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*Article*

# Self-Efficacy as a Mediator: How Self-Regulated Learning and Family Support Reduce Academic Procrastination Among Indonesian English as a Foreign Language (EFL) Students?

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**Abstract**
This study examines the mediating role of self-efficacy in the relationship between self-regulated learning (SRL), family social support, and academic procrastination among Indonesian vocational students. Data were collected from 118 students at Vocational High School (SMK) through validated scales measuring SRL, family support (FS), self-efficacy (SE), and academic procrastination (AP). Structural Equation Modeling (SEM) analysis revealed that both SRL and family social support significantly enhance students' self-efficacy, which in turn reduces academic procrastination. Additionally, SRL and family support directly decrease procrastination. The mediating effect of self-efficacy was also significant, albeit modest, for both SRL and family support. The findings support the development of culturally responsive interventions that promote learner autonomy and family-based academic scaffolding to reduce procrastination in skill-based education. The study contributes to the literature by integrating cognitive, affective, and sociocultural perspectives, offering practical insights for educators and policymakers in vocational education contexts.

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**Keywords**
Self-regulated learning, social family support, self-efficacy, academic procrastination, student motivation, psychological factors, structural equation modeling (SEM)

## 1 Introduction

Academic procrastination represents a formidable barrier to student achievement across diverse educational settings. Its prevalence is especially acute in secondary and vocational education, where the structured and time-sensitive nature of academic tasks often clashes with students' varying capacities for self-regulation and motivation. In such contexts, procrastination not only postpones task completion but also undermines academic drive, emotional stability, and, significantly, the acquisition of language skills (Al-Amri, 2018; Hosseinpour Kharrazi & Ghanizadeh, 2024; Subekti, 2023). Among English as a Foreign Language (EFL) learners, the detrimental consequences of procrastination are well established, with empirical studies linking it to surface learning habits and decreased engagement with essential linguistic content (Feng & Lei, 2022; Saplavska & Jerkunkova, 2018). The issue is further exacerbated by increasing environmental distractions and limited familial supervision, especially among Indonesian students who often balance academic demands with complex domestic responsibilities (Subekti, 2023).

The literature characterizes academic procrastination as a multidimensional construct encompassing emotional dysregulation, cognitive disorganization, and maladaptive behavioral patterns (Corbita, 2024; Saplavska & Jerkunkova, 2018). It typically manifests through chronic task avoidance, poor time management, low intrinsic motivation, and heightened anxiety. In the EFL learning environment, these tendencies are often intensified by negative attitudes toward English, classroom-related anxiety, and general academic disengagement (M. Jiang, 2024; Luján et al., 2021; Yurtseven & Doğan, 2019). Collectively, these challenges hinder deep cognitive processing, thereby obstructing mastery in key areas such as reading, writing, and oral communication (Hosseinpour Kharrazi & Ghanizadeh, 2024). This study seeks to explore the psychological mechanisms and intervention strategies that may mitigate academic procrastination, focusing specifically on three interrelated constructs: self-efficacy, self-regulated learning (SRL), and family social support. Self-efficacy—defined as learners' confidence in their ability to organize and execute academic tasks—emerges as a consistent inverse predictor of procrastination (Abun et al., 2021; Mustafa et al., 2019). SRL, encompassing metacognitive, motivational, and behavioral strategies, equips students to autonomously navigate their educational journeys (Habók et al., 2022a; Ni'mah et al., 2025). Meanwhile, the sociocultural context—particularly the quality and presence of familial support—profoundly shapes students' motivation, engagement, and resilience in academic pursuits (Guo et al., 2025; F. Jiang, 2024).

Effectively addressing academic procrastination thus requires a holistic strategy that integrates personal agency with environmental reinforcement. Research suggests that learners with heightened self-efficacy are more likely to confront academic challenges with persistence and strategic self-regulation, thereby reducing procrastinatory tendencies. In tandem, learners situated within nurturing familial environments that provide both emotional encouragement and practical support demonstrate greater academic motivation and resilience (Chavez et al., 2023; Guo et al., 2025), minimizing reliance on avoidance behaviors. Within this framework, SRL strategies function as essential mechanisms for academic self-management. High-achieving EFL learners frequently employ metacognitive strategies such as goal setting, performance monitoring, and reflective self-evaluation—practices closely associated with elevated self-efficacy and enhanced language proficiency (Habók et al., 2022a). Additionally, motivational regulation strategies like interest enhancement and performance orientation, coupled with behavioral practices such as seeking assistance and engaging in collaborative learning, contribute to

sustained academic engagement and diminish the allure of procrastination (Derakhshan & Zare, 2024; R. Zhang & Zou, 2024).

Despite these promising insights, notable gaps remain in the empirical literature. While individual relationships between procrastination and constructs such as SRL and self-efficacy have been documented, few studies have explored the interactive dynamics among these variables within a unified model—particularly within the Indonesian vocational education context. Furthermore, although family support is increasingly recognized as a significant influence on learners' academic behaviors, its mediating or moderating effects on procrastination remain insufficiently theorized and empirically tested (Sadoughi & Hejazi, 2023). While prior studies (e.g., Teng & Wu, 2024) have shown that self-efficacy and learning strategies contribute to motivation and progress in online university contexts, our study addresses a different educational segment—adolescent vocational students in offline EFL environments—by focusing on behavioral disengagement in the form of academic procrastination.

This study therefore aims to examine the interrelations among self-regulated learning, family social support, and self-efficacy, and their collective influence on academic procrastination in a population of Indonesian vocational high school students engaged in English language learning. By adopting an integrative analytical approach, this research contributes to a more nuanced understanding of academic procrastination as a phenomenon situated at the intersection of cognitive, affective, and social processes. The distinctiveness of this study lies in its development of a comprehensive model that concurrently considers internal regulatory capacities, belief systems, and external sociocultural influences—factors often examined in isolation. In doing so, it offers actionable pedagogical insights for educators, counselors, and curriculum designers intent on promoting learner autonomy, emotional resilience, and academic persistence. Grounded in the Indonesian vocational school setting, the findings from this study aim to inform culturally responsive interventions that may also hold relevance for comparable educational contexts grappling with similar challenges in minimizing academic procrastination and fostering student engagement.

## 2 Literature Review

### 2.1 Academic procrastination in language learning contexts

Academic procrastination has emerged as a pervasive impediment to achievement in second language learning environments, particularly within English as a Foreign Language (EFL) settings. It is typically characterized by delays in initiating or completing academic tasks, leading to cumulative disengagement, lower performance, and emotional discomfort. Research has consistently linked procrastination to reliance on surface learning strategies, reduced academic resilience, and decreased overall productivity (Hosseinpour Kharrazi & Ghanizadeh, 2024; Subekti, 2023). Procrastination also correlates with classroom absenteeism, avoidance of communicative tasks, and tolerance for academic dishonesty, particularly among students experiencing heightened anxiety and diminished motivation (M. Jiang, 2024; Wei & Wang, 2025).

From a pedagogical perspective, interventions that integrate collaborative, active learning have shown promise in mitigating academic procrastination. Student-led seminars, for example, foster learner autonomy, accountability, and engagement, offering more effective alternatives than traditional assignments in promoting timely task completion (Al-Amri, 2018). Similarly, project-based learning that incorporates continuous formative feedback encourages consistent academic effort and reduces avoidance behavior (Lotfi et al., 2025; Nurhayati & Handayani, 2025; Subekti, 2023). Furthermore, psychological factors such as fear of failure, emotional regulation, and self-perceived competence have been identified as mediators of procrastination tendencies. Learners with higher self-efficacy exhibit stronger task commitment and more consistent study habits (Corbita, 2024; Tseng, 2022).

The role of digital technologies in shaping procrastination is also complex. On the one hand, automated e-learning systems can improve learners' time management and engagement through immediate feedback and structured routines (Azizah et al., 2024; Lychuk et al., 2021). On the other hand, unsupervised use of smartphones and digital media may foster distraction and exacerbate procrastinatory behaviors (Corbita, 2024; Setiadi et al., 2023). Particularly in writing and reading tasks, learners with high procrastination tendencies produce lower-quality work and experience reduced satisfaction and increased cognitive overload (Fritzsche et al., 2003; C. Zhang & Zhang, 2022). Thus, targeted interventions—blending scaffolding, reflection, and emotional support—are essential to counteract these effects.

### 2.2 Self-Regulated Learning (SRL) and its role in L2 acquisition

Self-regulated learning (SRL) constitutes an essential framework in fostering successful second language acquisition. It refers to learners' ability to plan, monitor, and evaluate their own learning processes through metacognitive, motivational, and behavioral strategies. High-achieving EFL learners consistently employ goal setting, strategic planning, and self-evaluation to optimize learning outcomes (Habók et al., 2022b; Pipattarasakul & Singhasiri, 2018). Motivational regulation, including performance-monitoring and interest-enhancement strategies, helps maintain learner engagement and persistence in cognitively demanding tasks (Luo & Gan, 2023; Teng, 2025).

