Effects of self-regulation and family environment on students' learning discipline

Fiona Widya Rahman*

Office Administration Education, Sebelas Maret University, Surakarta, Indonesia

Email: fiona.widyarahman22@student.uns.ac.id

Abstrak

Penelitian ini bertujuan untuk mengkaji pengaruh regulasi diri dan lingkungan keluarga terhadap kedisiplinan belajar siswa kelas X MPLB SMK Negeri 6 Surakarta baik secara simultan maupun parsial. Pendekatan yang digunakan adalah kuantitatif kausalitas dengan metode ex post facto. Populasi penelitian berjumlah 108 siswa, dan yang dijadikan sampel adalah 86 siswa. Data dikumpulkan melalui angket skala Likert yang telah teruji validitas dan reliabilitas, dan dianalisis menggunakan regresi linier berganda dengan perangkat lunak IBM SPSS Statistics 27. Hasil analisis menunjukkan: (1) regulasi diri berpengaruh positif dan signifikan terhadap kedisiplinan belajar, dengan t-hitung = 5.77 > t-tabel = 1.98 dan p = 0.001 < 0.05; (2) lingkungan keluarga tidak berpengaruh signifikan terhadap kedisiplinan belajar, $dengan\ t$ -hitung = 1,07 < t-tabel = 1,98 $dan\ p$ = 0,31 < 0,05; $dan\ (3)$ secara simultan regulasi diri dan lingkungan keluarga berpengaruh positif dan signifikan, dengan Fhitung = 19,19 > F-tabel = 3,11 dan p = 0,001 < 0,05. Persamaan regresi yang dihasilkan adalah $\hat{Y} = 19,79 + 0,44 X_1 + 0,04 X_2$, dengan koefisien determinasi (R²) sebesar 0,312, yang berarti kedua variabel independen bersama-sama menjelaskan 31,2% varians kedisiplinan belajar siswa.

Kata kunci: kuantitatif; regresi berganda; sekolah menengah kejuruan

Abstract

This study aimed to examine the influence of self-regulation and family environment on learning discipline among Grade X Office Administration and Business Services (OABS) students at SMK Negeri 6 Surakarta, both simultaneously and individually. Methods: A quantitative causal approach with ex post facto design was employed. The population comprised 108 students, with 86 selected as the sample using simple random sampling. Data were collected through validated and reliable Likert-scale questionnaires and analyzed using multiple linear regression with IBM SPSS Statistics 27. Results: The analysis revealed that: (1) self-regulation demonstrated a positive and significant effect on learning discipline (t = 5.77 > t-table = 1.98, p = 0.001 < 0.05); (2) family environment showed no significant effect on learning discipline (t = 1.07 < t-table = 1.98, p = 0.31 > 0.05); and (3) simultaneously, self-regulation and family

^{*} Corresponding author

environment exhibited a positive and significant influence (F = 19.19 > F-table = 3.11, p = 0.001 < 0.05). Conclusion: The regression equation Y = $19.79 + 0.44X_1 + 0.04X_2$ was derived, with a coefficient of determination (R²) of 0.312, indicating that both independent variables together explained 31.2% of the variance in students' learning discipline. Self-regulation emerged as the primary predictor of learning discipline in vocational education settings.

Keywords: multiple regression; quantitative approach; vocational high school

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Introduction

Education represents a fundamental pillar in developing quality human resources. At the secondary education level, student learning discipline emerges as a crucial factor influencing academic success. According to Wahab et al. (2021), learning discipline constitutes a key factor in student academic achievement. Heryanti et al. (2022) defined learning discipline as student behavior in maintaining order, regularity, and responsibility toward their learning processes. According to Ismail et al. (2023), students with learning discipline tend to be more capable of managing time, completing assignments punctually, and demonstrating superior academic performance. Discipline involves adherence to study schedules, timely task completion, and active classroom participation. In educational settings, this discipline serves as an essential prerequisite for achieving learning objectives. Disciplined students tend toward greater success because they can optimize study time, understand instructions, and demonstrate responsible attitudes (Khoeriyah, 2022). According to Saumadhani and Surjanti (2021), learning discipline plays an important role in facilitating educational processes. Discipline is determined not only by school environment but also by internal and external factors involving students, such as self-regulation and family environment. Therefore, understanding the interaction between these factors regarding student learning discipline becomes crucial.

