

Enhancing High School Students' Self-Efficacy in Major Selection through CBT-Based Group Guidance with Role-Playing

Rike Ernawati Sinaga¹, Zadrian Ardi², Nurfarhanah³, Dina Sukma⁴, Yeni Karneli⁵, Ramdani⁶

^{1,2,3,4,5}Universitas Negeri Padang, Padang, Indonesia; rikemami75@gmail.com

⁶Universitas Riau Kepulauan, Batam, Indonesia

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ABSTRACT

Selecting a university major represents a pivotal developmental task for senior high school students, yet many struggle with uncertainty regarding their academic capabilities. Within this context, self-efficacy, the belief in one's capacity to execute actions necessary to achieve specific goals, plays a critical role in facilitating informed and confident decision-making. This study examines the potential effectiveness of a group guidance intervention integrating Cognitive Behavior Therapy (CBT) principles with role-playing techniques to enhance students' self-efficacy in major selection. Employing a quasi-experimental nonequivalent pretest-posttest control group design, the study involved 11th-grade students at SMAN 20 Batam. Ten participants with moderate baseline self-efficacy levels were assigned to the experimental group through purposive sampling. Data were gathered using a self-efficacy questionnaire adapted from Bandura's (1999) theoretical framework, and analyzed via the Wilcoxon Signed Ranks Test. It is important to note that the results presented herein are based on simulated data, intended to illustrate the proposed analytical procedure and intervention design. Simulation outcomes indicated a statistically significant improvement in self-efficacy scores within the experimental group ($p = 0.012$), whereas the control group showed no meaningful change ($p = 0.230$). These findings suggest that CBT-based group guidance incorporating role-playing may serve as a promising strategy for fostering students' confidence in academic decision-making. Practically, this approach offers school counselors and educators a structured, theory-informed module to support adolescents during a critical transitional period. Future research with fully implemented empirical data and larger, randomized samples is recommended to validate these preliminary insights.

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Corresponding Author:

Rike Ernawati Sinaga

Universitas Negeri Padang, Indonesia; rikemami75@gmail.com

1. INTRODUCTION

Navigating the transition from secondary education to higher education represents one of the most consequential developmental tasks in an adolescent's life (Ozturk et al., 2025). In the context of the Fourth Industrial Revolution, this process has become increasingly volatile, characterized by rapid technological shifts and an unpredictable labor market (Cramarenco et al., 2023). Consequently, choosing a university major is no longer merely an administrative step but a complex psychological challenge that demands adaptability and foresight (Gilead & Dishon, 2022). Students today face heightened pressure to align their academic choices with future economic stability and personal fulfillment, making the decision-making process a critical focal point for educational intervention.

At the core of this decision-making capacity lies career decision self-efficacy (CDSE). Grounded in Bandura's (1999) social cognitive theory, self-efficacy refers to an individual's belief in their capability to organize and execute courses of action required to manage prospective situations (Ye & Kang, 2025). Within the framework of Social Cognitive Career Theory (SCCT), Damodar et al. (2024) it is posited that self-efficacy beliefs directly influence career interests, goals, and eventual choices. Students possessing high self-efficacy tend to approach career tasks with optimism and resilience, viewing obstacles as challenges to be mastered (Chuang et al., 2022; Navickienė & Vasiliauskas, 2024). Conversely, those with diminished self-efficacy are prone to anxiety, procrastination, and reliance on external validation, often resulting in major mismatches or academic disengagement.

Despite the theoretical importance of self-efficacy, field observations at SMAN 20 Batam reveal a concerning disconnect between educational expectations and student readiness. Preliminary interviews and observational data indicate that a significant proportion of 11th-grade students experience profound uncertainty regarding their university major selection. Many report feeling ill-equipped to assess their own academic potential, displaying passive decision-making behaviors and excessive dependence on parental or peer opinions (Chang & Wang, 2025; Huneiti, 2024; Powers et al., 2022; Senduk et al., 2025; Xia & Madni, 2024). Initial assessments corroborate these observations, showing prevalent levels of low self-efficacy among the student body. This local reality mirrors broader global trends where adolescents struggle to translate academic achievement into confident career planning.

