



Implementation of the Theory of Planned Behavior (TPB) in Student Career Planning at Nias Regional Private Vocational High School

Firwanus Zega¹, M. Giatman^{1*}, Ambiyar¹, Dedy Irfan¹

¹Technology and Vocational Education Study Program, Graduate School, Faculty of Engineering, Universitas Negeri Padang, Padang, Indonesia.

Received: May 25, 2025

Revised: July 22, 2025

Accepted: August 25, 2025

Published: August 31, 2025

Corresponding Author*:

M. Giatman

giatman@ft.unp.ac.id

DOI: [10.29303/jppipa.v11i7.12265](https://doi.org/10.29303/jppipa.v11i7.12265)

© 2025 The Authors. This open-access article is distributed under a (CC-BY License)



Abstract: There is a gap between the objectives of secondary education programs and the current unemployment rate in Indonesia. Vocational High School (SMK) graduates, equipped with work knowledge and skills, still contribute significantly to the unemployment rate in Indonesia. Career guidance is essential, especially as initial preparation for entering the workforce for vocational high school students, as students still face challenges, such as deciding whether to work immediately or continue their studies at university after graduation. All these issues highlight the need for a more comprehensive approach to supporting students' career choices. This study aims to examine the effect of implementing the Theory of Planned Behavior (TPB) on career planning among students at SMK Swasta Pembda Nias. The three main components of TPB were analyzed in this study: attitude toward behavior, subjective norms, and perceived behavioral control. A quantitative approach using a correlational survey method was employed, with data analyzed through simple and multiple regression techniques. The population comprised all students of SMK Swasta Pembda Nias, with samples taken using random sampling techniques. The findings indicate that each variable (attitude, subjective norm, and perceived control of behavior) has a significant effect on students' career planning. Furthermore, these three variables simultaneously influence career planning significantly. These results suggest that the implementation of TPB is an effective approach to guide career counseling strategies, especially in rural vocational school settings such as Nias.

Keywords: Attitude; Career planning; Perceived control of behavioral; Subjective norm; Theory of planned behavior; Vocational school students

Introduction

Education is a crucial component in efforts to improve the quality of human resources in line with changing times. Education is designed to enable individuals to improve themselves according to the demands and needs of the workplace. The necessary skills to face these developments can be obtained through formal and non-formal education (Almeida & Morais, 2025; O'Regan et al., 2025). In Indonesia, formal educational institutions at the secondary level, namely

Vocational High Schools (SMK), are designed to prepare the nation's next generation for work in accordance with their respective expertise (Souto-Otero, 2021; Pandya et al., 2023). This statement aligns with Law Number 20 of 2003 concerning the National Education System, which states that vocational schools are a secondary education level that prepares students for work in their chosen fields of expertise and skills. This means that secondary education institutions have a role to support, teach, and apply knowledge, skills, and attitudes that can bolster students' competencies for work (Chimhowu et al., 2019;

How to Cite:

Zega, F., Giatman, M., Ambiyar, & Irfan, D. (2025). Implementation of the Theory of Planned Behavior (TPB) in Student Career Planning at Nias Regional Private Vocational High School. *Jurnal Penelitian Pendidikan IPA*, 11(8), 9-19. <https://doi.org/10.29303/jppipa.v11i8.12265>

Kraus et al., 2022). A more practical focus on education, such as fieldwork experience within vocational high schools, should better prepare students for the world of work (Pandya et al., 2023; Schmidt et al., 2024). However, compared to other levels of education, studies have found that the career maturity of vocational high school students tends to be lower than that of high school and Islamic high school students (Nurani, 2022; Aldossari, 2020; Bano et al., 2022). This issue is crucial to address because many vocational high school students experience confusion in choosing their future careers (Shin et al., 2018; Pham et al., 2024). The career confusion experienced by vocational high school students can disrupt their personality development. For example, inaccurate career choices can lead to students losing enthusiasm, becoming lazy, and feeling depressed (Ajjawi et al., 2020; Widyaastuti, 2024); Seo & Lee, 2024). Furthermore, some students are confused and unsure about their chosen profession, partly due to external factors such as following friends or parental pressure. This indicates that students have not yet achieved career planning and maturity.

Education, particularly vocational high schools (SMK), is designed to prepare students with work-ready competencies (Jatmiko, 2023; Rahmadhani et al., 2022). However, in reality, the career maturity of vocational high school students is often lower than that of other levels of education (Lee et al., 2021; Lokan et al., 1982). Many even experience confusion in choosing a career, influenced by external factors such as parental or peer pressure. In fact, Indonesia faces a high unemployment rate for vocational high school graduates, exceeding that of university and diploma graduates. A preliminary study at a private vocational high school (SMK) in the Nias Regency found that the majority of students (47%) were still confused or had no career plan (13%), and lacked confidence and career-supporting skills. This situation indicates a career maturity issue that needs to be addressed. The Theory of Planned Behavior (TPB), which encompasses attitudes toward behavior, subjective norms, and perceived behavioral control, is believed to help understand the factors influencing students' career decisions (Saflor et al., 2024; Wu & Chiang, 2023).

Previous research on TPB in the career context has yielded mixed results, and few studies have specifically applied this theory to private vocational high school students, especially in regions like Nias. This creates a gap in understanding how these three TPB components collectively influence vocational high school students' career decisions. Based on the above background, this study was conducted with the following objectives: To determine the relationship between the attitudes of private vocational high school students in the Nias

Regency toward their career planning based on the Theory of Planned Behavior; To determine the relationship between subjective norms in the social and cultural environment of private vocational high school students in the Nias Regency and their career planning; To determine the relationship between perceived behavioral control by students of the Nias Regional Government Private Vocational School in determining their career choices; To determine the relationship between the three components of the Theory of Planned Behavior (attitude, subjective norms, and perceived behavioral control) influencing students' career planning at the Nias Regional Government Private Vocational School.