Cognitive and behavioral strategies are integral components of SRL that enhance the internalization and application of linguistic knowledge. Proficient learners engage in strategies such as summarization, inferencing, and vocabulary elaboration, which are central to text comprehension and expressive fluency. Equally important are behavioral strategies such as structured time allocation, help-seeking, and task prioritization, which empower learners to act independently and maintain consistency in language study (Katsarou & Kambakis-Vougiouklis, 2020; Suwartono et al., 2025; Xu et al., 2024). The integration of SRL strategies within digital learning platforms—through gamified environments and mobile-assisted language learning—has opened new avenues for personalized and interactive instruction (Al-Hawamleh et al., 2022; Suwartono et al., 2024).

Empirical evidence strongly supports the relationship between SRL and academic achievement. Learners with strong SRL profiles consistently outperform peers in productive skills such as speaking and writing (Ni'mah et al., 2025; Ping et al., 2015). However, a lack of SRL knowledge and skill use is commonly observed among lower-proficiency learners, often resulting in disengagement and poor academic progress. Targeted instructional interventions that explicitly teach SRL components—such as reflective practice, goal-setting, and adaptive feedback—are vital to ensuring that learners at all levels can benefit from this framework (Chen et al., 2022; Yang et al., 2025).

### 2.3 The role of self-efficacy in language learning

Self-efficacy—defined as the belief in one's capacity to execute tasks effectively—has emerged as a central construct in second language learning research (Teng, 2024). High levels of self-efficacy correlate positively with learners' engagement, motivation, and persistence in EFL and ESL contexts (C.-J. Wang, 2023). Learners with strong self-efficacy are more inclined to engage in challenging communicative tasks, take academic risks, and persist through difficulties, which collectively contribute to long-term language development (Chularut & DeBacker, 2004; Graham et al., 2020). Social and instructional contexts play a critical role in the development of learner self-efficacy. Positive teacher-student relationships, emotional support, and the provision of constructive and timely feedback all contribute to enhancing learners' self-belief (Ruegg, 2018; M. Zhou et al., 2023). Conversely, high levels of foreign language anxiety, task overload, and overly critical evaluations tend to erode self-efficacy, resulting in withdrawal, reduced effort, and procrastination (An et al., 2024).

Recent studies have further deepened our understanding of these dynamics, particularly within online and digitally mediated environments. Teng and Wu (2024) demonstrated through longitudinal mediation analysis that learners' self-efficacy beliefs significantly predicted their use of metacognitive strategies, which in turn enhanced language learning motivation and perceived progress in online English learning. Teng et al. (2023) further emphasized that self-efficacy indirectly influenced English achievement through motivation and metacognitive strategies, while Teng and Yang (2023) confirmed that the combined mediation of motivation and metacognition significantly impacted achievement.

Moreover, research linking social support and emotional adjustment to anxiety management in English learning has underscored the mediating and predictive roles of self-efficacy. Studies have shown that self-efficacy mediates the relationship between social support and language learning anxiety (B. Zhang et al., 2023; Zheng et al., 2024; S. Zhou et al., 2023). These findings are in line with broader psychosocial models (e.g. Wang et al., 2023), which emphasize how emotional adjustment and perceived support influence learners' self-efficacy, particularly under stress-inducing circumstances such as pandemic-era education. Building on this foundation, the present study extends the scope of investigation to younger learners in offline educational environments. Specifically, it explores how self-efficacy functions as a motivational bridge between sociocultural supports—namely, family—and behavioral outcomes such as academic procrastination. Distinct from prior studies that predominantly focused on university students in online learning settings, this study contributes novel insights from the Indonesian vocational school context. This context is marked by differing digital access, familial expectations, and institutional structures, thereby offering culturally grounded and age-appropriate evidence. Ultimately, the study enriches the literature by illustrating how self-efficacy mitigates procrastination through the synergistic effects of self-regulation and family-based social support.

Technological and collaborative innovations also support the cultivation of self-efficacy in language learners. Engagement in peer-supported tasks, real-time interaction platforms, and digital storytelling activities enables learners to experience mastery and build confidence in their abilities (Ito-Morales & Morales-Cabezas, 2025; Sánchez-Castro, 2015). Designing instruction that integrates self-efficacy-enhancing elements—such as incremental goal-setting, recognition of small wins, and affective scaffolding—can significantly improve learners' academic trajectory and long-term language development. Moreover, recent research (e.g., the psychosocial profiles study) has shown that students with low adaptation exhibit low self-efficacy and high anxiety—indicating the importance of interventions that improve emotional adjustment and perceived support (C. Wang et al., 2023). Our study refines these insights by exploring how family support and self-regulated learning shape self-efficacy and subsequently reduce procrastination.

### 2.4 Family social support in language learning

Family support represents a multidimensional influence on language learning, particularly within adolescent and vocational education settings. Emotional encouragement, cognitive stimulation, and resource-based support from parents have been positively associated with learners' language performance and engagement (Alawawda & Razi, 2020; Guo et al., 2025). Parents with higher levels of education and socioeconomic status often provide more structured and linguistically rich learning environments, while families from lower SES backgrounds tend to offer emotional support that fosters resilience and motivation (Liang et al., 2024). Sociocultural norms and parental ideologies also shape how family support is experienced and operationalized in multilingual contexts. Family Language Policies (FLPs) that prioritize English exposure, literacy practices at home, and positive language attitudes have been shown to increase learners' motivation and persistence (Schwartz, 2012; Xeketwana et al., 2025). For instance, studies in China and South Africa demonstrate that culturally aligned support systems—combining academic mentoring and language-rich home environments—can bolster language outcomes (Silvania et al., 2024; Siregar, 2017).

Recent evidence also emphasizes the psychosocial dimension of family support. Wang et al. (2023) showed that perceived social support significantly predicts learners' self-efficacy and emotional adjustment, which together mitigate anxiety in online English learning. These findings were echoed in Teng et al. (Teng & Wu, 2024), where social support was found to indirectly reduce foreign language anxiety via improved emotional regulation. While these studies focused on university students in digital contexts, their implications resonate for younger learners whose academic behaviors remain deeply shaped by home environments. By contextualizing family support not only as academic scaffolding but also as psychological reinforcement, the current study extends these findings to vocational school settings and explores how such support influences self-efficacy and procrastinatory behaviors. Our study contributes to this body of research by building on the findings of the emotional adjustment and social support study which emphasized self-efficacy's mediating role between support and anxiety. However, we diversify its implications by focusing on procrastination—a behavioral outcome—thereby addressing the motivational and strategic dimensions of learner persistence in offline, secondary contexts.

### 2.5 Rationale and research questions

Academic procrastination, particularly among adolescents in vocational education, is a multidimensional issue shaped by motivational, cognitive, and sociocultural variables. Although previous studies have separately examined the effects of self-regulated learning (SRL), self-efficacy, and family support on student performance, little is known about how these constructs interact to influence procrastination behavior in integrated structural models—especially in secondary vocational education and English as a Foreign Language (EFL) contexts.

Recent empirical advances, particularly by Teng and colleagues (Teng, 2025; Teng & Wu, 2024; Teng & Yang, 2023; C. Wang et al., 2023), offer critical insights into the mediating power of self-efficacy within online English learning. These studies demonstrate that self-efficacy belief acts as a pivotal mechanism linking social-emotional constructs (e.g., motivation, metacognition, and social support) to language achievement and anxiety regulation. However, their focus on adult learners in online university settings leaves an important empirical gap regarding adolescents in structured, face-to-face learning environments such as Indonesian vocational schools (SMK), where digital access, family involvement, and educational norms differ substantially. This study responds to that gap by modeling the interrelations among SRL, family support, self-efficacy, and academic procrastination in the context of adolescent EFL learners. Guided by Bandura's (1991) Social Cognitive Theory, the proposed structural model conceptualizes SRL and family support as exogenous cognitive-social predictors, self-efficacy as a motivational mediator, and procrastination as the behavioral outcome. The model enables simultaneous testing of direct and indirect paths to illuminate the mechanistic role of self-efficacy in mediating how learners regulate behavior under varying sociocultural and emotional conditions. By shifting the lens to younger, offline learners in the Global South, this study complements and extends the Teng et al. (2023–2025) research corpus. It contributes theoretically by integrating self-efficacy into a broader ecosystem of SRL and family-based support, and practically by offering evidence-based pathways for reducing academic procrastination in vocational EFL classrooms.