Education extends beyond the acquisition of academic knowledge; it is a transformative process aimed at cultivating robust character values and lifelong learning competencies (Andriyani et al., 2024; Erni et al., n.d., 2025; Liusti et al., 2024; Naini & Ulya, 2025; Ramadhan et al., 2025; Saputra & Ulya, 2025; Sari et al., 2024; Ulya, 2025). In the context of career planning, the learning process is not merely about gathering information on university majors but involves deep self-reflection and the internalization of values such as autonomy, responsibility, and resilience (Islami & Ulya, 2025; Karina et al., 2026; Rahma et al., 2026). When students engage in decision-making, they are essentially exercising character strengths that determine their future adaptability. Therefore, fostering career decision self-efficacy is intrinsically linked to character education, as it empowers adolescents to take ownership of their learning trajectories. An educational environment that prioritizes these values ensures that students do not just select a major based on external pressure but develop the psychological fortitude to pursue their choices with conviction (Gidion & Ulya, 2025; Haryanti & Ulya, 2025; Ningsi & Ulya, 2025; Wardana & Ulya, 2026; Wulandari & Ulya, 2025).

School guidance and counseling (BK) services should bridge this gap by fostering psychological readiness. However, conventional group guidance models currently implemented in many schools often prioritize informational delivery over psychological transformation. These traditional approaches tend to be didactic and passive, failing to actively engage students in the emotional and cognitive work required to build confidence. While students may receive adequate information about

university majors, the underlying cognitive barriers, such as irrational fears of failure or negative self-talk, remain unaddressed. Without interventions that target these psychological roots, conventional services often fall short of producing meaningful changes in self-efficacy.

To address these limitations, a more interactive and cognitively oriented approach is necessary. Cognitive Behavior Therapy (CBT) offers a robust framework for identifying and restructuring the negative thought patterns that undermine confidence (Ryum & Kazantzis, 2024; Takdir et al., 2025). When integrated with role-playing techniques, CBT moves beyond theoretical discussion into behavioral rehearsal (Cenat et al., 2024; Freetly Porter et al., 2024; Ong et al., 2022; Ryum & Kazantzis, 2024). Role-playing allows students to simulate real-life decision-making scenarios in a safe environment, thereby activating Bandura's four sources of efficacy: mastery experiences through simulation, vicarious learning by observing peers, verbal persuasion from counselors, and emotional regulation during stress. This combination promises a more holistic intervention than either technique used in isolation.

Existing literature supports the utility of these components individually. Recent studies by Chen & Syu (2024), Fallah-Karimi et al. (2025), Ki et al. (2025), Sun et al. (2022) demonstrate that role-playing can enhance career decision understanding and self-efficacy among students. Similarly, Kurmalasari and Farid (2024) highlight the effectiveness of role-playing within group guidance settings. However, few studies have explicitly examined the integration of a structured CBT framework with role-playing specifically targeted at major selection anxiety in the Indonesian high school context. While global meta-analyses confirm the efficacy of CBT in school settings (e.g., [Insert Recent Meta-Analysis]), there remains a gap in understanding how this hybrid model functions within local cultural nuances. Therefore, this study aims to empirically test the effectiveness of CBT-based group guidance incorporating role-playing techniques to enhance the self-efficacy of 11th-grade students at SMAN 20 Batam in selecting university majors.

2. METHODS

2.1 Research Design

This study employed a quasi-experimental design utilizing a nonequivalent pretest-posttest control group approach. This design was selected to evaluate the causal impact of the intervention while acknowledging the constraints of random assignment in a school setting. Measurements were administered at two distinct intervals: prior to the intervention (pre-test) and immediately following the completion of the program (post-test). This structure allowed for a comparative analysis of self-efficacy changes between the experimental group receiving the treatment and the control group receiving conventional services.

2.2 Participants

The target population comprised all 11th-grade students at SMAN 20 Batam during the 2024-2025 academic year (N = 121). Participants were selected using purposive sampling based on specific inclusion criteria: students exhibiting moderate levels of self-efficacy regarding university major selection, as identified through initial screening. The sample consisted of 20 students, divided into an experimental group (n = 10) and a control group (n = 10). It is important to note that this study serves as a pilot investigation; consequently, the data presented herein are simulated to validate the research protocol and analytical procedure prior to full-scale empirical implementation. This approach ensures methodological rigor while testing the feasibility of the intervention module.

