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The Contribution of Self-Efficacy and Family Support to Career Perceptions among Vocational Students in Computer and Network Engineering

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Abstract: Career decision-making during high school is a critical developmental stage in which students begin to define their future professional trajectories. However, many students—particularly by Grade XII—still struggle with identifying a clear career direction. This study investigates the contribution of two key psychological and social factors: self-efficacy and family support, in shaping students' career perceptions. A mixed-methods approach was employed, combining quantitative analysis of 66 students in the Computer and Network Engineering department at SMKN 1 Bukit Tinggi with qualitative data from in-depth interviews. The quantitative findings revealed that self-efficacy and family support significantly influence career perception, contributing a combined variance of 59.2%, with self-efficacy contributing 52.27% and family support 19.44%. Qualitative results corroborated these findings, showing that students with high self-confidence and strong parental involvement demonstrated greater clarity in their career planning. These results highlight the importance of fostering both internal motivation and supportive external environments in preparing students for career decision-making. The study provides empirical evidence for the integration of psychological empowerment and family-based interventions within vocational education frameworks.

Keywords: Self-Efficacy; Family Support; Career Perception; Vocational Education; Mixed-Methods.

1. Introduction

Education plays a pivotal role in shaping the future of individuals and societies, particularly among adolescents in upper secondary education [1]–[3]. In Indonesia, education is regarded as a foundational pillar that supports the development of cognitive, emotional, and social competencies essential for future success [4]–[6]. Vocational high schools serve as formal institutions that not only provide academic instruction but also equip students with practical skills aligned with specific career paths [7], [8]. At this stage, students begin to

form critical perceptions of their future careers, influenced by various personal and environmental factors.

The twelfth grade in vocational schools marks a transitional period commonly associated with Super's "Exploration Stage" of career development, typically occurring between the ages of 15 and 24 [9], [10]. During this stage, students are expected to explore interests, assess personal strengths, and make tentative career choices. For students in Computer and Network Engineering programs, this exploration is particularly crucial due to the rapid evolution of the digital and technological industries, which demand clear career orientation and preparation.

Career perception—defined as how individuals interpret, evaluate, and plan their professional trajectories—does not develop in isolation [11]. Research shows that both internal and external factors play significant roles in shaping students' career perspectives [12]–[14]. Among the internal factors, self-efficacy—an individual's belief in their capacity to perform tasks and achieve goals—has been found to be a key predictor of career aspirations, decision-making, and persistence in the face of challenges [15], [16]. Students with high self-efficacy tend to exhibit greater confidence, initiative, and resilience in navigating academic and vocational tasks.

On the other hand, family support represents a vital external factor influencing career development, especially in collectivist cultures such as Indonesia, where family expectations and involvement are deeply embedded in educational and career decisions. Emotional encouragement, informational guidance, and instrumental support from family members can enhance students' motivation, confidence, and readiness to pursue specific career paths. Conversely, a lack of family support may hinder career clarity and increase uncertainty among adolescents.

Despite the recognized importance of these factors, limited empirical research has explored the combined influence of self-efficacy and family support on students' career perceptions within the vocational school context in Indonesia. Addressing this gap, the present study investigates the contribution of self-efficacy and family support to the career perception of twelfth-grade students majoring in Computer and Network Engineering at SMKN 1 Bukittinggi. By understanding the psychological and social determinants of career development, this study aims to inform educators, policymakers, and parents about effective strategies to support students in their transition from school to work or higher education.

2. Material and methods

2.1 Research Design

This study employed a descriptive correlational research design using a mixed-methods approach, combining both quantitative and qualitative methodologies. The mixed-methods approach is particularly suitable for investigating complex human behaviors, such as career perception, by integrating statistical measurements with in-depth contextual data [17], [18]. In this research, the quantitative component was used to examine the relationship between self-efficacy, family support, and career perception among students, while the qualitative component provided deeper insights into the underlying psychological and social dynamics that influence those perceptions. By integrating these two approaches, the study ensured greater analytical depth and allowed for triangulation, thereby increasing the validity of the findings [19], [20].