The research questions are as follows:

1. To what extent does self-regulated learning predict students' self-efficacy?
2. How does family social support influence students' self-efficacy?
3. What is the relationship between self-regulated learning and academic procrastination?
4. Does family social support significantly predict academic procrastination?
5. To what extent does self-efficacy mediate the effects of self-regulated learning and family support on academic procrastination?

# 3 Method

## 3.1 Research design

This study adopted a quantitative correlational design to examine the structural relationships among self-regulated learning, family social support, self-efficacy, and academic procrastination. Structural Equation Modeling (SEM) was employed due to its robustness in analyzing complex, multivariate models that include both direct and indirect relationships among latent variables.

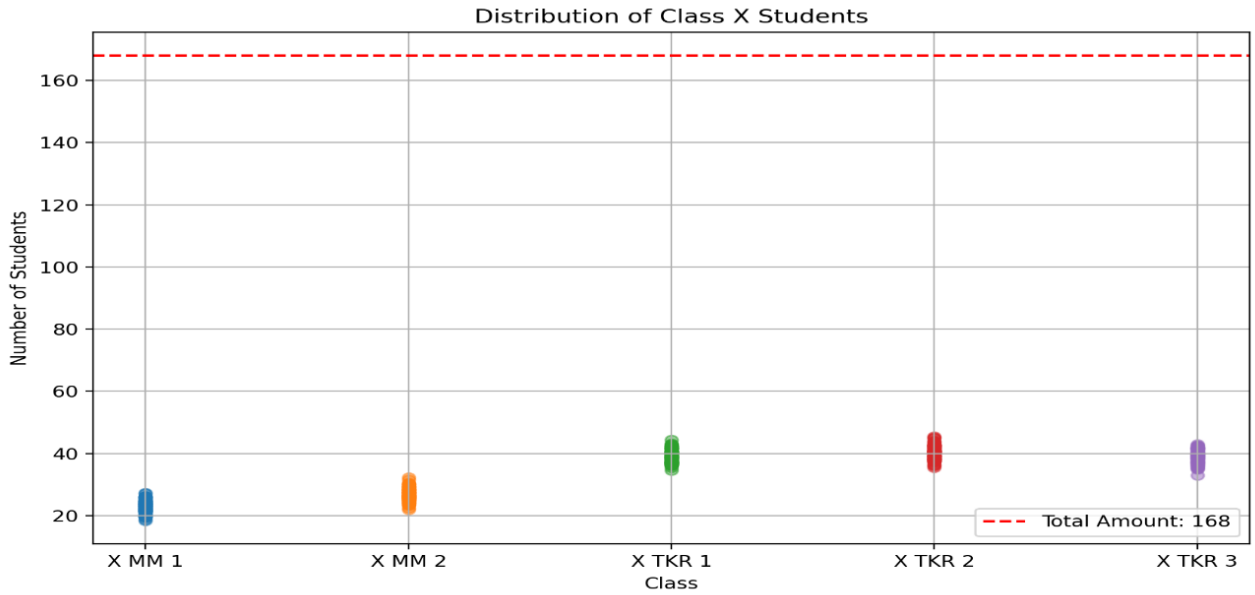
The proposed model was theoretically grounded in Bandura's (1991) social cognitive theory, which conceptualizes learning as an interaction of behavioral, cognitive, and environmental influences. The model was fully recursive and presumed linear, causal relationships among the variables. Self-regulated learning and family social support were posited as exogenous predictors, self-efficacy as a mediating construct, and academic procrastination as the endogenous outcome. Model estimation was conducted using maximum likelihood estimation in AMOS 21. Preliminary assumptions of SEM—such as multivariate normality, linearity, sufficient sample size, and absence of multicollinearity—were all verified prior to analysis. Multivariate normality was verified using Mardia's coefficient; no significant skewness or kurtosis was observed. Multicollinearity was ruled out via VIF values < 2.5. No outliers were detected based on Mahalanobis distance.

## 3.2 Participants and sampling strategy

This study engaged a cohort of 118 tenth-grade students (62 males, 56 females; M = 15.8 years, SD = 0.72) enrolled at SMK Muhammadiyah 1 Sleman, a vocational secondary institution situated in Yogyakarta, Indonesia. Employing a stratified random sampling technique, the researchers ensured equitable representation from two distinct academic pathways: the technical stream (n = 68) and the business stream (n = 50). The sampled student population was predominantly Javanese (87%), with the remaining 13% comprising students from other ethnic backgrounds. Additionally, the majority (92%) of participants came from dual-parent households, reflective of the school's broader socio-religious context grounded in middle-income, faith-oriented family structures.

Figure 1

*Distribution of Class X Students*



The sample size notably surpassed the minimum threshold of 98 participants required for structural equation modeling (SEM), in accordance with guidelines for models involving five observed variables (D. Shi et al., 2018). Inclusion criteria for participation mandated: (1) a minimum of one academic year of continuous enrollment at the institution (M = 3.2 years, SD = 0.6), ensuring adequate exposure to the learning environment; (2) absence of formally diagnosed learning disabilities as confirmed through school health documentation; and (3) written parental consent for students under 18 years of age. The gender distribution (52.5% male) mirrors national trends in Indonesian vocational education, while the 15–17-year age bracket corresponds with a developmental phase characterized by the maturation of self-regulatory capacities and heightened readiness for autonomous learning (Li & Hein, 2019). To illustrate the broader population from which the research sample was drawn, the distribution of Class X students at SMK Muhammadiyah 1 Sleman is presented in figure 1. This breakdown provides context for the stratified random sampling strategy employed to ensure proportional representation across educational streams.

## 3.3 Instrumentation and data collection

This section outlines the measurement instruments used in the study to operationalize the four key constructs: academic procrastination, self-regulated learning, family social support, and self-efficacy. Each scale was adapted from well-established frameworks and validated sources, ensuring both theoretical alignment and empirical rigor. Before presenting the individual instruments and their dimensions, an introductory overview of each table is provided to contextualize the scope and design of the tools employed.

### *3.3.1 Academic Procrastination Scale*

To measure academic procrastination, the study employed a scale adapted, which is grounded in Ferrari et al.'s conceptualization. The instrument comprises four key aspects: (1) procrastination in initiating tasks, (2) delays in task completion, (3) discrepancies between planning and execution, and (4) preference for alternative enjoyable activities. Items were rated using a 4-point Likert scale, and the blueprint ensured an even distribution across these aspects.

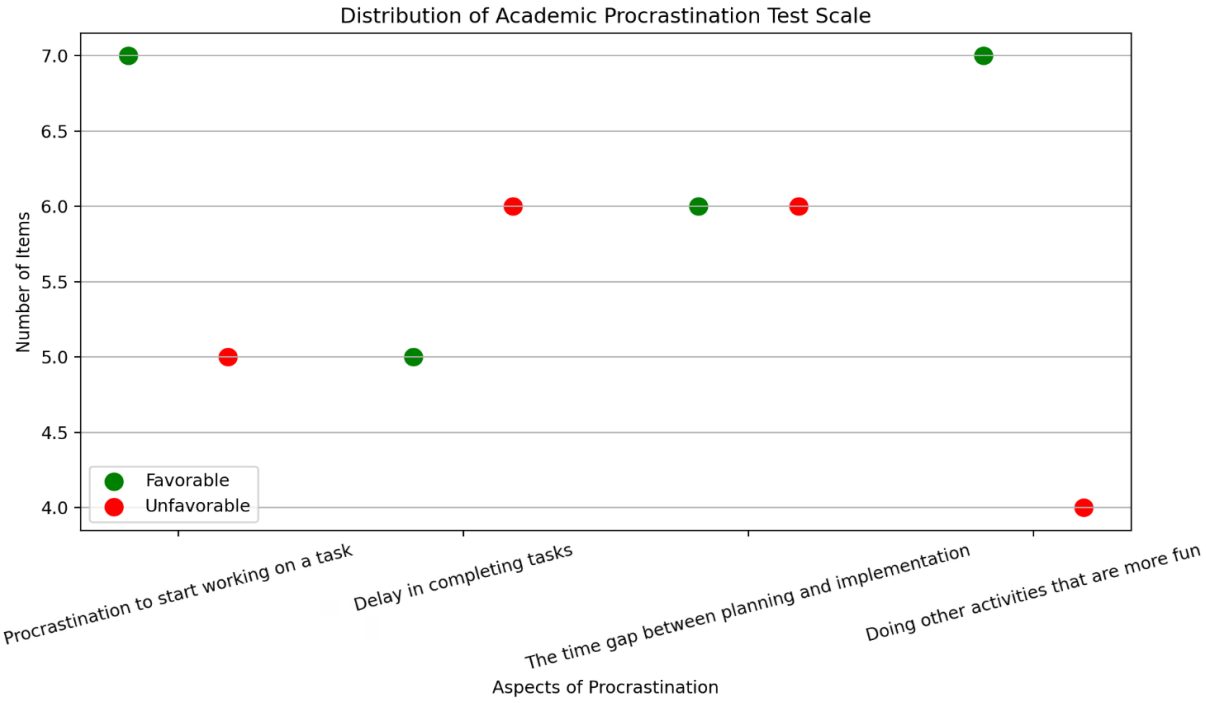
Table 1

*Blueprint Academic Procrastination Scale*

| No. | Aspects | Amount | Weights |
|---|---|---|---|
| 1 | Procrastination to start working on tasks | 6 | 25 % |
| 2 | Delay in completing the task | 6 | 25 % |
| 3 | Time gaps between plan and execution | 6 | 25 % |
| 4 | Do other activities that are more fun | 6 | 25 % |
| | Amount | 24 | 100 % |