Self-regulation represents an individual's ability to control behavior, thoughts, and emotions to achieve learning objectives. In educational contexts, self-regulation involves planning, monitoring, and evaluating learning processes undertaken by students. According to Baeng et al. (2020), students capable of self-regulation tend to be more consistent and disciplined in learning. Students with effective self-regulation can create efficient study schedules, commit to their academic goals, and better overcome obstacles emerging during learning processes. With strong self-regulation, students can more easily focus attention, avoid distractions, and persist when facing learning difficulties (Friskilia & Winata, 2018). Students with positive self-concepts tend to behave according to their surrounding environment and follow learning discipline established by schools (Reski et al., 2017).

Conversely, family environment also plays an important role in learning discipline. Family represents the first environment where children learn about values such as discipline, responsibility, and motivation. According to Khoeriyah (2022), family support encompassing attention, supervision, and encouragement significantly influences student learning discipline levels. Families providing positive learning environments can enhance student motivation and discipline, while unsupportive families may cause diminished learning enthusiasm. Parents who actively monitor their children's learning development, provide positive encouragement, and create conducive learning atmospheres tend to have children who are disciplined in learning. Conversely, unsupportive family environments, such as lack of parental attention, indifference toward children's education, or unconducive home atmospheres, can impede children's learning processes and reduce their discipline levels.

Research by Baeng et al. (2020) demonstrated significant relationships between self-regulation and student learning discipline, where students capable of self-regulation were more disciplined in completing tasks, adhering to study schedules, and participating actively in class. This was supported by Khoeriyah (2022), who found that family environment support significantly enhanced student learning motivation and discipline, while students receiving inadequate family support showed irregular and undisciplined learning behaviors. However, although both studies addressed each factor separately, limited research specifically discusses how interactions between self-regulation and family environment factors influence student learning discipline at vocational education levels. Most existing research focuses more on general school students, thus failing to provide clear insights regarding learning discipline dynamics among vocational school students, particularly in Office Administration and Business Services (OABS) programs. Therefore, this study aims to fill this gap by examining self-regulation and family environment influences on OABS student learning discipline at SMK Negeri 6 Surakarta.

Grade X Office Administration and Business Services (OABS) students at SMK Negeri 6 Surakarta experience transitions from junior high to vocational schools, demanding higher learning discipline in following schedules, completing assignments, and participating actively in class. This discipline is important for building academic habits and skills supporting success in vocational education. However, preliminary observations by practicum teachers at SMK Negeri 6 Surakarta indicated that many students lacked discipline, frequently arriving late, failing to complete assignments punctually, and showing minimal learning participation. These conditions can impede expected competency achievement, necessitating further studies to understand factors influencing their learning discipline and improvement efforts. This was reinforced by research data from Fathurrizqy and Ulfatun (2024), showing that only 7 students actively participated from 36 total students, while others tended toward passivity. Some students merely sat quietly, used mobile devices, or listened to explanations without enthusiasm. Additionally, in implementing work culture at SMK Negeri 6 Surakarta, according to Santosa et al. (2021), several students failed to properly implement work culture at school, requiring teachers to provide warnings or sanctions to violating students. These conditions emphasize the need for greater attention to student learning discipline aspects, as this can contribute to academic success and student readiness for entering the workforce.

Based on the background above, previous research indicated that both self-regulation and family support have positive relationships with student learning discipline. However, studies integrating both variables in vocational education contexts remain limited. Therefore, this research was conducted to determine self-regulation and family environment influences on Grade X OABS student learning discipline at SMK Negeri 6 Surakarta.

Research Methods

This research was conducted during the even semester of the 2024/2025 academic year and located at SMK Negeri 6 Surakarta, situated at Jl. Adi Sucipto No. 38, Kerten, Laweyan District, Surakarta City. School selection was based on strategic considerations as the researcher's School Field Introduction (PLP) activity location and possessing student characteristics suitable for research focus, namely student learning discipline behavior at Vocational High School (SMK) levels.

