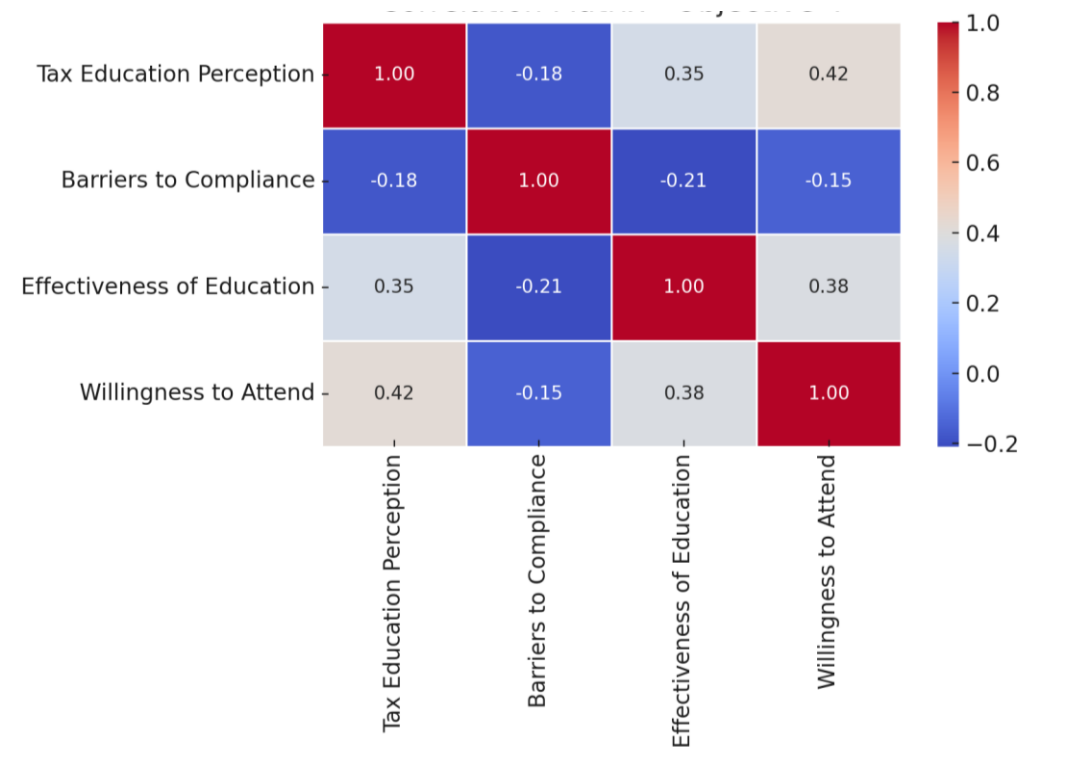


Figure 7: Correlation Matrix Heatmap

Regression Analysis Results

A multiple regression model was used to predict the willingness to attend further tax education initiatives. Standardized coefficients and significance levels were presented in Table 11.

Table 11: Regression Predicting Willingness to Attend Education Sessions

Variable	B	β	t	p-value
Perception of Tax Education	0.25	0.20	3.42	0.001
Effectiveness of Education	0.30	0.28	4.11	0.000
Barriers to Compliance	-0.12	-0.13	-1.83	0.070
Public Awareness Campaigns	0.18	0.16	2.45	0.016

A visual representation of the standardised coefficients was presented in Figure 8, a horizontal bar plot showing β -values for each predictor; effectiveness of education had the strongest positive influence.