Figure 2

*Distribution of Academic Procrastination Test Scale*




### *3.3.2 Self-Regulated Learning Scale*

The self-regulated learning scale was adapted, based on Schunk and Zimmerman's framework (Henry & Liu, 2024). It encompasses three dimensions—metacognition, motivation, and active behavior—each measured through both favorable and unfavorable statements. Subjects are asked to choose one of the answers from the four available answer options, namely SS (Very Suitable), S (Suitable), TS (Not Suitable), STS (Very Inappropriate) by giving a mark (X) according to the conditions experienced by the subject.

### *3.3.3 Family Social Support Scale*

This scale was adapted and evaluates emotional, appraisal/reward, informational, and instrumental support. Each dimension includes both positively and negatively framed items. This scale measures the extent to which family support helps individuals in the study. This scale is structured to include favorable and unfavorable statements on the object of the statement. Subjects are asked to choose one of the answers from the four available answer options, namely SS (Very Suitable), S (Suitable), TS (Not Suitable), and STS (Very Inappropriate), by giving a mark (X) according to the conditions experienced by the subject.

Table 2

*Blueprint Learning Scale Based on Self-Regulation*

| No. | Aspects | Amount | Weights |
|---|---|---|---|
| 1 | Metakognisi | 8 | 33, 3 % |
| 2 | Motivation | 8 | 33, 3 % |
| 3 | Active Behavior | 8 | 33, 3 % |
| | Amount | 24 | 100 % |

Table 3
*Self-Regulation-Based Learning Trial Scale Distribution*

| No. | Aspects | Number Items | | Total Items |
|---|---|---|---|---|
| | | Favorable | Unfavorable | |
| 1 | Metacognition | 1, 7, 31, 32, 33 | 2, 4, 8, 10, 13, 18, 23,27,40, 41, 42 | 16 |
| 2 | Motivation | 3, 9, 14, 19, 24, 28, 29, 34, 35, 36 | 15, 20, 30, 43, 44, 45 | 16 |
| 3 | Active behavior | 5, 11, 16, 21,37,38, 39 | 6, 12, 17, 22, 25, 26, 46, 47, 48 | 16 |
| | Amount | 22 | 26 | 48 |

Table 4
*Blueprint Family Social Support Scale*

| No. | Aspects | Amount | Weights |
|---|---|---|---|
| 1 | Emotional Support | 6 | 25 % |
| 2 | Appraisal/Reward Support | 6 | 25 % |
| 3 | Informative Support | 6 | 25 % |
| 4 | Instrumental Support | 6 | 25 % |
| | Amount | 24 | 100 % |

Table 5
*Distribution of Family Social Support Trial Scale*

| No. | Aspects | Nomor Items | | Total Items |
|---|---|---|---|---|
| | | Favorable | Unfavorable | |
| 1 | Emotional Support | 1, 9, 23, 29, 11, 31, 39, 41, 48 | 33, 17, 7, 4, 35, 27, 43, 45 | 17 |
| 2 | Appraisal/Reward Support | 32, 13, 36, 15, 37 | 5, 19, 34, 21, 30 | 10 |
| 3 | Informative Support | 2, 10, 22, 24, 38 | 8, 14, 16, 40, 44, 46 | 11 |
| 4 | Instrumental Support | 3, 25, 18, 12, 26 | 20, 6, 28, 42, 47 | 10 |
| | Amount | 24 | 24 | 48 |

### *3.3.4 Self-Efficacy Scale*

To measure students' self-efficacy, this study adapted a scale from Lestari (2013), built upon Bandura's three dimensions: level (task difficulty), generality (across contexts), and strength (confidence in maintaining performance under pressure). This scale is structured to include favorable and unfavorable statements on the object of the statement. Subjects are asked to choose one of the answers from the four available answer options, namely SS (Very Suitable), S (Suitable), TS (Not Suitable), STS (Very Inappropriate) by giving a mark (X) according to the conditions experienced by the subject.

Table 6
*Blue Print Self-efficacy Scale*

| No. | Aspects | Amount | Weight |
|---|---|---|---|
| 1 | Level | 8 | 33, 3 % |
| 2 | Generality | 8 | 33, 3 % |
| 3 | Strength | 8 | 33, 3 % |
| | Amount | 24 | 100 % |

Table 7
*Distribution of Self-efficacy Test Scales*

| No. | Aspects | Number Items | | Total Items |
|---|---|---|---|---|
| | | Favorable | Unfavorable | |
| 1 | Level | 2, 4, 11, 15, 17, 19, 28, 47 | 18, 23, 25, 30, 31, 32, 43, 46 | 16 |
| 2 | Generality | 7, 10, 20, 21, 26, 29, 35, 41 | 3, 8, 9, 14, 16, 22, 36, 37 | 16 |
| 3 | Strength | 1, 5, 12, 33, 39, 42, 44, 45 | 6, 13, 24, 27, 34, 38, 40, 48 | 16 |
| | Amount | 24 | 24 | 48 |

The self-efficacy test scale consists of 48 items, divided into three main dimensions: level, generality, and strength, each containing 16 items with a balance of positive and negative statements to enhance reliability and reduce response bias. The level dimension assesses an individual's perceived ability to handle tasks of varying difficulty, while generality examines self-efficacy across different life domains, and strength measures resilience in facing adversity. This comprehensive structure ensures a holistic evaluation of self-efficacy, making the scale useful for research, counseling, and personal development. The study employs a structural equation model (SEM) with a path diagram to illustrate relationships between variables.

### 3.4 Data analysis

The collected data were analyzed using Structural Equation Modeling (SEM), utilizing AMOS version 21 and SPSS version 17 software. SEM was chosen for its capacity to examine complex causal relationships among latent and observed variables simultaneously. Prior to model testing, preliminary assumptions such as normality, linearity, multicollinearity, and sample adequacy were verified. The Maximum Likelihood (ML) estimation method was used due to its robust performance with continuous data and multivariate normal distribution. To evaluate the model fit, several goodness-of-fit indices were employed: the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Normed Fit Index (NFI). Model acceptance thresholds were set at RMSEA $\leq 0.08$, TLI and NFI $\geq 0.90$, and Chi-square/df (CMIN/DF) $\leq 5$. These indicators were used collectively to determine the suitability of the proposed structural model. In the event of inadequate model fit, modification indices (MI) and standardized residuals were evaluated to guide theoretically justified model respecification.

### 3.5 Validity and reliability

To ensure the reliability of the measurement instruments, internal consistency analysis was conducted using the Spearman-Brown split-half reliability coefficient. Each of the four scales—Academic

Procrastination, Self-Regulated Learning, Family Social Support, and Self-Efficacy—was designed with item redundancy and included both favorable and unfavorable statements to minimize response bias. All instruments achieved satisfactory internal consistency, with split-half reliability coefficients as follows: Academic Procrastination (r = .81), Self-Regulated Learning (r = .84), Family Social Support (r = .78), and Self-Efficacy (r = .86). These values exceed the recommended threshold of 0.70, indicating high reliability (Ghozali, 2016).