Grade X Office Administration and Business Services (OABS) students at this school were undergoing adjustment phases from junior high to vocational learning demanding greater independence and discipline. Preliminary observations revealed disciplinary problems such as tardiness, inadequate assignment completion, and low classroom participation. These conditions reflected common challenges also faced by SMK students generally, making SMK Negeri 6 Surakarta an appropriate location for examining self-regulation and family environment influences on learning discipline in vocational education contexts.

This research employed a quantitative approach with causal design and ex post facto methods, namely methods used to trace cause-and-effect relationships between variables without direct treatment or manipulation by researchers. This method was chosen because studied variables—self-regulation and family environment—represent natural variables that cannot be intervened. Thus, this method was deemed suitable for answering problem formulations regarding

both independent variable influences on student learning discipline, both partially and simultaneously.

The research population comprised all Grade X Office Administration and Business Services (OABS) Program students at SMK Negeri 6 Surakarta, totaling 108 students. Sample size determination referenced Krejcie and Morgan formulas with 5% error levels, obtaining 86 students as samples. The sampling technique employed simple random sampling using digital spinwheel tools, providing equal opportunities for every population member to be randomly selected.

Research instruments comprised closed questionnaires using four-level Likert scales: always, often, rarely, and never. Each variable was measured based on indicators compiled from relevant theories. Instruments underwent validity testing using Pearson Product Moment correlation formulas, showing all items were valid because r-calculated > r-table. Subsequently, reliability was tested using Cronbach's Alpha, with results showing all instruments had alpha values > 0.70, thus declared reliable.

Classical assumption tests ensured data met statistical assumptions. Normality tests used Kolmogorov-Smirnov, linearity tests used Test of Linearity, and multicollinearity tests examined Tolerance values and Variance Inflation Factor (VIF).

Data analysis employed multiple linear regression techniques to determine self-regulation and family environment variable influences on student learning discipline. Hypothesis testing procedures included: (1) t-test analysis to determine individual independent variable influences; (2) F-test to examine simultaneous variable influences; (3) significance value (p-value) interpretation with 0.05 references; (4) regression equation formulation to describe direction and magnitude of inter-variable influences; and (5) coefficient of determination (R²) calculation to determine dependent variable variance proportions explainable by independent variables. All analytical processes used IBM SPSS Statistics version 27 software.

Results and Discussion

Results

Data description showed minimum scores for self-regulation variables were 24 and maximum scores were 40, with means of 32.31 and standard deviations (SD) of 3.76. This indicated that respondents generally tended toward self-regulation values around 32-33, although variations were shown by standard deviations of approximately 3.76 points from means. Meanwhile, minimum scores for family environment variables were 20 and maximum scores were 48, with means of 37.36 and standard deviations (SD) of 6.97. This indicated that respondents generally had family environment values around 37-38, although variations were shown by standard deviations of approximately 6.97 points from means.

Prerequisite analysis tests showed normally distributed data with Kolmogorov-Smirnov significance values of 0.200 > 0.05, and linearity based on test of linearity results with self-regulation variables of 0.173 > 0.05 and family environment variables of 0.316 > 0.05. No multicollinearity symptoms were found because VIF values < 10 and Tolerance > 0.1.

As shown in Table 1, multiple linear regression analysis results revealed a regression equation: $Y = 19.790 + 0.449X_1 + 0.042X_2$. This equation can be interpreted as follows: (1) The constant value of 19.790 represents the state when learning discipline variables have not been influenced by other variables, namely self-regulation (X_1) and family environment (X_2) variables; (2) The b_1 value $(X_1$ regression coefficient) of 0.449 indicates that X_1 variables have positive influences on Y variables, meaning every one-unit increase in X_1 variables will influence Y by 0.449, assuming other variables are not examined in this research; (3) The b_2 value $(X_2$ regression coefficient) of 0.042 indicates that X_2 variables have positive influences on Y variables, meaning every one-unit increase in X_2 variables will influence Y by 0.042, assuming other variables are not examined in this research.