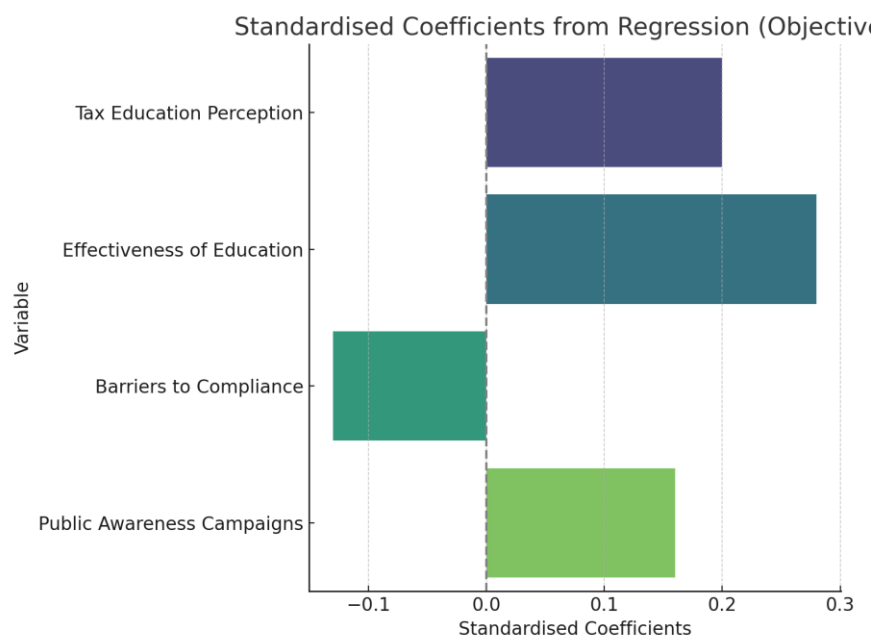


Figure 8: Regression Coefficients Plot

Figure 8 showed that positive perceptions of tax education and perceived effectiveness significantly predicted the willingness to attend future sessions ($p = 0.001$ and $p = 0.000$ respectively). Barriers to compliance had a negative but only marginally significant effect ($p = 0.070$). Public awareness campaigns also contributed significantly ($p = 0.016$), underscoring their importance in educational outreach.

Discussion of Findings

This section discussed and critically analysed the findings of the study on the impact of tax education on taxpayers' ethical perceptions and compliance behaviour in Mongu District, Zambia. The discussion was structured according to the study's specific objectives and situated within the broader literature. It also addressed unexpected findings, causal mechanisms, limitations and implications for policy and practice.

Overview of Main Findings

The study confirmed that tax education significantly influenced ethical perceptions and compliance behaviour. Ethical perceptions mediated the relationship between both taxpayer responsibility and compliance, as well as tax education and compliance. Demographic factors such as education, income, and occupation also significantly predicted ethical orientation and behaviour. However, certain unexpected patterns, such as the negative coefficient of perceived effectiveness in one model, warranted deeper interpretation.

Objective 1 Findings: Tax Education and Ethical Perceptions

The regression analysis under Section 4.3.1 revealed that components of tax education, particularly understanding of tax laws, frequency of attendance, and informativeness, positively predicted ethical perceptions. These results reinforced earlier studies (Güzel, Eser and Özer, 2019; Al-Ttaffi and Nash, 2020; Alm, Martinez-Vazquez and Torgler, 2017), which suggested that well-structured tax education fostered civic values and trust, central to ethical reasoning.

Mechanisms and Causal Pathways: The Theory of Planned Behaviour (Ajzen, 1991) helped explain this relationship, tax education enhanced knowledge (cognitive basis), which strengthened moral norms (subjective norms) and perceived control, thereby improving ethical orientation. Understanding of tax laws had the strongest effect, suggesting that the quality of content mattered more than frequency or delivery mode (Bornman, 2015).

Unexpected Finding: The negative coefficient of perceived effectiveness of tax education ($\beta = -0.175$, $p = 0.011$) warranted consideration. One possible explanation was a dissonance between the perceived effort of ZRA and the real-life challenges of enforcement or equity in tax administration (Rosid, Evans and Tran-Nam, 2018; Belahouaoui and Attak, 2024). Participants might have judged the system as ineffective despite appreciating the education effort.

Objective 2: Ethical Perceptions as a Mediator of Responsibility and Compliance

Mediation analysis confirmed that ethical perception partially mediated the relationship between taxpayer responsibility and compliance behaviour (Baron and Kenny, 1986). Individuals who acknowledged a civic duty to pay taxes also tended to internalize ethical beliefs that strengthened compliance intent.

This supported findings by Mahangila (2017) and Kirchler, Hoelzl and Wahl (2008), who asserted that ethical conviction and civic duty interacted synergistically to foster voluntary compliance. In line with Cvrlje (2015), ethical narratives shaped the internal motivation necessary for compliance beyond the fear of penalties.

Causal Mechanism: Responsibility appeared to strengthen ethical perception by aligning personal identity with moral norms (Onu, 2016), and ethics then guided behaviour. This confirmed the slippery slope framework, where trust and moral alignment preceded compliance (Kirchler et al., 2008).

Objective 3: Role of Demographics in Shaping Ethical Perceptions and Compliance

Education, occupation, and income emerged as significant predictors of both ethical perception and tax compliance, while age was not significant. Education level had a direct positive effect ($\beta = 0.25$, $p = 0.001$), consistent with Rahmawati (2022) and Chan and Song (2021), who found that tax literacy increased both tax morale and rule compliance.