Method

This research method is quantitative correlational, aiming to examine the relationship between attitudes, subjective norms, perceived behavioral control, and career planning of vocational high school students.

Population and Sample

The research population was all students of private vocational high schools in the Nias Regional Government. The sample was drawn from this population using a random sampling technique, with the sample size determined by the Slovin formula (the exact number is not stated in the summary).

Research Variables

Independent Variables: Attitude (X1): Students' perceptions of career planning. Subjective Norms (X2): The influence of the social environment (parents, teachers, friends) on students' career planning. Perceived Behavioral Control (X3): Students' confidence in their ability to carry out career planning. Dependent Variable: Career Planning (Y): Students' process of planning their professional future.

Research Instrument

Data were collected using a questionnaire containing statements related to the four variables. This questionnaire used a Likert scale. Prior to use, the instrument underwent validity and reliability testing to ensure data accuracy and consistency.

Data Analysis Techniques

The collected data were analyzed using descriptive statistics to describe the characteristics of the data and inferential statistics to test the hypotheses. The inferential analysis included: Simultaneous Regression Test: To determine the effect of the three independent variables (X1, X2, X3) jointly on career planning (Y).

Partial Regression Test: To determine the effect of each independent variable (X_1, X_2, X_3) individually on career planning (Y). This analysis aims to determine the contribution of each factor to students' career planning and to identify the most dominant factor.

Results and Discussion

Data Description

Table 1. Description of Research Data Y , X_1 and X_2

| N | | Attitude | Statistics | | |
|------------------------|--|----------|------------------|--------------------|------------------|
| | | | Subjective Norms | Perception Control | Career Planning |
| Valid | | 156 | 156 | 156 | 156 |
| Missing | | 0 | 0 | 0 | 0 |
| Mean | | 135.74 | 146.54 | 150.11 | 150.88 |
| Std. Error of Mean | | 2.45 | 2.381 | 2.54 | 2.26 |
| Median | | 136.00 | 151.00 | 155.00 | 151.00 |
| Mode | | 148 | 156 | 200 | 160 ^a |
| Std. Deviation | | 30.64 | 29.73 | 31.73 | 28.33 |
| Variance | | 939.04 | 884.262 | 1007.36 | 802.86 |
| Skewness | | -.163 | -.372 | -.277 | -.294 |
| Std. Error of Skewness | | .194 | .194 | .194 | .194 |
| Kurtosis | | -.690 | .199 | -.276 | .746 |
| Std. Error of Kurtosis | | .386 | .386 | .386 | .386 |
| Range | | 129 | 136 | 139 | 160 |
| Minimum | | 56 | 59 | 61 | 40 |
| Maximum | | 185 | 195 | 200 | 200 |
| Sum | | 21175 | 22861 | 23417 | 23538 |

Based on Table 1, the data for these three variables are described as follows.

Career Planning (Y)

Based on the Career Planning variable data, the distribution of scores is spread from a minimum of 40 to a maximum of 200. From 156 respondents ($N = 156$), the average score is 150.88, the median is 151.00, the most frequently occurring score (mode) is 160, the standard deviation is 2.26, and the variance is 802.86. To present the Career Planning data in the form of a frequency distribution and histogram, it is necessary to determine the number of classes and their class intervals as follows:

$$\begin{aligned} \text{Many classes (k)} &= 1 + 3.30 \log N \\ &= 1 + 3.30 \log 156 \\ &= 1 + 3.30 \times 2.19 \\ &= 1 + 7.23 = 8.23 \text{ taken 8} \end{aligned}$$

$$\text{Interval} = \frac{\text{Highest Value} - \text{Lowest Value}}{\text{Many classes}} \quad (1)$$

$$= \frac{200 - 40}{8} = 20$$

The following description presents the research data, which includes Career Planning (Y) as the dependent variable and Attitude (X_1), Subjective Norm (X_2), and Perceived Control (X_3) as the independent variables. This data description is conducted to describe the condition of each variable, including the mean score, median, mode, standard deviation, minimum score, maximum score, and total score (sum). The statistical calculations of the collected data for the three variables can be seen in Table 1.

To clarify the number of interval classes, the calculated interval classes are arranged in a frequency distribution list, as shown in the following tables.

Table 2. Frequency distribution of career planning variable scores (Y)

| Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 40 | 1 | .6 |
| 76 | 1 | .6 |
| 77 | 1 | .6 |
| 97 | 1 | .6 |
| 104 | 1 | .6 |
| 107 | 2 | 1.3 |
| 110 | 1 | .6 |
| 111 | 1 | .6 |
| 117 | 2 | 1.30 |
| 119 | 1 | .6 |
| 120 | 4 | 2.60 |
| 121 | 4 | 2.60 |
| 122 | 2 | 1.30 |
| 123 | 1 | .6 |
| 124 | 1 | .6 |
| 125 | 4 | 2.60 |
| 126 | 2 | 1.30 |
| 127 | 3 | 1.90 |
| 128 | 6 | 3.80 |
| 130 | 3 | 1.90 |