2.2 Research Setting and Participants

The research was conducted at SMKN 1 Bukittinggi, a state vocational high school located in West Sumatra, Indonesia. The school was selected based on its relevance to the research topic, particularly its focus on technical and vocational education aligned with Information and Communication Technology (ICT). The target population of this study consisted of all Grade XII students enrolled in the Computer and Network Engineering program, with a total of 66 students. Given the manageable size of the population, a total population sampling technique was employed, ensuring that every student within the defined criteria was involved in the data collection process. The selection of final-year students was based on their proximity to graduation, which makes them more likely to engage in career decision-making and planning [19], [21], [22].

2.3 Data Collection Techniques

To collect data, this study utilized two primary instruments: a structured questionnaire and semi-structured interviews. The questionnaire was developed to measure the constructs of self-efficacy, family support, and career perception, and it was distributed online via Google Forms to ensure accessibility and efficiency. Each item on the questionnaire used a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire items were adapted from previously validated instruments and revised based on expert feedback to ensure content validity and clarity of language [23].

In addition to the survey, semi-structured interviews were conducted with a purposively selected sample of students to obtain qualitative data. The interviews aimed to explore students' perspectives in more depth, particularly in relation to how they understand their own capabilities, how family influences

their career thinking, and how they perceive future opportunities and barriers. The interview guide was constructed based on the same theoretical framework used for the questionnaire, allowing for alignment between the qualitative and quantitative data [24].

2.4 Operationalization of Variables

Each variable in this study was defined and operationalized based on theoretical and empirical foundations. Self-efficacy was defined as a student's belief in their ability to organize and execute the actions required to attain designated career goals. The operational indicators included perceived academic competence, confidence in problem-solving, and persistence in the face of difficulty [25]. Family support referred to the emotional, instrumental, and informational resources provided by family members, particularly parents, to help students navigate educational and career pathways. Its indicators included encouragement, provision of learning facilities, and communication regarding future goals [26]. Career perception was operationalized as the way students interpret, evaluate, and plan their career futures, including aspects of interest alignment, confidence in career planning, and awareness of career opportunities and constraints [27].

All constructs were translated into measurable indicators through questionnaire items. To ensure internal consistency, Cronbach's Alpha was calculated for each scale. Reliability coefficients above 0.70 were considered acceptable, in accordance with psychometric standards [28].

2.5 Data Analysis Procedures

Quantitative data obtained from the online questionnaire were analyzed using descriptive statistics and Pearson's product-moment correlation analysis, conducted with the assistance of SPSS software (Version 26.0). Descriptive statistics were used to summarize the central tendencies and variability of each variable, while the correlation analysis was used to examine the strength and direction of relationships between self-efficacy, family support, and career perception. Prior to conducting the correlation analysis, assumption testing was carried out to ensure normality, linearity, and the absence of multicollinearity.

The qualitative data from interviews were analyzed using thematic analysis, which involved transcription, initial coding, identification of patterns, and categorization into overarching themes. Thematic analysis was conducted manually to ensure immersion in the data, and the process was guided by the themes reflected in the research framework, such as belief in personal ability, perceived parental support, and future career clarity.

Triangulation between the quantitative and qualitative data provided a more robust interpretation of the findings, where qualitative insights were used to

explain or contextualize the statistical results. This multi-source strategy not only improved internal validity but also addressed potential biases inherent in single-method studies.

3. Results and discussion

3.1 Instrument Validity Test Results

The validity of the research instruments was evaluated using the Pearson Product-Moment correlation technique. This approach is commonly employed to assess the degree of correlation between each item and the total score, thereby determining whether individual items accurately measure the intended construct. Data analysis was performed using Microsoft Excel 2016. The critical threshold for item validity was determined by comparing the calculated correlation coefficient (r-count) with the critical value (r-table) at a 5% significance level. For a sample size of 20 respondents, the r-table value was 0.444. Items with r-count values equal to or greater than 0.444 were categorized as valid, while items with lower values were considered invalid.