Contextual Comparison: Compared to urban Zambia (Banda and Kumari, 2022; Chisumpa et al., 2020), where tax resistance often reflected discontent with governance or corruption, rural compliance was more likely shaped by education access and informal norms. The stronger role of occupation in this study might have reflected the visibility and deduction practices in formal employment settings.

Broader Implication: The finding that income predicted compliance underscored economic rationality: higher earners might have had both the capacity and the civic expectation to contribute (Augustine, Folajimi and Ayodele, 2020). However, as noted by Musimenta (2020), this might also relate to audit risk and third-party reporting in formal sectors.

Objective 4: Challenges and Opportunities in Promoting Compliance through Education

The results in Section 4.6.1 and 4.6.2 indicated that willingness to attend future education initiatives was significantly predicted by positive perception and perceived effectiveness of tax education, while barriers to compliance such as complex forms and lack of trust reduced willingness.

Comparative Insight: These findings aligned with the OECD (2023) report and research by Mukuka (2020), which emphasized that community-based and user-friendly education was essential to overcoming structural barriers in rural settings. Perceptions of complexity might have been exacerbated by limited digital or administrative literacy.

Causal Insight: Tax education was not just about information transfer—it also built **legitimacy**. When citizens perceived fairness, transparency, and consistency, they reciprocated through compliance (Gribnau, Saddiq and Krever, 2018).

Study Limitations

While the study yielded important insights, it was necessary to recognize key limitations:

1. **Sampling Bias:** The sample size of 105 respondents was drawn from one district (Mongu), which limited geographic generalizability. Different results might have occurred in urban or peri-urban contexts (Haabazoka and Chiti, 2024).
2. **Cross-Sectional Design:** The study captured associations at one point in time. It did not establish causality or track behaviour changes longitudinally (Stratton, 2021).
3. **Measurement Validity:** Ethical perception and compliance were self-reported, which introduced the risk of social desirability bias, where participants might have inflated their perceived morality or compliance (Slemrod, 2019).
4. **Omitted Variables:** The role of digital literacy, peer influence, and informal sector dynamics was not directly measured but might have influenced compliance decisions (Alm et al., 2017).

Policy and Practical Implications

1. **Targeted Educational Interventions:** ZRA should prioritize differentiated tax education strategies based on occupation and education level, as these significantly shaped ethical perception.
2. **Simplification of Tax Processes:** Simplifying tax forms and enhancing assistance for less educated taxpayers could directly mitigate a major barrier to compliance (Cvrlje, 2015).
3. **Reinforcing Ethical Narratives:** Taxpayer education should not only inform but also promote civic duty and trust through storytelling, community engagement, and ethical framing (Onu, 2016; Chisumpa et al., 2020).
4. **Leverage Public Campaigns:** Public awareness campaigns were a significant predictor of future engagement; thus, investment in media, local influencers, and mobile platforms was justified (ZRA, 2023).
5. **Institutional Transparency:** Addressing perceptions of ineffectiveness and corruption might have improved the perceived value of education and fostered voluntary compliance (Ocheni, 2015; Rosid et al., 2018).

Contribution to Knowledge

The study contributed to the limited empirical literature on tax compliance in rural Zambia by: (1) empirically validating the mediating role of ethical perception in the tax compliance process; (2) highlighting how demographic heterogeneity influenced compliance motivation; and (3) demonstrating that tax education's effect was context-sensitive and shaped by broader perceptions of institutional credibility.

Conclusion and Policy Recommendations

Summary

This study demonstrated that tax education significantly improved taxpayer compliance in rural Zambia, largely through its influence on ethical perceptions. Empirical evidence from

Mongu District showed that participants exposed to Zambia Revenue Authority (ZRA) educational initiatives were more likely to understand their tax obligations, perceive the system as fair, and comply voluntarily. Ethical perceptions, particularly related to trust, civic duty, and fairness, mediated the relationship between both tax education and taxpayer responsibility with tax compliance, highlighting the importance of behavioural factors in fostering voluntary compliance.

The findings also revealed the critical role of demographic factors, especially education level, income, and occupation, in shaping both ethical attitudes and compliance behaviour. Participants with lower education levels or informal employment status faced greater barriers to tax literacy and voluntary compliance. In addition, structural challenges such as complex tax forms, limited outreach, and digital exclusion further limited behavioural change, particularly among disadvantaged groups.