| Interval Class | Frequency | Percentage (%) | Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|----------------|-----------|----------------|
| 131 | 1 | .6 | 172 | 1 | .6 |
| 132 | 2 | 1.30 | 175 | 1 | .6 |
| 133 | 2 | 1.30 | 176 | 1 | .6 |
| 134 | 1 | .6 | 177 | 1 | .6 |
| 135 | 1 | .6 | 179 | 1 | .6 |
| 136 | 4 | 2.60 | 180 | 1 | .6 |
| 137 | 1 | .6 | 181 | 2 | 1.30 |
| 138 | 2 | 1.30 | 182 | 3 | 1.90 |
| 139 | 1 | .6 | 185 | 1 | .6 |
| 140 | 2 | 1.30 | 187 | 1 | .6 |
| 141 | 2 | 1.30 | 188 | 1 | .6 |
| 142 | 1 | .6 | 190 | 2 | 1.30 |
| 143 | 1 | .6 | 191 | 3 | 1.90 |
| 144 | 1 | .6 | 196 | 2 | 1.30 |
| 146 | 1 | .6 | 197 | 1 | .6 |
| 147 | 3 | 1.90 | 199 | 2 | 1.30 |
| 148 | 3 | 1.90 | 200 | 10 | 6.40 |
| 149 | 1 | .6 | Amount | 156 | 100 |
| 150 | 3 | 1.90 | | | |
| 151 | 4 | 2.60 | | | |
| 152 | 3 | 1.90 | | | |
| 153 | 2 | 1.30 | | | |
| 154 | 2 | 1.30 | | | |
| 155 | 3 | 1.90 | | | |
| 156 | 3 | 1.90 | | | |
| 157 | 1 | .6 | | | |
| 158 | 3 | 1.90 | | | |
| 160 | 10 | 6.40 | | | |
| 162 | 1 | .6 | | | |
| 163 | 1 | .6 | | | |
| 164 | 1 | .6 | | | |
| 165 | 5 | 3.20 | | | |
| 166 | 1 | .6 | | | |
| 167 | 2 | 1.30 | | | |
| 168 | 2 | 1.30 | | | |
| 169 | 2 | 1.30 | | | |
| 170 | 1 | .6 | | | |

By paying attention to Table 2, a histogram of Career Planning can be depicted as shown in Figure 1.

Based on Table 2 and the histogram in Figure 1, it can be concluded that the distribution of respondents' scores for the Career Planning variable shows an uneven and widely dispersed trend. The lowest score was 40 and the highest was 200, with a total range of 160. However, the majority of respondents scored in the mid- to high-range, particularly scores of 160 and 200, each achieved by 10 respondents (6.40%). Meanwhile, low scores (below 100) were only achieved by a small number of respondents with a very low frequency, generally only one person (0.60%). This indicates that the majority of students have a fairly good level of career planning, although some individuals scored very low and may require special attention in career development.

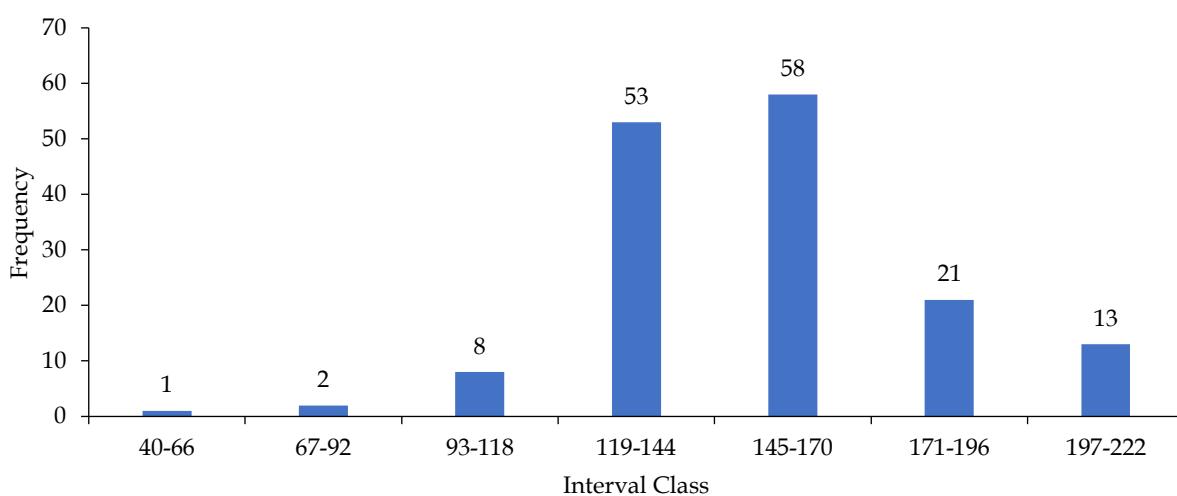


Figure 1. Career planning histogram

Attitude (X1)

Based on the Attitude variable data, the distribution of scores is known to be spread out from a minimum of 56 to a maximum of 185. From 156 respondents ($N = 156$), the mean score is 135.74, the median is 136.00, the most frequently occurring score (mode) is 148, the standard deviation is 30.644, and the variance is 939.047. To present Attitude data in the form of a frequency distribution and histogram, it is necessary to determine the number of classes and their class intervals as follows:

$$\begin{aligned} \text{Number of Classes (k)} &= 1 + 3.30 \log N \\ &= 1 + 3.30 \log 156 \\ &= 1 + 3.30 \times 2.19 \\ &= 1 + 7.23 = 8.23 \text{ taken 8} \end{aligned}$$

$$\begin{aligned} \text{Interval} &= \frac{\text{Highest Value} - \text{Lowest Value}}{\text{Many classes}} \quad (2) \\ &= \frac{185 - 56}{8} \\ &= 16.12 \text{ taken 16} \end{aligned}$$

To clarify the number of interval classes, the calculated interval classes are arranged in a frequency distribution list, as shown in Table 3.