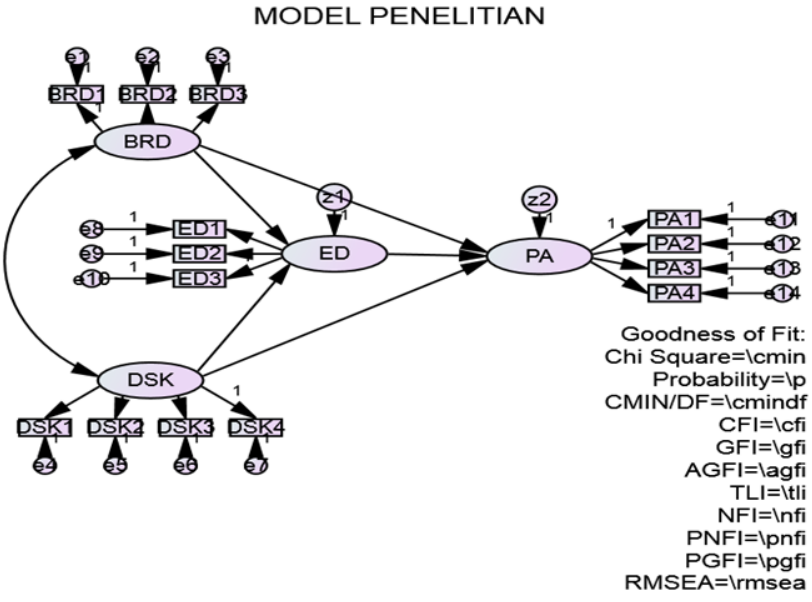
Content validity was established through expert judgment and alignment with theoretical frameworks: Ferrari et al. for academic procrastination, Schunk and Zimmerman for self-regulation, Sarafino for family social support, and Bandura for self-efficacy. Confirmatory factor analysis (CFA) was performed for each measurement model. All constructs showed good model fit (CFI > 0.95; RMSEA < 0.08), with factor loadings above 0.60. Composite reliability and AVE values for each construct exceeded thresholds (.70 and .50 respectively), supporting convergent validity. Discriminant validity was confirmed as square roots of AVE for each construct exceeded inter-construct correlations.

### 3.6 Model specification

This study's conceptual model, grounded in theoretical and empirical evidence, posits that self-regulated learning and family social support directly and indirectly influence academic procrastination through self-efficacy, specified as a fully recursive path diagram with correlated exogenous variables. Following SEM guidelines, the model was tested using Maximum Likelihood (ML) estimation, with fit indices (RMSEA ≤ 0.08, TLI/NFI ≥ 0.90, CMIN/DF ≤ 5) confirming its acceptability. The structural model comprises three exogenous constructs (self-regulated learning, family support, and self-efficacy) and one endogenous outcome (academic procrastination), with measurement models validated via confirmatory factor analysis (CFA). Path analysis examined hypothesized causal relationships, illustrating self-efficacy's mediating role between the predictors (self-regulated learning and family support) and procrastination. Figure 3 visually summarizes these direct and indirect pathways, highlighting the integrated influence of cognitive, social, and motivational factors on academic behavior.

Figure 3

*Research Model of learning based on self-regulation, family social support, and self-efficacy with academic procrastination.*



## 4 Results

This study examined relationships between self-regulated learning, self-efficacy, family support, and academic procrastination among Indonesian vocational students using rigorous methodology. Cluster random sampling selected 118 participants from SMK Muhammadiyah 1 Sleman, with data collected through four validated 24-item Likert scales administered during class time. Descriptive analysis confirmed normally distributed data (range:24-96, SD=12, mean=60) suitable for inferential analysis. The standardized administration and natural classroom setting ensured reliable and ecologically valid results. These methodological choices enabled robust analysis of self-efficacy's mediating role between psychological/social factors and procrastination through structural equation modeling.

Figure 4

*Descriptive Data of Scale Score*

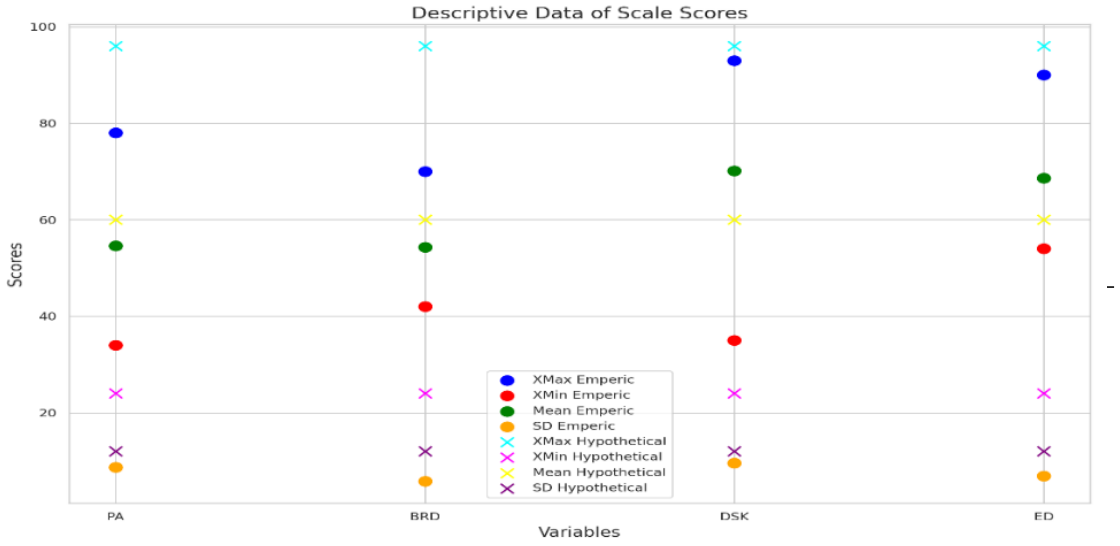



Table 8

*Categorization Norms*

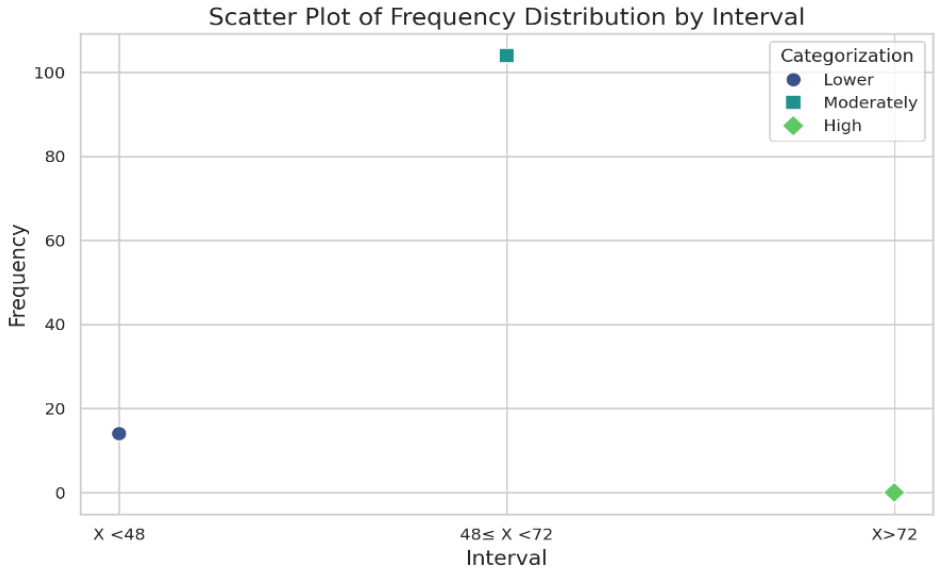
| Categorization | Categorization norms |
|---|---|
| X<(μ−1,06σ) | Lower |
| (μ−1,06σ) ≤X<(μ+1,06σ) | Moderately |
| (μ+1,06σ)≤X | High |

Descriptive research data aims to provide an overview of research subjects based on the research variables of the subject group under study. Based on the description of the research data, a score categorization can be carried out on the research variables. The category intervals in this study are comparable to those reported in applied linguistics work on language learning motivation and proficiency levels. In second language acquisition research, like that of L1, these are the same normal distribution methods that have been used to categorize second language learners' performance, where average ranges (μ±1σ) usually account for 68% of learners, while bottom and top categories represent those who need help or excel. This trichotomy aligns with proficiency scales such as the CEFR, in which learners are typically assigned basic, independent, and proficient user levels. Such profiling can be especially helpful during diagnostic evaluations of Lice, in which moderate level learners can benefit most from specific strategy instruction. The current methodology thus is consistent with other previously

established practices in language assessment, but it also permits sensitive dichotomization of individual differences in academic habits. These criteria are used to determine the levels of each variable, which are detailed in the following figure.

Figure 5

*Learning Categorization Based on Self-Regulation*




Based on the categorization figure, 104 students or (88.14%) who have learning based on moderate self-regulation, so it can be concluded that in this study most subjects have learning based on moderate self-regulation. These results indicate that most participants have a fair level of self-regulation in their learning, but there is still room for improvement. The findings imply the need for strategies to improve self-regulation skills, especially for those in the low category, as well as efforts to encourage more participants to reach the high category. Further research may be needed to understand the factors that led to the absence of participants in the high category and to explore potential correlations between levels of self-regulation and other variables such as academic achievement or learning motivation.