Table 1. Validity Test Results for the Self-Efficacy Instrument

Item	r Calculated	Status	Item	r Calculated	Status
1	0.499	Valid	16	0.417	Invalid
2	0.335	Invalid	17	0.628	Valid
3	0.486	Valid	18	0.395	Invalid
4	0.579	Valid	19	0.588	Valid
5	0.246	Invalid	20	0.187	Invalid
6	0.353	Invalid	21	0.549	Valid
7	0.358	Invalid	22	0.408	Invalid
8	0.201	Invalid	23	0.547	Valid
9	0.449	Valid	24	0.551	Valid
10	0.323	Invalid	25	0.197	Invalid
11	0.466	Valid	26	0.363	Invalid
12	0.702	Valid	27	0.479	Valid
13	0.633	Valid	28	0.162	Invalid
14	0.046	Invalid	29	0.581	Valid
15	0.341	Invalid	30	0.038	Invalid

In the self-efficacy instrument, an example calculation for item 1 yielded an r-count of 0.499, which exceeds the r-table value of 0.444, indicating that the item is valid. The full results, as presented in Table 1, show that out of 30 items, 14 were identified as valid and 16 as invalid. This implies that a substantial portion of the items did not meet the validity criterion and may require revision to enhance the instrument's effectiveness in measuring self-efficacy.

Table 2. Validity Test Results for the Family Support Instrument

Item	r Calculated	Status	Item	r Calculated	Status
1	0.584	Valid	16	0.617	Valid
2	0.589	Valid	17	0.759	Valid
3	0.757	Valid	18	0.485	Valid
4	0.520	Valid	19	0.714	Valid
5	0.390	Invalid	20	0.042	Invalid
6	0.661	Valid	21	0.676	Valid
7	0.567	Valid	22	0.462	Valid
8	0.597	Valid	23	0.469	Valid
9	0.569	Valid	24	0.599	Valid
10	0.563	Valid	25	0.068	Valid
11	0.556	Valid	26	0.690	Invalid
12	0.427	Invalid	27	0.615	Valid
13	0.500	Valid	28	0.448	Valid
14	0.591	Valid	29	0.273	Invalid
15	0.241	Invalid	30	0.200	Invalid

A similar validation procedure was applied to the family support instrument. For instance, item 1 had an r-count value of 0.584, which is higher than the r-table threshold of 0.444, making it valid. The complete results reveal that 23 of the 30 items were valid, while the remaining 7 items were invalid. This result, summarized in Table 2, indicates a strong validity profile for the family support instrument, as most of its items effectively measured the intended construct.

Table 3. Validity Test Results for the Career Perception Instrument

Item	r Calculated	Status	Item	r Calculated	Status
1	0.566	Valid	16	0.604	Valid
2	0.254	Invalid	17	0.701	Valid
3	0.802	Valid	18	0.388	Invalid
4	0.715	Valid	19	0.546	Valid
5	0.692	Valid	20	0.573	Valid
6	0.040	Invalid	21	0.658	Valid
7	0.514	Valid	22	0.737	Valid
8	0.539	Valid	23	0.576	Valid
9	0.554	Valid	24	0.237	Invalid
10	0.606	Valid	25	0.629	Valid
11	0.444	Invalid	26	0.623	Valid
12	0.065	Invalid	27	0.464	Valid
13	0.613	Valid	28	0.237	Invalid
14	0.659	Valid	29	0.655	Valid
15	0.503	Valid	30	0.137	Invalid

The career perception instrument also underwent the same validation analysis. In this instrument, 22 items met the validity criteria, while 8 items did not. These findings, shown in Table 3, suggest that the majority of the items were valid and that the instrument overall has a satisfactory level of construct validity, although some items may need to be refined for better measurement accuracy.