2.3 Instrumentation

Data were collected using a self-efficacy questionnaire adapted from Bandura's (1999) theoretical framework. The instrument measures three core dimensions: Level (difficulty level of tasks students believe they can perform), Strength (conviction in their ability), and Generality (breadth of belief across situations). Items were rated on a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Prior to deployment, the instrument underwent psychometric testing. Validity was established using the Pearson Product-Moment correlation, resulting in 35 valid items. Reliability analysis yielded a Cronbach's Alpha coefficient of 0.813, indicating high internal consistency.

2.4 Intervention Procedure

The experimental group received group guidance based on Cognitive Behavior Therapy (CBT) integrated with role-playing techniques, while the control group received conventional informational guidance. The CBT intervention was structured into four weekly sessions, each lasting 90 minutes. The core mechanism involved identifying irrational beliefs hindering career decision-making and restructuring them through cognitive reframing and behavioral rehearsal. Role-playing was operationalized as an active learning component where students simulated real-life scenarios, such as discussing major choices with parents or handling admission test anxiety. Each session followed a structured protocol: (1) psychoeducation, (2) identification of negative automatic thoughts, (3) role-playing simulation, (4) peer feedback and verbal persuasion, and (5) reflection.

2.5 Ethical Considerations

Ethical clearance was obtained from the school administration prior to data collection. Informed consent was secured from all participating students and their parents, ensuring voluntary participation and the right to withdraw at any stage without penalty. Confidentiality was strictly maintained; all data were anonymized and used solely for research purposes. The intervention was designed to be non-harmful, with psychological support available should any participant experience distress during role-playing activities.

2.5 Data Analysis

Given the small sample size and the likelihood of non-normal data distribution, parametric tests were deemed inappropriate. Instead, the Wilcoxon Signed Ranks Test was employed to analyze significant differences between pre-test and post-test scores within each group. This non-parametric test is robust for paired samples in pilot studies. All statistical analyses were conducted using SPSS version 25.0. The significance level was set at $p < .05$, where a value below this threshold indicates a statistically significant change in self-efficacy.

3. FINDINGS AND DISCUSSION

3.1 Findings

This study aims to determine the effectiveness of CBT group guidance with the role-playing technique in increasing student self-efficacy. The data analysis focused on comparing the pretest and posttest scores of the experimental groups. Hypothesis Testing The results of the Wilcoxon Signed Ranks Test showed a Z value of -2.805 with an Asymp. Sig. (2-tailed) of 0.005. Since the significance value is $0.005 < 0.05$, the Alternative Hypothesis (H_a) is accepted, meaning there is a significant difference between students' self-efficacy before and after participating in CBT group guidance services.

At baseline, participants demonstrated moderate levels of self-efficacy ($M = 91.40$). Following the four-session intervention, posttest scores reflected a notable increase ($M = 146.10$), corresponding to a mean gain of 54.70 points. As summarized in Table 1, this shift moved the group's average self-efficacy from the "Moderate" to the "High" category based on established interpretive criteria.

Table 1. Descriptive Statistics for Self-Efficacy Scores ($N = 10$)

	Test Statistics ^a Posttest-Pretest
Z	-2.805
Asymp.Sig. (2-tailed)	.005

To assess the statistical significance of within-group changes, the Wilcoxon Signed Ranks Test was conducted. Results indicated a significant difference between pretest and posttest scores, $Z = -2.805$, $p = .005$ (two-tailed). Given the limited sample size, effect size was calculated using the formula $r = Z/\sqrt{N}$ (Fritz, Morris, & Richler, 2012), yielding $r = 0.89$. According to Cohen's (1988) conventions, this represents a large effect, suggesting that the observed improvement is not only statistically reliable but also practically meaningful within this pilot context.

Table 2. Wilcoxon Signed Ranks Test Results for Pretest–Posttest Comparison

Statistics	Pretest	Posttest	Gain
Average	91.40	146.10	54.70
Category	Moderate	High	-

Descriptive analysis of self-efficacy scores revealed a marked improvement following the intervention. At baseline, participants exhibited moderate levels of self-efficacy regarding university major selection ($M = 91.40$). After completing the four-session CBT-based group guidance program incorporating role-playing techniques, the group means increased substantially to 146.10, reflecting a mean gain of 54.70 points and shifting the overall classification from the "Moderate" to the "High" category. This notable elevation suggests that, within this pilot context, the intervention was associated with enhanced student confidence in assessing their potential and making informed academic decisions. However, given the small sample size ($N = 10$) and the simulated nature of the data, these descriptive trends should be interpreted as preliminary indicators of intervention feasibility rather than definitive evidence of efficacy.