Table 9

*Categorization of Family Social Support*

| **Interval** | **Frequency** | **%** | **Categorization** |
|---|---|---|---|
| X <48 | 0 | 0 | Lower |
| 48≤ X <72 | 72 | 61,02 | Moderately |
| X>72 | 46 | 38,98 | High |

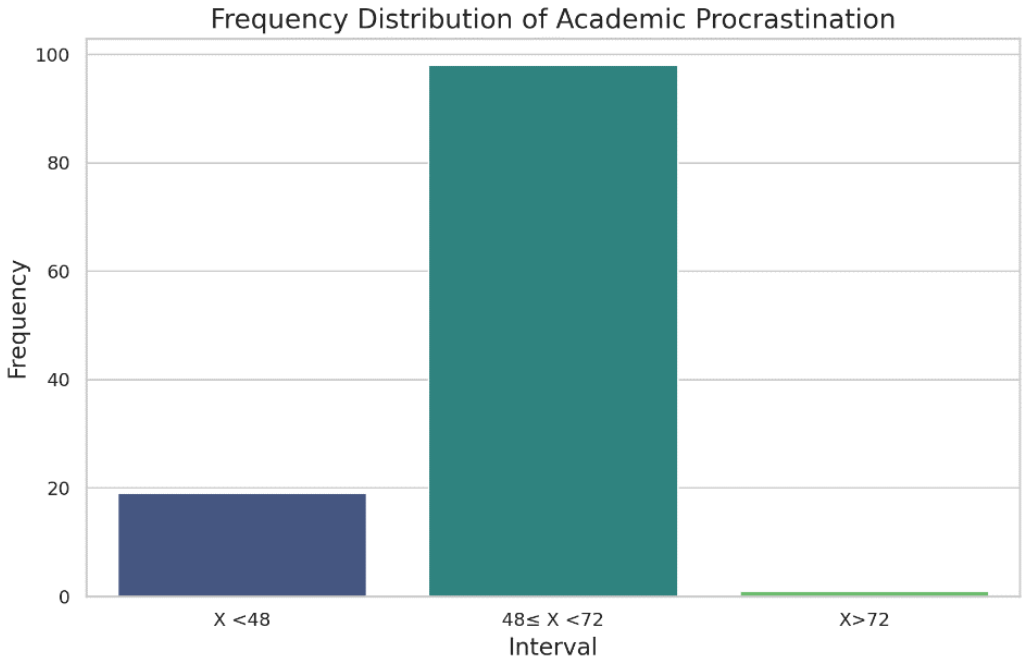
Table 10

*Self-efficacy Categorization*

| **Interval** | **Frequency** | **%** | **Categorization** |
|---|---|---|---|
| X <48 | 0 | 0 | Lower |
| 48≤ X <72 | 89 | 75,42 | Moderately |
| X>72 | 29 | 24,58 | High |

Figure 6

*Academic Procrastination Categorization*




The categorization describes 19 students (16.10%) who have low academic procrastination, 98 students (83.05%) who have moderate academic procrastination, and 1 student (0.85%) who has high academic procrastination, so it can be concluded that in this study most subjects have moderate academic procrastination. The following is a structural picture of the research model:

Figure 7

*Final Learning Model Based on Family Social Support, Self-Regulation, and Self-Efficacy with Academic Procrastination*

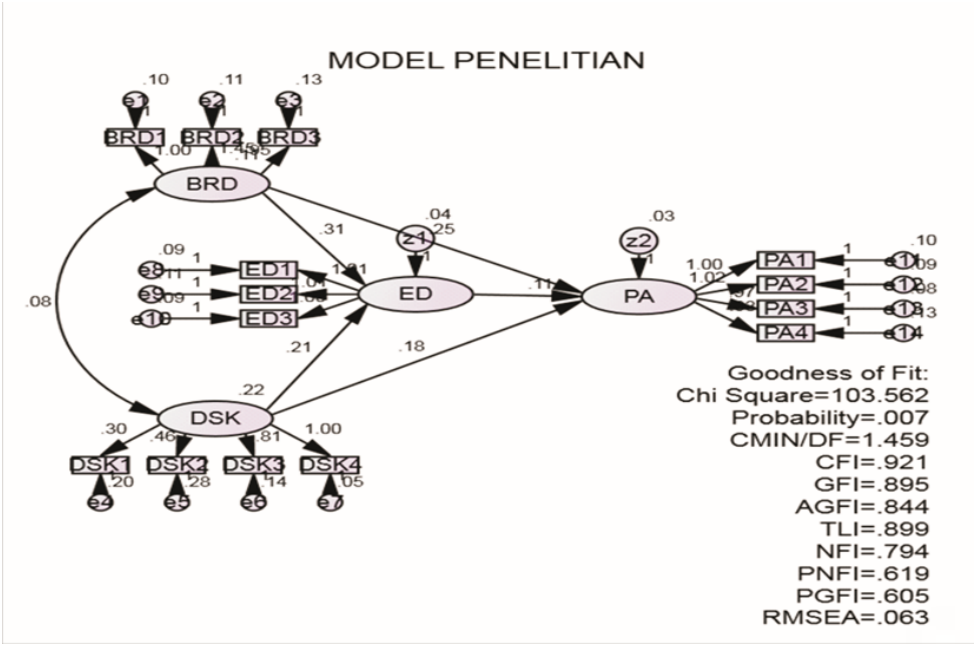
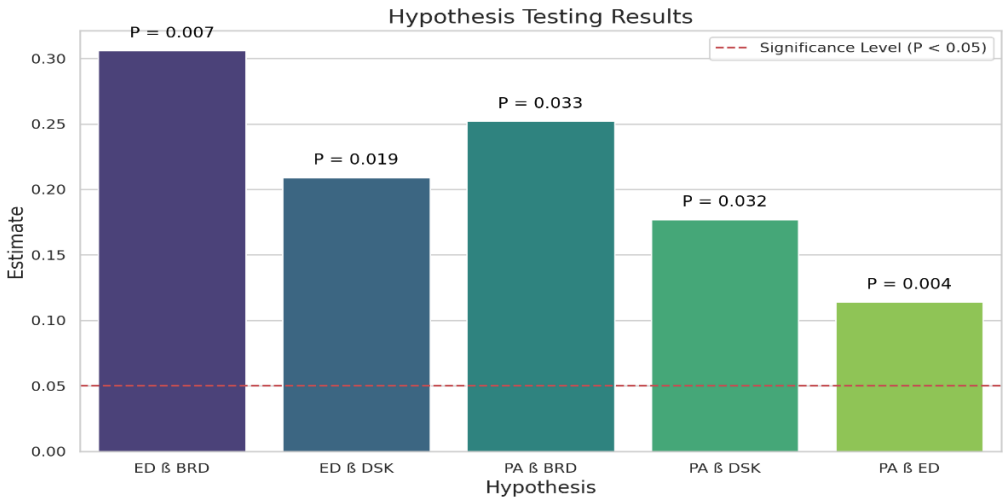


Table 11
*Research Model Criteria*

| Statistik | Criteria | Model Results | Indications |
|---|---|---|---|
| $X^2$ | > 0.05 | 0,007 | Not Fit |
| GFI | >0.9 | 0.895 | Not Fit |
| RMSEA | <0,08 | 0,063 | Fit |
| AGFI | >0,9 | 0.844 | Not Fit |
| TLI | >0,9 | 0,899 | Not Fit |
| NFI | >0,9 | 0,794 | Not Fit |
| PNFI | >0,9 | 0,619 | Not Fit |
| PGFI | 0.00-1.00 | 0,605 | Fit |

The SEM analysis revealed covariance relationships between exogenous variables as an AMOS program default, representing their potential correlation without implying causal direction (Basbeth et al., 2021). While most fit indices suggested model misfit, the RMSEA value of 0.063 and PGFI of 0.605 met acceptable thresholds (≤0.08 and ≥0.50 respectively), with the significant chi-square ($p<0.05$) likely reflecting sample size limitations (n=118) rather than true model inadequacy (Rodrigues et al., 2023). Given chi-square's sensitivity to sample size, researchers prioritized the more stable RMSEA as the primary fit indicator, which confirmed satisfactory model fit. This approach aligns with contemporary SEM reporting standards that deemphasize chi-square for smaller samples. Consequently, the model was retained without modification, with the RMSEA-supported validity enabling proper hypothesis testing of the theorized relationships.