These validity test results across all three instruments—self-efficacy, family support, and career perception—demonstrate that the majority of items are effective measures of their respective constructs. However, continued refinement is recommended for the items identified as invalid to ensure optimal instrument performance.

3.2 Instrument Reliability Test Results

The reliability of the instruments was tested using Cronbach's Alpha, which measures internal consistency. Calculations were carried out in Microsoft Excel 2016. The reliability coefficients obtained were as follows: self-efficacy instrument yielded an r11 value of 1.013, family support instrument had an r11 of 0.983, and the career perception instrument produced an r11 value of 0.985. These values exceed the generally accepted minimum Cronbach's Alpha threshold of 0.70, indicating that all instruments have strong internal consistency.

These results confirm that each instrument is highly reliable for measuring its respective construct. The high reliability coefficients suggest that the items within each instrument consistently reflect the underlying variable they are intended to measure. Therefore, the instruments are deemed suitable for further statistical analysis and interpretation in the context of this study.

3.3 Descriptive Analysis of Research Data

The descriptive analysis of research data was conducted to provide an overview of the distribution and central tendencies of each research variable. Three key variables were analyzed: self-efficacy (X1), family support (X2), and career perception (Y). The analysis was performed using SPSS Version 25, and the results are summarized in Tables 4, 5, and 6.

Table 4. Descriptive Statistics of Self-Efficacy (X1)

N	Valid	66
	Missing	0
Mean		52.50
Median		54.00
Mode		55
Std. Deviation		8.753
Variance		76.623
Range		55
Minimum		14
Maximum		69
Sum		3465

For the self-efficacy variable (X1), the analysis involved 66 respondents. The statistical results show a mean value of 52.50, indicating the average self-efficacy score among participants. The median was 54.00, and the mode was 55, suggesting a slight concentration of responses around the mid-point. The standard deviation was 8.753, reflecting a moderate level of variation in responses, while the variance was 76.623. The range of scores spanned 55 points, with the minimum score being 14 and the maximum score 69. The total accumulated score for all respondents was 3,465. These findings indicate that most respondents reported moderate to high levels of self-efficacy.

Table 5. Descriptive Statistics of Family Support (X2)

N	Valid	66
	Missing	0
Mean		93.33
Median		97.00
Mode		97
Std. Deviation		15.694
Variance		246.287
Range		77
Minimum		38
Maximum		115
Sum		6160

Regarding the family support variable (X2), also assessed with 66 respondents, the mean score was 93.33, while the median and mode were both 97.00, implying that the central and most frequent values were closely aligned. The standard deviation was 15.694, and the variance was 246.287, indicating relatively higher variability in perceived family support. The observed range was 77, with scores ranging from a minimum of 38 to a maximum of 115. The cumulative score for this variable totaled 6,160. This suggests that the majority of respondents perceived moderate to strong support from their families.

Table 6. Descriptive Statistics of Career Perception (Y)

N	Valid	66
	Missing	0
Mean		87.68
Median		89.50
Mode		90
Std. Deviation		10.393
Variance		108.005
Range		48
Minimum		59
Maximum		107
Sum		5787

For the career perception variable (Y), based on responses from 66 participants, the mean value was 87.68, with a median of 89.50 and a mode of 90, demonstrating high central tendency measures. The standard deviation was 10.393, and the variance was 108.005, reflecting a moderate dispersion in the data. The range was 48, with the lowest score recorded at 59 and the highest at 107. The total score accumulated across all respondents was 5,787. These results indicate that students generally had a favorable perception of their career prospects.

The descriptive statistics of all three variables highlight a consistent pattern of moderate to high responses, with acceptable levels of dispersion, suggesting that the constructs measured are well-represented in the data set and suitable for subsequent inferential analysis.

3.4 Analytical Test Results

The analytical phase of this study involved a series of statistical tests to evaluate the assumptions and relationships among the research variables, namely self-efficacy (X1), family support (X2), and career perception (Y). These tests include normality, homogeneity, linearity, multicollinearity, and hypothesis testing. All analyses were conducted using SPSS Version 25.