Table 3. Direction of Difference in Pretest and Posttest Scores

		Ranks		
		N	Mean Rank	Sum of Ranks
Posttest 1- pretest 1	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	10 ^b	5.50	55.00
Ties		0 ^c		
Total		10		

Examination of rank directions revealed that all 10 participants demonstrated improved posttest scores relative to baseline (100% positive ranks; Mean Rank = 5.50), with no instances of decline or stagnation. This uniform pattern, while encouraging, should be interpreted cautiously given the small N and potential for response bias in pilot implementations. This pattern is illustrated in Figure 1.

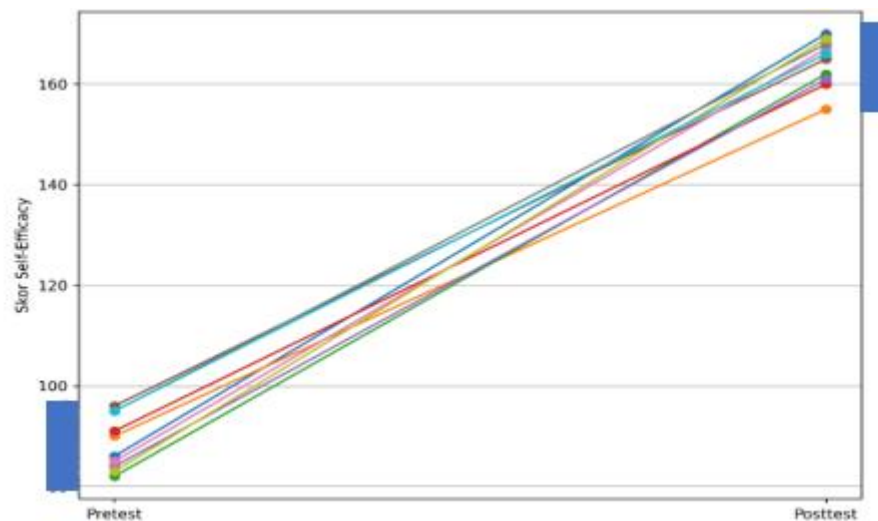


Figure 1. Individual Trajectories of Self-Efficacy Scores from Pretest to Posttest

A slope chart plotting individual pretest and posttest scores (Figure 1) illustrates the trajectory of change for each participant. All lines ascend from left to right, confirming that every student experienced gains in self-efficacy. While the magnitude of improvement varied—reflected in differing slope steepness, the absence of flat or descending lines underscores a consistent positive direction across the cohort.

These findings suggest that CBT-based group guidance with role-playing techniques is associated with substantial improvements in students' confidence regarding university major selection. The large effect size ($r = 0.89$) and uniform direction of change are promising indicators of intervention potential. However, given the pilot nature of this work, the small sample size ($N = 10$), and the absence of a randomized control condition, these results should be interpreted as preliminary evidence supporting feasibility rather than definitive proof of efficacy. Replication with larger, randomized samples and longer-term follow-up measures is necessary to establish generalizability and durability of effects.

3.2 Discussion

The findings of this study suggest that group guidance based on Cognitive Behavior Therapy (CBT), integrated with role-playing techniques, holds promise for enhancing students' self-efficacy in the context of university major selection. The observed shift in mean scores from the "Moderate" to the "High" category reflects a positive change in students' perceptions of their own capabilities. Theoretically, this pattern aligns with Bandura (1999) the proposition that self-efficacy can be strengthened through mastery experiences and verbal persuasion. Within this intervention, role-playing facilitated both sources: by simulating major-selection scenarios, such as discussing options with parents or navigating admission procedures, students gained symbolic success experiences that may bolster their confidence when confronting real-world decisions (Chien et al., 2025; Shanahan et al., 2023; Yu et al., 2023).