Table 3. Frequency distribution of attitude variable scores (X1)

| Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 56 | 2 | 1.30 |
| 62 | 1 | .6 |
| 74 | 1 | .6 |
| 86 | 1 | .6 |
| 87 | 1 | .6 |
| 90 | 3 | 1.90 |
| 91 | 1 | .6 |
| 93 | 2 | 1.30 |
| 96 | 1 | .6 |
| 97 | 1 | .6 |
| 100 | 1 | .6 |
| 101 | 3 | 1.90 |
| 102 | 3 | 1.90 |
| 103 | 1 | .6 |
| 104 | 3 | 1.90 |
| 105 | 5 | 3.20 |
| 107 | 2 | 1.30 |
| 108 | 3 | 1.90 |
| 109 | 3 | 1.90 |
| 110 | 2 | 1.30 |
| 111 | 4 | 2.60 |
| 112 | 1 | .6 |
| 114 | 2 | 1.30 |
| 115 | 2 | 1.30 |
| 116 | 5 | 3.20 |
| 117 | 1 | .6 |
| 118 | 3 | 1.90 |
| 121 | 2 | 1.30 |

| Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 127 | 1 | .6 |
| 128 | 2 | 1.30 |
| 129 | 5 | 3.20 |
| 130 | 2 | 1.30 |
| 131 | 2 | 1.30 |
| 132 | 2 | 1.30 |
| 133 | 3 | 1.90 |
| 134 | 1 | .6 |
| 138 | 1 | .6 |
| 140 | 1 | .6 |
| 141 | 2 | 1.30 |
| 142 | 1 | .6 |
| 143 | 2 | 1.30 |
| 145 | 1 | .6 |
| 146 | 2 | 1.30 |
| 147 | 2 | 1.30 |
| 148 | 14 | 9 |
| 149 | 1 | .6 |
| 150 | 1 | .6 |
| 152 | 2 | 1.30 |
| 153 | 1 | .6 |
| 154 | 1 | .6 |
| 155 | 1 | .6 |
| 158 | 2 | 1.30 |
| 160 | 1 | .6 |
| 161 | 2 | 1.30 |
| 162 | 2 | 1.30 |
| 163 | 2 | 1.30 |
| 165 | 2 | 1.30 |
| 166 | 5 | 3.20 |
| 167 | 4 | 2.60 |
| 168 | 2 | 1.30 |
| 169 | 1 | .6 |
| 171 | 1 | .6 |
| 175 | 3 | 1.90 |
| 176 | 2 | 1.30 |
| 178 | 1 | .6 |
| 179 | 2 | 1.30 |
| 185 | 13 | 8.30 |
| Amount | 156 | 100 |

By paying attention to Table 3, the Attitude histogram can be depicted as shown in Figure 2.

Based on Table 3, the frequency distribution of scores for the Attitude variable (X1) covers 156 respondents with scores ranging from 56 to 185. Using the Sturges approach, eight interval classes were obtained, each approximately 16 points long. The tabulation results indicate that the majority of respondents had attitude scores in the mid- to high-range. Scores in the 104–119 and 136–151 ranges indicate relatively high frequencies, while the highest peak scores were at 148 and 185, with 14 and 13 respondents, respectively, reflecting a very positive attitude toward the competency being measured. Conversely, in the low-range scores, such as 56 to 87, the number of respondents

was very small, indicating that only a small proportion of students had low attitudes. This pattern is clearly illustrated in Figure 4, where the histogram shows a data distribution that begins to increase from the mid-range class and forms a curve that is close to normal, although

slightly skewed to the right (positively skewed). This indicates that the majority of students have a favorable attitude toward automotive engineering competency, with only a small percentage showing less favorable attitudes.

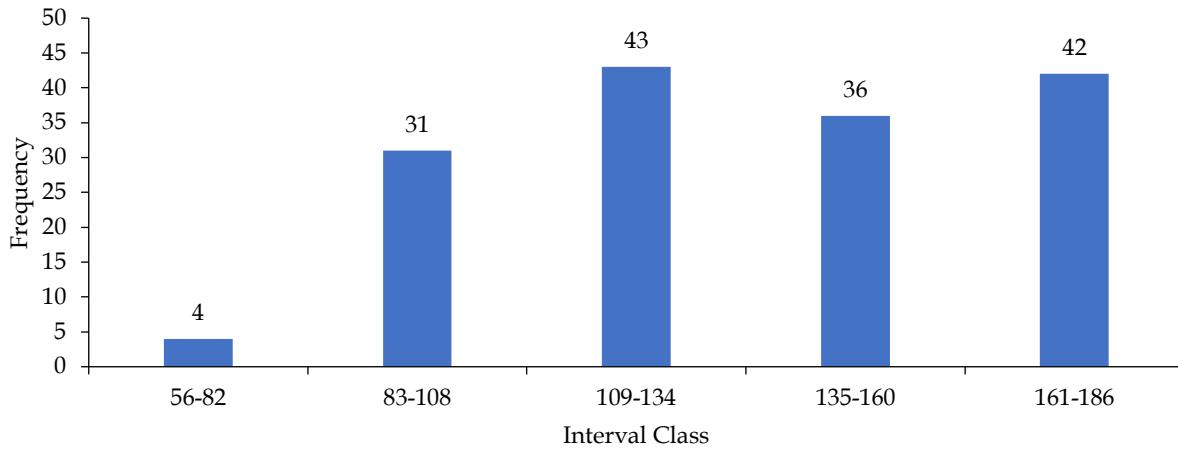


Figure 2. Attitude histogram

Subjective Norm (X2)