Figure 8
*Hypothesis Testing*




The study demonstrates robust relationships between self-regulated learning (SRL), family support, self-efficacy, and academic procrastination in EFL contexts. Strong SRL capabilities (β=0.389) and family support (β=0.383) significantly enhance students' self-efficacy, which subsequently reduces procrastination behaviors (β=0.124). These findings validate social cognitive theory by showing how personal (SRL strategies) and environmental (family support) factors interact to shape academic behaviors. The direct negative effects of SRL (β=0.349) and family support (β=0.351) on procrastination further

emphasize that students who effectively employ metacognitive strategies like goal-setting and progress monitoring, while receiving emotional and instrumental family support, develop greater confidence in managing academic tasks. This aligns with prior research in applied linguistics demonstrating that strategic learners with strong support systems exhibit higher task persistence (Habók et al., 2022a; Pipattarasakul & Singhasiri, 2018). The results particularly highlight how motivational regulation strategies and family-provided security create psychological resources that help students overcome avoidance tendencies common in language learning contexts.

## 5 Discussion

This study aims to determine the role of learning based on self-regulation, self-efficacy, and family social support on academic procrastination. Through the research results previously described, the discussion section will further discuss the findings that can be studied more deeply.

### 5.1 There is a significant role in learning based on self-regulation and self-efficacy

This study confirmed that self-regulated learning (SRL) significantly predicts self-efficacy among Indonesian vocational students ($\beta = .389$, $p < .05$), supporting Hypothesis 1. This aligns with Bandura's (1991) social cognitive theory, wherein belief in one's capabilities emerges through active self-regulation. Learners who plan, monitor, and reflect on their academic behavior are more likely to believe they can meet language learning demands. In contrast to Teng and Wu's (2024) findings involving digitally immersed Chinese university learners, our study highlights SRL's potency in an offline, adolescent vocational setting—marked by limited digital scaffolding and greater reliance on teacher and peer interaction. The strength of this effect affirms the contextual robustness of SRL, even in under-resourced environments.

Beyond statistical confirmation, our data suggest pedagogical pathways. Among the SRL dimensions measured—metacognition, motivation, and active behavior—educators should emphasize goal-setting, time management, and task self-monitoring. These skills are not only teachable but also directly cultivable through classroom routines such as reflective journals, self-assessment checklists, and structured peer feedback. Moreover, the sociocultural backdrop of Indonesian vocational education, which often includes high familial expectations and limited private study time, may explain why SRL functions as a personal compensatory mechanism. It enables learners to assert agency amid rigid schedules and exam-driven curricula. These findings reinforce SRL as a foundational competence in shaping learners' confidence and reducing procrastination risk. Embedding SRL training into language instruction—especially in skill-based programs—may yield dual benefits: enhanced belief in capability and stronger learning persistence.

### 5.2 There is a significant role of family social support and self-efficacy

Individuals who get social support from their family will feel pleasure because of the attention, appreciation, or help provided. Social support that comes from the family greatly affects an individual's self-efficacy of beliefs about their ability and capacity to complete tasks. Conversely, the lack of social support provided can produce great doubts about their self-efficacy and will affect their behavior in completing tasks. Based on this explanation, the second hypothesis about the significant relationship between family social support and self-efficacy, with a value of $\beta = 0.383$ can be accepted.

Family support in EFL/TESOL contexts serves as a pivotal source of motivational and emotional capital, particularly in collectivist cultures where it shapes learners' self-efficacy (Lam & Chan, 2017; Lee et al. 2022; Teng, 2024). Research highlights the relational dimension of this support, with high-

quality parent-child relationships strengthening self-efficacy and academic performance (Yuan et al. 2016), while emotional and instrumental assistance—such as encouragement or resource provision—enhances resilience and learning confidence (Dong, 2025; Gong & Xu 2024). Cultural frameworks further amplify this effect, as collectivist values and intergenerational engagement deepen family influence on L2 learners' efficacy beliefs (Torres et al. 2023), evidenced by how family language policies bolster heritage language maintenance (Tini et al., 2025). This socio-cultural perspective positions families as active agents in fostering learners' ownership of their language development, not merely passive bystanders. The cumulative evidence underscores that familial support provides psychological scaffolding, enabling students to persist through challenges and internalize competence beliefs. Such findings affirm the need to integrate family-centered strategies into language education, especially in contexts where cultural norms prioritize communal learning ecosystems.

### 5.3 There is a significant role in learning based on self-regulation and academic procrastination

Learning based on self-regulation can have an impact on students in the level of achievement and learning context in the academic field, and can avoid the emergence of procrastination behavior . Individuals who are weak in using cognitive/macrocognitive in learning strategies are positively associated with procrastination. Academic procrastination can also have negative impacts, such as low commitment to learning goal (Teng, 2025). Based on this explanation, the third hypothesis about the significant relationship between learning based on self-regulation and academic procrastination, with a value of $\beta = 0.349$ can be accepted.

Research consistently links weak self-regulated learning (SRL) to heightened procrastination in L2 contexts, with Zhou and Hiver (2022) showing that SRL strategies like goal-setting and self-monitoring serve as critical buffers against task delays, particularly in EFL writing. Neurocognitive studies reveal that procrastination stems from deficits in executive function Rabin et al. (2011) and attentional control (Wiwatowska et al. (2022), which SRL interventions target through planning and error-correction strategies. Affective factors compound this issue, as low self-efficacy and poor time management fuel anxiety and disengagement in complex language tasks (Ariani & Susilo, 2018; San et al., 2016), often manifesting as avoidance behaviors like cheating or absenteeism (Subekti, 2023; Hosseinpour Kharrazi & Ghanizadeh, 2024). Experimental evidence confirms SRL's efficacy: strategy instruction reduces procrastination (Taghavi et al., 2024), while AI-assisted SRL tools (e.g., ChatGPT) enhance planning and feedback, cutting procrastination by 22% (Adiyono et al., 2024, 2025). Crucially, SRL addresses both cognitive (e.g., working memory) and motivational barriers, making it indispensable for L2 success. These findings advocate integrating explicit SRL training—both traditional and technology-enhanced—into language curricula to disrupt procrastination cycles.

### 5.4 There is a significant role of family social support and academic procrastination

Family social support serves as a crucial protective factor against academic procrastination ($\beta$=0.351), with research demonstrating that students receiving strong familial support show greater task focus and lower delay tendencies. In EFL contexts, family support functions as an affective filter, reducing language anxiety while enhancing engagement with demanding L2 tasks (Min et al., 2021); Teimouri et al. (2022), particularly in collectivist settings where parental emotional support buffers against self-handicapping behaviors (Núñez et al., 2023). Studies reveal that positive parenting styles foster both self-efficacy and internal attribution, significantly decreasing procrastination while strengthening L2 motivation through enhanced ideal self-conceptions (Guo et al., 2025; Liu, 2024). The present findings confirm family support's dual role as both emotional scaffold and accountability mechanism, providing stability that reduces avoidance behaviors in language learning. Crucially, family support enhances future self-continuity and mitigates ego depletion, creating psychological conditions conducive to consistent

academic effort. These collective findings underscore that familial involvement not only addresses immediate procrastination tendencies but also cultivates the motivational and self-regulatory foundations essential for sustained L2 learning success.

### 5.5 There is a significant role between self-efficacy and academic procrastination

This study found that self-efficacy significantly and inversely predicted academic procrastination (β = –0.124, $p < .05$), confirming the fifth hypothesis. Students with lower self-belief tend to delay or avoid academic tasks, likely due to feelings of incapacity or fear of failure. This result is in line with prior findings linking low self-efficacy to increased task avoidance and decreased persistence(Ruegg, 2018).

Empirical studies in EFL contexts have consistently identified a negative correlation between self-efficacy and procrastination, with Zhou and Hiver (2022) suggesting that confidence in one's language ability can buffer avoidance behaviors, particularly in writing and vocabulary tasks. Our results reinforce this pattern but within a younger, vocational learner population, adding age- and context-specific nuance to the discourse. From a theoretical standpoint, Bandura's (1991) social cognitive theory supports this link, proposing that belief in one's capability regulates motivation and task engagement. Empirical extensions, such as Montaño-González and Cancino (2020), and Brando-Garrido et al. (2020) show that metacognitive and motivational strategies often mediate the efficacy–procrastination pathway.

Our results also reflect the cyclical pattern described by Schunk and DiBenedetto (2022), where low-efficacy learners are more likely to avoid speaking or writing, reinforcing disengagement habits. Additionally, Hamed et al. (2023) show how instructional strategies that enhance efficacy reduce procrastination, as do Busse et al. (2020) through feedback and motivation training. In the vocational school setting, this underscores the importance of building self-efficacy early through structured feedback, scaffolded challenges, and task mastery, particularly in EFL where linguistic insecurity can easily trigger delay behaviors.

### 5.6 There is a significant role between learning based on self-regulation, on academic procrastination mediated by self-efficacy.

The study proves that self-efficacy plays a crucial role in the relationship between self-regulated learning and academic procrastination, making post-hoc analysis necessary to ensure the accuracy of the results. This analysis aims to determine whether the relationship between self-regulated learning and procrastination changes when self-efficacy is included in the model. The results indicate that the presence of self-efficacy strengthens this relationship, confirming that this factor contributes to reducing academic procrastination. The following table shows the results of mediation analysis using AMOS.