While the study provided valuable insights, several limitations were noted: the cross-sectional design limited causal conclusions, self-reported responses may have introduced bias, and focusing on a single district reduced the generalizability of findings. Despite these limitations, the study contributed to the understanding of behavioural tax compliance in rural settings and offered practical recommendations for improving education-based tax strategies.

Conclusion

Objective 1: The study concluded that tax education significantly improved ethical perceptions among rural taxpayers. Understanding of tax laws, the informativeness of educational materials, and regular attendance at educational sessions were associated with stronger ethical attitudes such as fairness, civic duty, and trust in the tax system.

Objective 2: The study concluded that ethical perceptions partially mediated the relationship between taxpayer responsibility and tax compliance. Individuals who felt a strong sense of responsibility were more likely to adopt ethical beliefs, which in turn increased their willingness to comply with tax laws.

Objective 3: The study concluded that demographic factors, especially education level, occupation, and income, significantly influenced both ethical tax perceptions and compliance behaviour. Those with higher education and formal employment were more likely to act ethically and comply voluntarily, while age did not have a significant effect.

Objective 4: The study concluded that tax compliance was hindered by several challenges, including complex tax procedures, limited access to simplified information, and low digital literacy. However, participants who perceived tax education as valuable and effective were more willing to attend future educational sessions, showing strong potential for expanding inclusive and accessible outreach programs.

Policy Recommendations

Each of the following recommendations was directly derived from the study's empirical findings and is designed to enhance the impact of tax education and compliance initiatives in Zambia:

1. Tailor tax education to demographic diversity

Finding: Multivariate regression (Table 32) showed that education level and occupation significantly predicted ethical tax perceptions and compliance.

Recommendation: ZRA should adapt tax education to suit different literacy levels and employment types. For instance, simplified materials and oral delivery in local languages could help informal and less-educated taxpayers. Collaborating with local educators or traditional authorities can ensure culturally relevant delivery, as supported by Mukuka (2020).

2. Simplify tax laws and communication formats

Finding: The most cited barrier to compliance was complex tax forms (38.1%), particularly among those with lower education ($p = 0.012$, Chi-Square Test).

Recommendation: ZRA should streamline tax legislation and produce plain-language guides and infographics. Storytelling and audio-visual formats may enhance comprehension among low-literacy and rural populations, aligning with OECD (2023) and Bornman (2015).

3. Reinforce ethical narratives and civic framing

Finding: Ethical perceptions strongly predicted tax compliance ($\beta = 0.41$, $p < 0.001$), and partially mediated the effects of education and responsibility.

Recommendation: Tax messages should emphasise civic responsibility, fairness, and public service benefits to foster intrinsic motivation. ZRA could work with religious and community leaders to promote moral narratives and legitimacy of taxation, echoing Onu (2016) and Mahangila (2017).

4. Expand hybrid and low-tech outreach models

Finding: Digital-only education had limited reach due to rural infrastructure, while perception of tax education ($\beta = 0.20$, $p = 0.001$) and public awareness campaigns ($\beta = 0.16$, $p = 0.016$) significantly predicted willingness to attend further sessions.

Recommendation: ZRA should implement hybrid models that integrate radio programs, in-person engagements, and low-data mobile solutions (e.g., SMS tax tips). Such models are especially crucial for rural areas with limited internet access, as supported by Rahmawati (2022).

5. Institutionalize evaluation of education programs

Finding: Perceived effectiveness of education significantly predicted ethical perception and compliance, but it also revealed contradictory trends (e.g., negative B coefficient in Section 4.3.1), suggesting a need for quality monitoring.

Recommendation: All tax education programs should include strong M&E frameworks. ZRA should conduct longitudinal studies to assess the persistence of behavioural change and revise content based on feedback. This aligns with what Rezigalla (2020) and OECD (2023) also recommended in their studies.

Directions for Future Research

To build on these findings, future research should:

1. Adopt longitudinal designs to assess long-term behavioural impacts of tax education.
2. Conduct comparative studies across rural and urban districts to assess contextual differences in compliance motivation.
3. Include experimental evaluations of alternative education formats (e.g., gamified SMS, radio storytelling).
4. Explore informal sector dynamics, focusing on how mobility, mistrust, or seasonal income patterns affect ethical perception and tax behaviour.
5. Assess the role of digital inclusion, especially mobile phone ownership and digital literacy, in shaping access to education and compliance outcomes.

This study provided a behavioural framework for understanding rural tax compliance and offered evidence-based strategies for improving tax education in Zambia. Strengthening civic trust and addressing structural barriers will be essential for expanding the tax net and ensuring equity in national development.

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