Table 4. Frequency distribution of subjective norm variable scores (X2)

| Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 59 | 2 | 1.30 |
| 61 | 1 | .6 |
| 69 | 1 | .6 |
| 96 | 1 | .6 |
| 97 | 3 | 1.90 |
| 100 | 2 | 1.30 |
| 105 | 1 | .6 |
| 107 | 1 | .6 |
| 110 | 1 | .6 |
| 112 | 2 | 1.30 |
| 115 | 4 | 2.60 |
| 116 | 6 | 3.8 |
| 117 | 3 | 1.90 |
| 118 | 1 | .6 |
| 119 | 2 | 1.30 |
| 120 | 5 | 3.20 |
| 124 | 3 | 1.90 |
| 125 | 2 | 1.30 |
| 127 | 2 | 1.30 |
| 128 | 1 | .6 |
| 130 | 2 | 1.30 |
| 132 | 1 | .6 |
| 133 | 2 | 1.3 |
| 134 | 1 | .6 |
| 135 | 2 | 1.30 |
| 136 | 6 | 3.80 |
| 137 | 2 | 1.30 |
| 138 | 1 | .6 |
| 139 | 1 | .6 |
| Amount | | 156 |

| Interval Class | Frequency | Percentage (%) |
|----------------|-----------|----------------|
| 141 | 5 | 3.20 |
| 142 | 1 | .6 |
| 143 | 2 | 1.30 |
| 144 | 1 | .6 |
| 145 | 2 | 1.30 |
| 149 | 2 | 1.30 |
| 150 | 2 | 1.30 |
| 151 | 3 | 1.90 |
| 152 | 4 | 2.60 |
| 153 | 4 | 2.60 |
| 155 | 3 | 1.90 |
| 156 | 16 | 10.30 |
| 157 | 1 | .6 |
| 160 | 1 | .6 |
| 162 | 6 | 3.80 |
| 164 | 2 | 1.30 |
| 165 | 2 | 1.30 |
| 167 | 1 | .6 |
| 170 | 2 | 1.30 |
| 172 | 1 | .6 |
| 173 | 1 | .6 |
| 174 | 4 | 2.60 |
| 176 | 2 | 1.30 |
| 177 | 3 | 1.90 |
| 180 | 3 | 1.90 |
| 185 | 1 | .6 |
| 188 | 1 | .6 |
| 189 | 1 | .6 |
| 190 | 1 | .6 |
| 191 | 1 | .6 |
| 194 | 1 | .6 |
| 195 | 14 | 9 |
| Amount | | 156 |
| | | 100 |

Based on the Subjective Norm variable data, it is known that the distribution of scores spreads from the lowest (minimum) score of 59 and the highest score of 195, from 156 respondents ($N = 156$), the average score (mean) is 146.54, the middle value (median) is 151.00, the score that often appears (mode) is 156, the standard deviation (std deviation) is 29.737, and the variance is 884.262. To present Subjective Norm data in the form of frequency distribution and histogram, it is necessary to determine the number of classes and class intervals as follows:

$$\begin{aligned} \text{Number of Classes (k)} &= 1 + 3.30 \log N \\ &= 1 + 3.30 \log 163 \\ &= 1 + 3.30 \times 2.19 \\ &= 1 + 7.23 = 8.23 \text{ taken 8} \end{aligned}$$

$$\text{Interval} = \frac{\text{Highest Value} - \text{Lowest Value}}{\text{Many classes}} \quad (3)$$

$$= \frac{195 - 59}{8} = 17$$

To clarify the number of calculated interval classes, they are arranged in a frequency distribution table, as shown in Figure 3. By paying attention to Table 4, a histogram of Subjective Norms can be depicted as seen in Figure 3.

Based on Table 4 and the histogram depicted in Figure 3 regarding the frequency distribution of scores for the Subjective Norm variable (X_2), it can be analyzed that the data shows a fairly wide distribution of values, with scores ranging from 59 to 195. The total number of respondents was 156, with frequencies in most interval classes being relatively small (generally only 1-3 respondents). However, there were two main peaks (modes): at a score of 156 with 16 respondents (10.3%), and at a score of 195 with 14 respondents (9.0%). These two points represent the peaks of the distribution and reflect a concentration of respondents with high subjective norm scores.

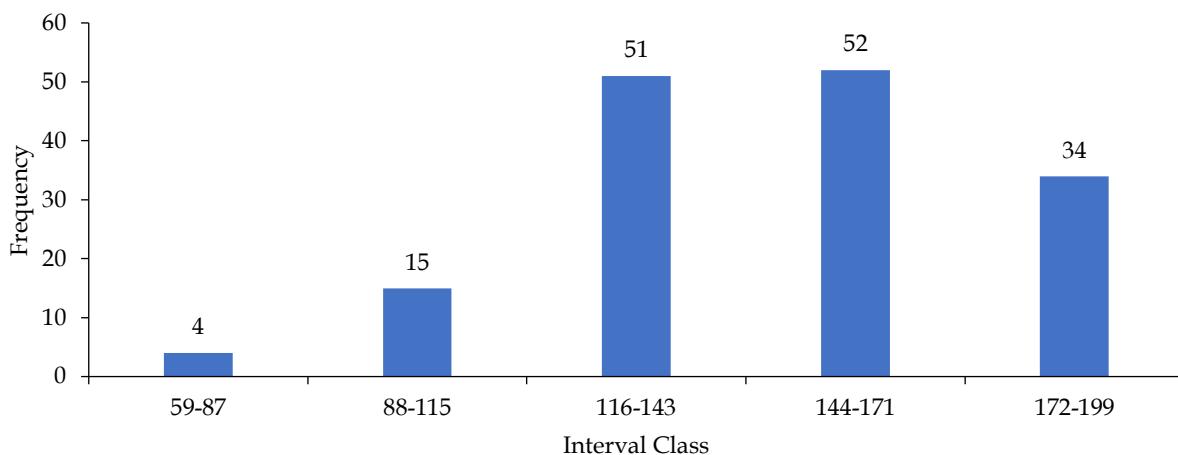


Figure 3. Subjective norm histogram

Discussion

This discussion analyzes the relationship between Attitude (X_1), Subjective Norm (X_2), and Perceived Behavioral Control (X_3) on Career Planning (Y) among students of the Nias Regional Government Private Vocational High School, using the Theory of Planned Behavior (TPB).