Table 7. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		66
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	7.18456986
Most Extreme Differences	Absolute	.081
	Positive	.055
	Negative	-.081
Test Statistic		.081
Asymp. Sig. (2-tailed)		.200[c,d]

The normality test aimed to determine whether the data distributions for each variable conformed to a normal distribution, which is a prerequisite for many parametric analyses. As shown in Table 7, the significance values for the self-efficacy, family support, and career perception variables were each 0.200. Since these values exceed the 0.05 significance threshold, the data distributions for all three variables can be considered normal, thus fulfilling the assumption of normality.

Next, the homogeneity test assessed the equality of variances between the groups. The results indicated an F-value of 1.792, which is below the critical F-table value of 1.51 at a 0.05 significance level. Therefore, it can be concluded that

the assumption of homogeneity of variance is satisfied, as the variances of the groups are not significantly different.

Table 8. Linearity Test: Self-Efficacy and Career Perception

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Persepsi Karir * Self Efficacy	Between Groups	(Combined)	5843.818	29	201.511	6.166	.000
		Linearity	3665.145	1	3665.145	112.151	.000
		Deviation from Linearity	2178.673	28	77.810	2.381	.007
	Within Groups		1176.500	36	32.681		
	Total		7020.318	65			

Table 9. Linearity Test: Family Support and Career Perception

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Persepsi Karir * Dukungan Keluarga	Between Groups	(Combined)	4134.702	37	111.749	1.084	.417
		Linearity	1367.574	1	1367.574	13.270	.001
		Deviation from Linearity	2767.127	36	76.865	.746	.798
	Within Groups		2885.617	28	103.058		
	Total		7020.318	65			

Linearity tests were conducted to verify whether the relationships between the independent variables and the dependent variable were linear. As presented in Tables 8 and 9, the significance values for the relationship between self-efficacy and career perception and between family support and career perception were 0.000 and 0.001, respectively. Both values are less than 0.05, indicating that linear relationships exist between the independent variables and the dependent variable.

Table 10. Multicollinearity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	30.132	6.355		4.742	.000		
	Self Efficacy	.774	.099	.652	7.830	.000	.934	1.071
	Dukungan Keluarga	.181	.055	.273	3.283	.002	.934	1.071

a. Dependent Variable: Persepsi Karir

To assess the presence of multicollinearity, which refers to high correlations among independent variables that could distort regression estimates, the Variance Inflation Factor (VIF) values were examined. The VIF values for both self-efficacy and family support were 1.071, which is well below the commonly accepted threshold of 10. This indicates that there are no multicollinearity issues in the regression model.

3.5 Hypothesis Testing

The hypothesis testing stage included an F-test, regression coefficient analysis, and partial correlation tests. The F-test was conducted to determine whether the independent variables collectively influence the dependent variable.

Table 11. F-Test Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4155.318	2	2077.659	45.687	.000[b]
	Residual	2865.000	63	45.476		
	Total	7020.318	65			

a. Dependent Variable: Persepsi Karir

b. Predictors: (Constant), Dukungan Keluarga, Self Efficacy

Table 11 shows that the calculated F-value was 45.687, which exceeds the F-table value of 1.51. Additionally, the significance level was 0.000, which is less than 0.05. Therefore, it can be concluded that both self-efficacy and family support jointly have a significant effect on career perception.

Table 12. Regression Coefficient Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.592	.579	6.744

a. Predictors: (Constant), Dukungan Keluarga, Self Efficacy

The coefficient of determination (R-squared) was also calculated to assess the proportion of variance in career perception explained by the independent variables. As shown in Table 12, the R-squared value was 0.592, indicating that 59.2% of the variation in career perception can be attributed to self-efficacy and family support.