 Table 1

 Multiple Linear Regression Analysis Results

Model	В	t	Sig.	F
(Constant)	19.790	7.352	.000	19.196
Self-Regulation (X ₁)	.449	5.775	.000	
Family Environment (X ₂)	.042	1.007	.317	

Source: Data processed by researchers (2025)

Table 1 also demonstrates that self-regulation (X_1) significance values toward learning discipline (Y) were 0.001 < 0.05 and t-calculated values of 5.77 > t-table 1.98, indicating significant self-regulation influences on learning discipline. Family environment (X_2) significance values toward learning discipline (Y) were 0.317 > 0.05 and t-calculated values of 1.07 < t-table 1.98, indicating no significant family environment influences on learning discipline.

Based on Table 1 calculations, significance values of 0.001 < 0.05 and F-calculated values of 19.19 > F-table 3.11 were obtained, thus Ha was accepted and Ho was rejected. Therefore, it can be concluded that self-regulation and family environment influence learning discipline simultaneously.

As presented in Table 2, the coefficient of determination analysis revealed an R² value of 0.316, indicating that self-regulation and family environment variables contributed 31.6% to learning discipline. The remaining 68.4% represented contributions from other variable factors not examined in this research.

 Table 2

 Coefficient of Determination

R	R Square	Adjusted Square	R	Std. Error of the Estimate
.562ª	.316	.300		2.643

Source: Data processed by researchers (2025)

Effective contribution is used to measure contributions provided by each X variable toward Y variables. The sum of effective contributions from all independent variables equals R Square (R²) values, as demonstrated in Table 3.

 Table 3

 Effective Contribution Calculation Result

Variable	Value
Self-Regulation (X1)	$0,536 \times 0,555 \times 100 = 29,748$
Family Environment (X ₂)	$0,093 \times 0,204 \times 100 = 1,8972$
Total	31,6452
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Source: Data processed by researchers (2025)

Based on Table 3 above, the sum of effective contributions from all independent variables equals R Square (R²) values.

Table 4 *Relative Contribution Calculation Result*

Variiable	Value
Self-Regulation (X1)	29,748 x 31,645 x 100 = 94
Family Environment (X ₂)	1,897 x 31,645 x 100 = 6
Total	100

(Sumber: Data pribadi yang diolah peneleti, 2025)

Based on Table 4 above, the sum of relative contributions (SR) from all independent variables equals 100% or 1.

Discussion

Effects of Self-Regulation on Learning Discipline of Grade X Office Administration and Business Services Students at SMK Negeri 6 Surakarta

Self-regulation demonstrated positive and significant effects on learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Higher motivation formed due to self-regulation will increase learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Conversely, lower motivation formed due to self-regulation will correspondingly decrease student learning discipline.

T-test results showed self-regulation significance values of 0.001, smaller than 0.05, and t-calculated values greater than t-table (5.77 > 1.98). Based on significance values less than 0.05 and t-calculated values greater than t-table, Ho was rejected, indicating significant partial influences between self-regulation variables and learning discipline variables among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta.

These research findings align with discoveries by Baeng et al. (2020), demonstrating that students with high self-regulation levels showed better learning discipline, especially in managing time and academic responsibilities. Baeng et al. (2020) stated that self-regulation contributions to learning discipline reached 13%, meaning significant influences existed between self-regulation and learning discipline. Sumandari (2021), researching at SD Negeri 2 Gumul, Klaten, showed that self-regulation positively and significantly influenced student discipline with significance values of 0.000 < 0.05 and coefficient of determination (R^2) of 58.8%. This meant self-regulation contributed 58.8% to student learning discipline.

Effects of Family Environment on Learning Discipline

Family environment showed no significant effects on learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Better family environments will increase learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Conversely, poorer family environment conditions will correspondingly decrease student learning discipline.

T-test results showed family environment significance values of 0.31, greater than 0.05, and t-calculated values smaller than t-table (1.07 < 1.98). Based on significance values greater than 0.05 and t-calculated values smaller than t-table, Ha was rejected, indicating no significant partial influences between family environment variables and learning discipline variables among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta.