Relationship of Attitudes to Career Planning

Students' attitudes toward career planning were very high, indicating a positive view of the importance of planning their future. The average score of 135.74 (out of a maximum of 185) and the achievement level of indicators (feelings of comfort, benefit, enjoyment, and goodness) ranging from 71-75% support this. The relationship between attitudes and career planning was

very strong and significant ($r = 0.807$), indicating that the more positive students' attitudes, the clearer their career plans (Kleine et al., 2021; Tuononen et al., 2024; Wang et al., 2022). However, a small number of students still had low attitudes, requiring further guidance (Häsä et al., 2023; Getie, 2020; Banihashem et al., 2023). These results are consistent with the TPB, where positive evaluations of a behavior encourage its implementation (McLure et al., 2022; Fantozzi et al., 2024; Erol, 2022). Although students' positive attitudes and self-understanding were high, the indicators for decision, control, and adaptation were moderate, indicating a need for increased capacity in career decision-making (Neittaanmäki, 2025).

Relationship of Subjective Norms to Career Planning

Students' subjective norms were high, with an average score of 146.54 (out of a maximum of 195), indicating strong social support from family, teachers, and peers for their career planning. Support from teachers (78.58%) and family/parents (around 76%) had the highest achievement levels. The relationship between subjective norms and career planning was strong and significant, indicating that the greater the social support, the clearer and more structured the students' career plans. This aligns with the TPB, which emphasizes the role of normative beliefs in shaping intentions. A supportive and open environment for career discussions is crucial, especially in collectivist cultures like Nias (Selim & Kee, 2022; Ibrahim et al., 2021; Ukoba et al., 2024).

Relationship of Perceived Behavioral Control to Career Planning

Students' perceived behavioral control was high, with an average score of 150.11 (out of a maximum of 200), indicating students felt capable and in control of making career decisions. The indicators for skills and understanding of career selection requirements achieved over 82%. However, indicators for career testing (67.06%) and perceived control/barriers (70.05%) indicated areas for improvement, such as access to career planning tools. The relationship between perceived behavioral control and career planning was strong and significant, demonstrating that greater self-efficacy promotes more informed career planning. School interventions through self-development programs, soft skills, and assessment-based career guidance can improve students' perceived behavioral control (Gashi et al., 2023; Azhenov et al., 2023).

The Relationship between Attitude, Subjective Norms, and Perceived Behavioral Control Simultaneously and Career Planning

All three variables (attitude, subjective norms, and perceived behavioral control) simultaneously had a highly significant relationship with career planning ($F = 95.488$; $p < 0.001$). The coefficient of determination (R^2) of 0.653 (65.3%) indicates that the combination of these three variables is very strong in explaining variation in students' career planning. Attitude had the most dominant influence, followed by subjective norms, and finally, perceived behavioral control (Hasan & Suciarto, 2020). These three aspects work synergistically to shape intentions and actual behavior in career planning. Consequently, career guidance strategies in schools need to be comprehensive, encompassing motivation, social support, and increasing student self-confidence, relevant to local cultural characteristics (Ergin-Kocaturk et al., 2025; Bender et al., 2019).

Research Limitations

This study has several limitations: Its geographic scope is limited to one school in Nias, limiting generalizability; It focuses only on three components of the SDGs, ignoring other factors such as interest, socioeconomic status, or work experience; The quantitative approach using questionnaires limits the depth of subjective information; Cross-sectional data cannot explain long-term behavioral changes; It does not explicitly explore the influence of local Nias culture; It does not evaluate the effectiveness of specific interventions in improving SDG variables; These limitations open up opportunities for broader, more in-depth follow-up research using a mixed methods approach.

Conclusion

Based on the data analysis, it can be concluded that Attitude (X1), Subjective Norm (X2), and Perceived Behavioral Control (X3) have a significant relationship with Career Planning (Y) of students of Private Vocational High Schools in Nias Regency. These three variables simultaneously make a significant contribution to students' career planning. Partially, each variable also has a positive and significant influence. Subjective Norm (support from parents, teachers, family, and social environment) has the most dominant contribution, indicating the importance of social factors in encouraging students' career planning. This finding is consistent with the Theory of Planned Behavior, which states that psychological and social factors greatly influence individual intentions and behavior. Therefore, students' career planning can be improved with an approach that considers psychological and social aspects comprehensively. This study recommends that schools and related parties strengthen psychological and social-based career guidance programs to help students face the future with more direction.

Acknowledgments

Thank you to all parties who have supported this research. We hope this research proves beneficial.

Author Contributions

Conceptualization, methodology, validation, formal analysis, investigation, resources, data curation, writing—original draft preparation, writing—review and editing, visualization, F.Z., M.G., A., and D.I. All authors have read and approved the published version of the manuscript.

Funding

The researchers funded this research independently.

Conflicts of Interest

The researchers funded this research independently.