Table 13. Partial Correlation Results

Correlations

		Self Efficacy	Dukungan Keluarga	Persepsi Karir
Self Efficacy	Pearson Correlation	1	.257*	.723**
	Sig. (2-tailed)		.037	.000
	N	66	66	66
Dukungan Keluarga	Pearson Correlation	.257*	1	.441**
	Sig. (2-tailed)	.037		.000
	N	66	66	66
Persepsi Karir	Pearson Correlation	.723**	.441**	1
	Sig. (2-tailed)	.000	.000	
	N	66	66	66

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Partial correlation analysis was used to examine the individual contributions of each independent variable. For self-efficacy, the calculated t-value was 7.830 with a significance level of 0.000. Since this exceeds the t-table value of 1.699 and the p-value is less than 0.05, the null hypothesis is rejected, and it can be concluded that self-efficacy significantly influences career perception.

For family support, the correlation coefficient (r) was 0.441. The contribution of family support to career perception was calculated by squaring the correlation coefficient and converting it into a percentage: (0.441)^2 × 100% = 19.44%. This indicates that although the contribution of family support is lower than that of self-efficacy, it remains a significant predictor of career perception.

3.6 Interview Findings

In addition to the quantitative data analysis, qualitative insights were gathered through structured interviews conducted on July 17, 2024, with ten Grade XII students majoring in Computer and Network Engineering at SMKN 1 Bukit Tinggi. The results of these interviews provided a deeper understanding of the students' career aspirations and decision-making processes.

The majority of the respondents expressed a preference for pursuing higher education as their primary career trajectory. These students indicated that continuing their studies at the tertiary level would provide them with valuable knowledge and experience, which they believed would enhance their employability and long-term career prospects. This inclination toward academic advancement reflects a strong internal drive to develop competencies before entering the workforce. Conversely, a smaller group of students conveyed an immediate interest in entering the job market after graduation. These individuals emphasized the importance of gaining hands-on experience and leveraging their existing skills directly in professional settings. Their motivation to work immediately stemmed from a belief that practical engagement in the industry would better align with their personal strengths and career goals.

When triangulated with the quantitative findings, the interview responses corroborate the statistical evidence showing that self-efficacy and family support are significant predictors of career perception among students. Specifically, the combined contribution of these two variables to career perception was 59.2%, suggesting that together they account for nearly 60% of the variance in students' career perceptions. A closer examination of the individual contributions revealed that self-efficacy had the highest impact, accounting for 52.27% of the variance. This highlights the critical role of students' confidence in their abilities when shaping their career visions and strategies. The higher the self-efficacy, the more likely students were to actively pursue their goals and make informed decisions regarding their future.

Meanwhile, family support contributed 19.44% to students' career perception. Although this percentage is comparatively lower than that of self-efficacy, it still signifies a meaningful influence. Parental encouragement, guidance, and approval were repeatedly cited by interviewees as sources of motivation and reassurance, reinforcing the importance of familial roles in career planning processes. Together, these qualitative and quantitative findings underscore the intertwined effects of personal belief and social support in influencing vocational trajectories among vocational school students.

3.7 Discussion

The results of this study demonstrate a significant relationship between students' self-efficacy, family support, and their perceptions of career trajectories. The findings are based on a comprehensive analysis incorporating both quantitative data—validated through rigorous statistical methods—and qualitative insights from structured interviews.

Instrument validity and reliability were confirmed through appropriate statistical analyses. The validity test for each construct showed that a substantial number of questionnaire items met the acceptance criteria, with 14 out of 30 items for self-efficacy, 23 out of 30 items for family support, and 22 out of 30 items for career perception being classified as valid. The instrument reliability, indicated by reliability coefficients (r11) exceeding the standard Cronbach's alpha threshold (>0.70), confirmed the internal consistency of all three constructs [29].

Descriptive statistics revealed that the average self-efficacy score among students was moderately high, with a mean of 52.50 and standard deviation of 8.753. Family support had a higher average score, with a mean of 93.33 and standard deviation of 15.694, indicating stronger perceived support from families. Meanwhile, students' career perception also showed a high mean of 87.68 with a standard deviation of 10.393. These results suggest that students generally have positive perceptions about their career prospects and are supported by their internal and external environments.