Research findings contrasted with Khoeriyah's (2022) research, which found that family environment significantly influenced student discipline. However, this research supported findings by Yadav and Kumari (2020), who discovered that aggression and identification dimensions within families had no significant correlations with high school student study habits, although other dimensions showed positive influences. This indicated that not all family environment aspects played equal roles in forming student academic discipline. Research by Devi and Vaidharani (2024) showed that home environment quality was not significantly related to study habits. Although contextualized in prospective teacher students, these results provided insights that increasing learning independence could reduce direct family roles. These research findings reinforced conclusions that family environments do not always significantly influence student learning discipline, especially when other factors (such as self-regulation, school culture, or peer influences) more determinatively influence student discipline levels.

Based on multiple linear regression analysis results, the equation $Y = 19.790 + 0.449X_1 + 0.042X_2$ was obtained. This indicated that every one-unit increase in self-regulation (X_1) would increase learning discipline scores (Y) by 0.449 points, while every one-unit increase in family environment (X_2) would increase Y by 0.042 points. Both regression coefficients were positive,

meaning both variable influences on learning discipline were positive in direction. These findings were consistent with research by Baeng et al. (2021), who found that self-regulation had positive influences on vocational student learning discipline, demonstrated through positive regression coefficients in their studies. Additionally, research by Khoeriyah (2022) also showed that family environment contributed positively to student discipline in Islamic education learning. Thus, regression equation results in this research were not only statistically accurate but also supported by similar findings in previous literature.

Simultaneous Effects of Self-Regulation and Family Environment on Learning Discipline

Self-regulation and family environment together demonstrated positive and significant effects on learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Higher motivation formed due to self-regulation and better family environments will increase learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. Conversely, lower motivation formed due to self-regulation and poorer family environment conditions will correspondingly decrease student learning discipline.

Based on F-test results conducted, probability values in Sig. columns were 0.001, smaller than 0.05, and F-calculated > F-table (19.19 > 3.11). Based on these results, Ho was rejected, meaning significant simultaneous influences existed between self-regulation and family environment variables on learning discipline among Grade X Office Administration and Business Services students at SMK Negeri 6 Surakarta. According to relative contributions in this research, self-regulation contributed higher influences of 30%, while family environment contributed 2%.

This research also supported results by Setiawan (2017), demonstrating that parental child-rearing patterns and self-regulation positively and significantly influenced student discipline at SMP Negeri 17 Agustus 1945 Samarinda. This agreed with research findings by Ardian et al. (2019), stating that internal and external factors influenced student discipline among Grade X IPA 1 students at MAN 1 Pontianak, where self-regulation was included in internal factors and family environment in external factors.

Conclusion

Based on multiple linear regression analysis results conducted, it was concluded that selfregulation demonstrated positive and significant effects on learning discipline among Grade X OABS students at SMK Negeri 6 Surakarta, as shown by t-calculated values of 5.77 greater than ttable values of 1.98, and significance values of 0.000 (< 0.05), thus the first hypothesis was accepted. Meanwhile, family environment showed no significant effects on learning discipline, with tcalculated values of 1.07 smaller than t-table 1.98 and significance of 0.316 (> 0.05), thus the second hypothesis was rejected. However, simultaneously, self-regulation and family environment together demonstrated positive and significant effects on learning discipline, with F-calculated values of 19.19 greater than F-table 3.11 and significance values of 0.001 (< 0.05), thus the third hypothesis was accepted. The obtained regression equation was $Y = 19.79 + 0.44X_1 + 0.04X_2$, with a coefficient of determination (R²) of 0.312, meaning 31.2% of learning discipline variations could be explained by self-regulation and family environment together. These findings confirmed that self-regulation represents the primary factor influencing learning discipline, and although family environment was not significant individually, in simultaneous contexts it maintained positive contributions in supporting disciplined learning behavior creation among vocational students. The study's practical implications suggest that vocational educators should prioritize self-regulation skill development through targeted interventions, while recognizing that family environment, though individually nonsignificant, contributes to overall learning discipline when combined with strong self-regulatory capacities. Future research should explore additional factors contributing to the remaining 68.8% of variance in learning discipline and investigate the moderating effects of school culture and peer influences in vocational education settings.

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