References

- Ajawi, R., Dracup, M., Zacharias, N., Bennett, S., & Boud, D. (2020). Persisting Students' Explanations of and Emotional Responses to Academic Failure. *Higher Education Research & Development*, 39(2), 185-199. <https://doi.org/10.1080/07294360.2019.1664999>
- Aldossari, A. S. (2020). Vision 2030 and Reducing the Stigma of Vocational and Technical Training Among Saudi Arabian Students. *Empirical Research in Vocational Education and Training*, 12(1). <https://doi.org/10.1186/s40461-020-00089-6>
- Almeida, F., & Morais, J. (2025). Non-Formal Education as a Response to Social Problems in Developing Countries. *E-Learning and Digital Media*, 22(2), 122-138. <https://doi.org/10.1177/20427530241231843>
- Azhenov, A., Kudysheva, A., Fominykh, N., & Tulekova, G. (2023). Career Decision-Making Readiness Among Students' in the System of Higher Education: Career Course Intervention. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1097993>
- Banishahem, S. K., Noroozi, O., Brok, P. D., Biemans, H. J. A., & Kerman, N. T. (2023). Modeling Teachers' and Students' Attitudes, Emotions, and Perceptions in Blended Education: Towards Post-Pandemic Education. *The International Journal of Management Education*, 21(2), 100803. <https://doi.org/10.1016/j.ijme.2023.100803>
- Bano, N., Yang, S., & Alam, E. (2022). Emerging Challenges in Technical Vocational Education and Training of Pakistan in the Context of CPEC. *Economies*, 10(7), 153. <https://doi.org/10.3390/economies10070153>
- Bender, M., Osch, Y. V., Sleegers, W., & Ye, M. (2019). Social Support Benefits Psychological Adjustment of International Students: Evidence from a Meta-Analysis. *Journal of Cross-Cultural Psychology*, 50(7), 827-847. <https://doi.org/10.1177/0022022119861151>
- Chimhowu, A. O., Hulme, D., & Munro, L. T. (2019). The 'New' National Development Planning and Global Development Goals: Processes and Partnerships. *World Development*, 120, 76-89. <https://doi.org/10.1016/j.worlddev.2019.03.013>
- Ergin-Kocaturk, H., Tekel, E., Su, A., Kocaturk, M., & Karadag, E. (2025). Acculturation Strategies of International Higher Education Students in Türkiye: The Role of Social Support, Cultural Capital, Self-Esteem, General Trust, and General Self-Efficacy. *Current Psychology*, 44(11), 10679-10695. <https://doi.org/10.1007/s12144-025-07919-4>
- Erol, S. Y. (2022). Comparison of Forest Engineering Students' Attitudes Towards Their Education and Future Jobs: Case Results from Turkey. *Sustainability*, 14(1), 530. <https://doi.org/10.3390/su14010530>
- Fantozzi, I. C., Luozzo, S. D., & Schiraldi, M. M. (2024). The Impact of University Challenges on Students' Attitudes and Career Paths in Industrial Engineering: A Comparative Study. *Sustainability*, 16(4), 1600. <https://doi.org/10.3390/su16041600>
- Gashi, L. J., Börxulli, D., Konjufca, J., & Cakolli, L. (2023). Effectiveness of Career Guidance Workshops on the Career Self-Efficacy, Outcome Expectations, and Career Goals of Adolescents: An Intervention Study. *International Journal of Adolescence and Youth*, 28(1). <https://doi.org/10.1080/02673843.2023.2281421>
- Getie, A. S. (2020). Factors Affecting the Attitudes of Students Towards Learning English as a Foreign Language. *Cogent Education*, 7(1). <https://doi.org/10.1080/2331186x.2020.1738184>
- Häsä, J., Westlin, L., & Rämö, J. (2023). Undergraduate Students' Attitudes Towards Mathematical Proving in an Introduction to Proof Course. *Educational Studies in Mathematics*, 114(3), 393-415. <https://doi.org/10.1007/s10649-023-10239-8>
- Hasan, H. N., & Suciarto, S. (2020). The Influence of Attitude, Subjective Norm and Perceived Behavioral Control towards Organic Food Purchase Intention. *Journal of Management and Business Environment (JMBE)*, 1(2), 132. <https://doi.org/10.24167/jmbe.v1i2.2260>
- Ibrahim, R. Z. A. R., Zalam, W. Z. M., Foster, B., Afrizal, T., Johansyah, M. D., Saputra, J., Bakar, A. A., Dagang, M. M., & Ali, S. N. M. (2021). Psychosocial Work Environment and Teachers' Psychological Well-Being: The Moderating Role of Job Control and Social Support. *International Journal of Environmental Research and Public Health*, 18(14), 7308. <https://doi.org/10.3390/ijerph18147308>
- Jatmiko, A. (2023). Competency of Science Vocational Teachers in the Industrial Revolution 4.0 Era. *Jurnal Penelitian Pendidikan IPA*, 9(12), 11592-11602. <https://doi.org/10.29303/jppipa.v9i12.5698>
- Kleine, A.-K., Schmitt, A., & Wisse, B. (2021). Students' Career Exploration: A Meta-Analysis. *Journal of Vocational Behavior*, 131, 103645. <https://doi.org/10.1016/j.jvb.2021.103645>
- Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital Transformation in Business and Management Research: An Overview of the Current Status Quo. *International Journal of Information Management*, 63, 102466. <https://doi.org/10.1016/j.ijinfomgt.2021.102466>