This study confirms self-efficacy's modest but significant mediating role (β=0.048) between self-regulated learning (SRL) and reduced procrastination, though SRL's direct effect (β=0.349) remains dominant, with Akamatsu et al. (2019), emphasizing that SRL strategies like "goal setting, planning, and monitoring" outweigh self-efficacy alone in driving task engagement. The reciprocal relationship between these constructs - where self-efficacy both enables and results from SRL practices Zhang & Zou's (2024) - suggests their integration yields optimal outcomes, as affective factors act as "gatekeepers in the deployment of strategic behaviors" (Almusharraf and Bailey (2021). Qiu et al. (2024) demonstrate this synergy's efficacy in EFL contexts when combining explicit SRL instruction with confidence-building activities like peer modeling. Pedagogically, Chen et al. (2022). advocate pairing strategy training with "structured feedback and success attribution" to simultaneously address cognitive and motivational barriers. While SRL initiates behavioral change by improving time management and planning, self-efficacy sustains it through enhanced resilience against avoidance tendencies. These findings collectively underscore the need for holistic interventions that develop both strategic competence and psychological preparedness in language learners.

### 5.7 There is a significant role of family social support in academic procrastination mediated by self-efficacy.

The results of the analysis show that the relationship between family social support mediated by self-efficacy is $\beta = 0.047$ ($p \leq 0.05$), there is a significant relationship. This illustrates that low family social support mediated by self-efficacy will affect academic procrastination. The results of the analysis show that self-efficacy as a mediation between family social support and academic procrastination is significant, so post-hoc analysis is needed. The following table presents the results of the mediation analysis.

The contribution of R2 (Square Multiple Correlation) shown by the academic procrastination determination value is 0.480, which means that the variability of academic procrastination which can be explained by the variability of learning based on self-regulation, family social support, and self-efficacy provides an effective contribution of 48%, it is concluded that the model in this study is quite good. The substantial explanatory power of self-efficacy ($R^2 = 0.444$) and academic procrastination ($R^2 = 0.480$) in this study aligns with prior work in *applied linguistics* on self-regulation's role in language learning behaviors that posit self-efficacy as a mediating construct linking environmental resources (such as family support) with behavioral outcomes like task completion and time management (Gong & Xu, 2024; H. Shi, 2018). While family support on its own directly predicts reduced procrastination, its impact is further enhanced when learners internalize this support as confidence in their ability to succeed.

Empirical evidence from collectivist settings underscores the heightened influence of parental feedback, particularly maternal encouragement, on learners' confidence in L2 acquisition (Lam & Chan, 2017; Lee et al., 2022). The emotional security and instrumental assistance provided by families not only buffer learners from stress but also create fertile conditions for the development of perceived competence, a key determinant of self-efficacy. Yuan et al. (2016)) and Torres et al. (2023) have argued that in non-Western and collectivist contexts, such as Indonesia, family involvement is deeply intertwined with learners' self-concept and motivational regulation. In these contexts, familial validation and in-group cohesion serve as powerful antecedents to self-efficacy, especially in academic tasks requiring sustained cognitive and emotional investment.

In language learning specifically, Gong and Xu (2024) found that emotional and instrumental support—paralleling parental roles—were strong predictors of academic self-efficacy in EFL contexts. Similarly, Roshandel et al. (2018) identified family influence as a significant predictor of L2 self-efficacy among Persian EFL learners. These studies confirm that parental encouragement and belief in learners' capabilities can fortify students' confidence in their academic skills and reduce behaviors indicative of avoidance, such as procrastination. Moreover, parental support has been shown to indirectly reduce procrastination by enhancing learners' self-beliefs and resilience. Zeaiter (2023) and Liu et al. (2025) demonstrated that emotional support fosters positive affect and persistence, while instrumental support improves learners' task engagement through logistical assistance. These dual forms of support collectively promote psychological safety, enabling learners to internalize success expectations and take timely academic action. Although the mediating effect of self-efficacy between family social support and procrastination is modest, it reflects a crucial psychological conduit through which environmental scaffolding is translated into academic persistence. These results support pedagogical efforts that extend beyond learner training to involve families as active agents in fostering academic self-beliefs, particularly in collectivist and EFL educational contexts.

## 6 Conclusion

Based on the results of measurement, data analysis, and discussion of research variables, it can be concluded that self-regulation-based learning has a significant role in influencing self-efficacy and

academic procrastination. The higher the value of self-regulation-based learning in students, the higher their self-efficacy. Conversely, the lower the self-regulation-based learning, the lower the students' self-efficacy. This shows that students' ability to self-regulate, plan, and monitor their learning processes independently contributes greatly to their confidence in completing academic tasks. Thus, efforts to improve self-regulation in learning can be a strategic step to increase students' self-efficacy.

Family social support plays an important role in increasing academic self-efficacy and reducing procrastination. Students who receive more support from their families tend to feel more confident in facing academic challenges, making them more motivated to complete tasks on time. Additionally, self-efficacy serves as a mediating factor between self-regulated learning, family support, and academic procrastination. The higher a student's self-efficacy, the less likely they are to procrastinate on academic tasks.

High self-efficacy allows students to feel more capable of overcoming academic challenges, thus reducing the tendency to procrastinate. Furthermore, self-regulation-based learning and high family social support, with self-efficacy as a mediator, significantly reduce academic procrastination. This means that self-efficacy is a bridge that connects the two factors with a decrease in procrastination behavior.

Overall, these findings underline the importance of self-regulation-based learning and family social support in increasing self-efficacy and reducing academic procrastination. Interventions aimed at improving self-regulation in learning and strengthening family social support can be effective strategies to encourage students to optimally achieve their academic potential. In addition, efforts to improve students' self-efficacy also need to be a focus, given its crucial role as a mediator in reducing academic procrastination. Thus, collaboration between the learning environment at school and support from the family can create conditions that support students' academic success.

The practical implications of these findings emphasize the need for a holistic approach in vocational education settings, particularly in the context of EFL learning. Educational institutions can develop self-regulation training programs that are integrated with the English language curriculum, while also involving families through workshops or collaborative activities. This approach will not only strengthen students' academic competencies but also foster a more resilient mindset toward the challenges of learning a foreign language. Moving forward, similar research could explore the implementation of intervention models based on these findings in more diverse EFL classroom settings.

## 7 Limitations and Implications

This study contributes critical insights into the interplay among self-regulated learning, family social support, and self-efficacy as predictors of academic procrastination in vocational EFL contexts. Nevertheless, several methodological and contextual limitations warrant consideration. First, the reliance on a cross-sectional research design precludes definitive conclusions regarding causality. Although Structural Equation Modeling (SEM) facilitates the exploration of theoretical relationships, only longitudinal designs can establish temporal precedence and directionality, especially concerning the mediating function of self-efficacy. Second, the study was conducted within a single Islamic-oriented vocational institution in Yogyakarta, Indonesia. While the demographic composition offers localized relevance, extrapolating these findings to more diverse educational or cultural populations should be approached cautiously. Third, the exclusive use of self-report instruments raises potential concerns regarding social desirability bias and subjective distortions. Future research would benefit from triangulated data sources, such as teacher ratings, peer observations, and learning analytics, to bolster measurement validity.

Notwithstanding these limitations, the study offers several pedagogically actionable insights. For EFL practitioners, systematically embedding self-regulated learning strategies—such as strategic goal-setting, time regulation, and self-assessment—into classroom instruction holds considerable promise for cultivating learners' academic resilience and reducing procrastination tendencies. These strategies should

be contextualized within authentic and challenging language tasks to stimulate meaningful engagement. Additionally, the role of family in learners' academic development cannot be overstated. Initiatives such as family-centered workshops and culturally responsive counseling can serve to elevate parental awareness of their supportive functions, particularly in collectivist cultures where familial scaffolding is a normative expectation. Curriculum designers should also consider developing multimodal interventions that align cognitive strategy training with affective supports like confidence-building and peer encouragement. This multidimensional alignment of pedagogical efforts can effectively mitigate procrastinatory behaviors by enhancing students' self-beliefs and perceived control over their language learning trajectories.

## Notes

1. BK (Guidance Counseling) teachers in Indonesia serve as mental health advocates, academic-career advisors, and deterrents to negative student behavior. While vital, they face challenges such as negative stigma, limited counseling tools, and administrative burden. Innovations such as digital counseling and collaboration with psychologists are gaining ground, but greater support-such as specialized training and clear regulations still needed to increase the effectiveness of BK services in shaping a healthier and more productive generation of Indonesians.

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