Assumption tests confirmed the appropriateness of the data for regression analysis. Normality was established for all variables, as the significance levels were greater than 0.05. Homogeneity of variances was confirmed with F-count (1.792) being less than F-table (1.51) [30], and linearity was established for both independent variables with respect to the dependent variable with significance values below 0.05. Furthermore, multicollinearity was not detected, as all VIF values were below 10 [31].

The multiple linear regression model yielded a coefficient of determination (R^2) of 0.592, indicating that 59.2% of the variance in students' career perceptions can be explained jointly by self-efficacy and family support [6]. Partial correlation

analysis demonstrated that self-efficacy independently contributed 52.27%, while family support contributed 19.44% to career perception. These findings underscore the dominant role of self-efficacy in students' career orientation. Students with higher levels of self-efficacy tend to be more confident in their decisions, set more ambitious goals, and persist longer in the face of challenges, leading to stronger career orientation [32].

Qualitative data collected through interviews reinforced the quantitative findings. The majority of students interviewed expressed a preference for continuing to higher education, citing the desire for broader knowledge and better job prospects. Others preferred entering the workforce immediately to gain practical experience. These perspectives align with the statistical data showing that internal factors (self-efficacy) and external factors (family support) play crucial roles in shaping students' career intentions.

The high contribution of self-efficacy suggests the importance of educational strategies that foster students' belief in their capabilities. Programs that emphasize mastery experiences, goal setting, and self-regulation are likely to strengthen students' self-efficacy. Meanwhile, the substantial role of family support highlights the need to involve parents in career guidance programs and improve family-school communication channels to ensure students receive coherent and supportive advice.

In conclusion, the results validate the integrated influence of psychological and social factors on vocational students' career perceptions. This integrated approach provides valuable insights for educators, counselors, and policymakers aiming to develop effective interventions to support career development among vocational students.

4. Conclusion

This study examined the influence of self-efficacy and family support on students' career perception among vocational high school students majoring in Computer and Network Engineering. The quantitative analysis revealed that both variables significantly contributed to shaping students' career perceptions, with a combined contribution of 59.2%. Notably, self-efficacy emerged as the most dominant factor, accounting for 52.27% of the variance, indicating that students with a strong belief in their capabilities tend to have clearer and more positive career orientations. Family support also played a substantial role, contributing 19.44%, highlighting the importance of parental involvement in students' decision-making processes.

Qualitative findings from interviews corroborated the quantitative results, emphasizing that students who perceive themselves as competent are more likely to pursue higher education or confidently enter the workforce.

Meanwhile, those who received emotional and motivational support from their families were more decisive in mapping out their career pathways.

These findings underscore the need for educational institutions and policymakers to design interventions that not only enhance students' academic and technical competencies but also foster psychological readiness and provide family-inclusive career guidance. Strengthening students' self-efficacy and engaging families in career development efforts may ultimately improve the alignment between students' aspirations and labor market demands.

Author's declaration

Author contribution

Rini Afriany contributed to the conceptualization, methodology, formal analysis, and preparation of the original draft. **Lativa Mursyida** was responsible for data curation, investigation, visualization, and participated in the review and editing process. **Efrizon** supervised the research, ensured validation, managed the project, and contributed to reviewing and editing the manuscript. **Mahesi Agni Zaus** handled software development, provided research resources, conducted statistical analysis, and participated in manuscript review and editing. All authors have read and approved the final version of the manuscript.

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Competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

Ethical clearance

This study was conducted in accordance with ethical research principles. Prior to data collection, informed consent was obtained from all participants. All data were anonymized to ensure participant confidentiality and privacy.

AI statement

No generative AI tools were used in the writing, analysis, or interpretation of this manuscript. All content was produced by the authors based on original research and critical review. English is checked using Grammarly and has been verified by the authors.

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