- Lee, Y., Lee, G., Kim, J., & Lee, M. (2021). Equity in Career Development of High School Students in South Korea: The Role of School Career Education. *Education Sciences*, 11(1), 20. <https://doi.org/10.3390/educsci11010020>
- Lokan, J. J., Boss, M. W., & Patsula, P. J. (1982). A Study of Vocational Maturity During Adolescence and Locus of Control. *Journal of Vocational Behavior*, 20(3), 331-342. [https://doi.org/10.1016/0001-8791\(82\)90020-3](https://doi.org/10.1016/0001-8791(82)90020-3)
- McLure, F. I., Koul, R. B., & Fraser, B. J. (2022). University Students' Classroom Emotional Climate and Attitudes During and After COVID-19 Lockdown. *Education Sciences*, 12(1), 31. <https://doi.org/10.3390/educsci12010031>
- Neittaanmäki, N. (2025). Swedish Medical Students' Attitudes Toward Artificial Intelligence and Effects on Career Plans: A Survey. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1517116>
- Nurani, G. A. (2022). Factors Influencing Students' Career Maturity in Vocational and General High School. *IJORER: International Journal of Recent Educational Research*, 3(6), 750-761. <https://doi.org/10.46245/ijorer.v3i6.265>
- O'Regan, C., Brady, B., Connolly, C., Dolan, P., & MacRuairc, G. (2025). Blending the Formal and Nonformal Educational Sectors: Creating a Shared Learning Initiative for Secondary School Teachers and Youth Workers. *Child & Youth Services*, 46(1), 1-24. <https://doi.org/10.1080/0145935x.2023.2236940>
- Pandya, B., Ruhi, U., & Patterson, L. (2023). Preparing the Future Workforce for 2030: The Role of Higher Education Institutions. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1295249>
- Pham, M., Lam, B. Q., & Bui, A. T. N. (2024). Career Exploration and Its Influence on the Relationship between Self-Efficacy and Career Choice: The Moderating Role of Social Support. *Heliyon*, 10(11), e31808. <https://doi.org/10.1016/j.heliyon.2024.e31808>
- Rahmadhani, S., Ahyanuardi, A., & Suryati, L. (2022). Vocational High School Students' Competency Needs to the World of Work. *Mimbar Ilmu*, 27(2), 349-355. <https://doi.org/10.23887/mi.v27i1.42161>
- Saflor, C. S., Marinas, K. A., & Enano, W. (2024). Investigating the Enduring Determinants of Workers' Decision to Stay or Emigrate: An Extended Application of the Theory of Planned Behavior. *Sustainability*, 16(21), 9220. <https://doi.org/10.3390/su16219220>
- Schmidt, A., Danyel, M., Grundmann, K., Brunet, T., Klinkhammer, H., Hsieh, T.-C., Engels, H., Peters, S., Knaus, A., Moosa, S., Averdunk, L., Boschann, F., Sczakiel, H. L., Schwartzmann, S., Mensah, M. A., Pantel, J. T., Holtgrewe, M., Bösch, A., Weiß, C., ... & Wagner, M. (2024). Next-Generation Phenotyping Integrated in a National Framework for Patients with Ultrarare Disorders Improves Genetic Diagnostics and Yields New Molecular Findings. *Nature Genetics*, 56(8), 1644-1653. <https://doi.org/10.1038/s41588-024-01836-1>
- Selim, I., & Kee, D. M. H. (2022). Using Job Demands-Resources Theory to Predict Work-Life Balance Among Academicians in Private Universities in Egypt During the COVID-19 Pandemic. *Information*, 14(1), 12. <https://doi.org/10.3390/info14010012>
- Seo, W., & Lee, C. (2024). Why Do Vocational High School Students Opt for College? *Education Sciences*, 14(5), 534. <https://doi.org/10.3390/educsci14050534>
- Shin, S., Rachmatullah, A., Roshayanti, F., Ha, M., & Lee, J.-K. (2018). Career Motivation of Secondary Students in STEM: A Cross-Cultural Study between Korea and Indonesia. *International Journal for Educational and Vocational Guidance*, 18(2), 203-231. <https://doi.org/10.1007/s10775-017-9355-0>
- Souto-Otero, M. (2021). Validation of Non - Formal and Informal Learning in Formal Education: Covert and Overt. *European Journal of Education*, 56(3), 365-379. <https://doi.org/10.1111/ejed.12464>
- Tuononen, T., Räisänen, M., & Hytytin, H. (2024). Students' Work Experience in Relation to Their Career Engagement and Metacognitive Awareness. *Higher Education Research & Development*, 43(6), 1399-1415. <https://doi.org/10.1080/07294360.2024.2332251>
- Ukoba, K., Yoro, K. O., Eterigho-Ikelegbe, O., Ibegbulam, C., & Jen, T.-C. (2024). Adaptation of Solar Energy in the Global South: Prospects, Challenges and Opportunities. *Heliyon*, 10(7), e28009. <https://doi.org/10.1016/j.heliyon.2024.e28009>
- Wang, K., Li, L., Li, J. (J.), Chen, H., He, B., & Li, L. (2022). An Exploration of Students' Attitudes Toward Employment Services in Private Schools: The Case of the Sanya Institute of Technology. *Sage Open*, 12(3). <https://doi.org/10.1177/21582440221109590>
- Widyastuti, L. Y. (2024). Accessibility Support in Choice of College Major and Career for High School Students During Covid 19. *Jendela Akademika*, 2(01), 17-25. <https://doi.org/10.21009/jendelaakademika.201.03>
- Wu, S.-W., & Chiang, P.-Y. (2023). Exploring the Mediating Effects of the Theory of Planned Behavior on the Relationships between Environmental Awareness, Green Advocacy, and

Green Self-Efficacy on the Green Word-of-Mouth Intention. *Sustainability*, 15(16), 12127. <https://doi.org/10.3390/su151612127>