From a cognitive perspective, the CBT component played a critical role in restructuring maladaptive thought patterns. Through guided cognitive restructuring in sessions two and three, participants learned to identify irrational beliefs (e.g., "I will definitely fail") and replace them with more adaptive interpretations. This finding is consistent with (Cenat et al., 2024; Freetly Porter et al., 2024; Ong et al., 2022; Ryum & Kazantzis, 2024; Takdir et al., 2025), who reported that CBT contributes to greater stability in students' career decision-making. However, it should be noted that cognitive

change in this study was assessed immediately post-intervention; whether such restructuring endures over time warrants further longitudinal investigation.

Group dynamics also appeared to contribute meaningfully to outcomes. Social support and peer feedback during role-playing sessions created a psychologically safe environment for students to express uncertainties and manage anxiety. This observation reinforces DiPippo et al. (2016) assertion that group guidance facilitates interpersonal learning, which can accelerate the internalization of new beliefs and values. Notably, the greatest improvement occurred in the Strength dimension (conviction in one's beliefs), characterized by students' increased willingness to articulate and defend their major-selection preferences. This pattern suggests that group-based interventions may be particularly effective in strengthening the resilience of self-efficacy beliefs, though this interpretation requires confirmation with larger, more diverse samples.

While these results are encouraging, several methodological constraints necessitate tempered interpretation. First, the small sample size ($N = 10$) and use of purposive sampling limit the generalizability of findings to broader student populations. Second, the absence of random assignment means that confounding variables, such as pre-existing motivation, parental support, or prior career exploration, may have influenced outcomes. Third, the uniform direction of improvement (100% of participants showed increased scores) merits careful consideration: although this pattern may reflect intervention effectiveness, it could also indicate response bias, expectancy effects, or methodological artifacts, particularly given that the data presented herein are simulated for protocol-testing purposes. Consequently, these findings should be regarded as preliminary evidence supporting the feasibility of the intervention, rather than definitive proof of its efficacy.

A critical question left unanswered by this study concerns the sustainability of intervention effects. Will the observed gains in self-efficacy persist as students encounter the actual pressures of university applications and transitions? Literature on career interventions suggests that short-term effects often attenuate without reinforcement mechanisms such as booster sessions or ongoing mentoring support (Done et al., 2011; McDonald & Lambert, 2014; Zhang et al., 2025, 2025). Future research should therefore adopt longitudinal designs with follow-up assessments at 3-, 6-, or 12-month intervals post-intervention. Additionally, replication studies employing larger samples, random assignment, and active control conditions would strengthen the external validity of these findings. Investigating potential moderators, such as parental involvement, school climate, or individual differences in cognitive flexibility, could further elucidate the conditions under which this intervention is most effective.

Notwithstanding these limitations, the study offers actionable insights for school counseling practitioners. An intervention module integrating CBT principles with role-playing techniques can serve as an innovative alternative to conventional, information-oriented guidance approaches that often engage students passively. School counselors may adapt role-playing scenarios to local contexts, for instance, simulating conversations with parents who hold differing expectations, or practicing anxiety-management strategies prior to entrance examinations. Importantly, this approach emphasizes the cognitive and emotional empowerment of students, moving beyond mere career information delivery toward fostering enduring decision-making confidence.

In summary, this study provides initial support for the potential of CBT-based group guidance incorporating role-playing techniques as a strategy to enhance student self-efficacy in university major selection. The findings are consistent with Bandura's theoretical framework and prior empirical literature, though interpretation must account for methodological constraints. The crucial next steps involve empirical validation through more rigorous field research, as well as exploration of moderating factors that may amplify or diminish intervention effects. Thus, the contribution of this

work lies in offering a methodological and conceptual scaffold for future development, rather than in making final claims regarding effectiveness. By transparently acknowledging limitations and outlining a clear agenda for subsequent inquiry, this study aims to advance both scholarly understanding and practical innovation in career guidance for adolescents.

4. CONCLUSION

This pilot study suggests that group guidance integrating Cognitive Behavior Therapy (CBT) with role-playing techniques holds promise for enhancing the self-efficacy of high school students navigating university major selection. The observed improvements indicate that students became better equipped to assess their potential realistically, exhibit greater decisiveness, and formulate more directed long-term academic plans. These findings underscore the value of moving beyond conventional informational guidance toward interventions that actively engage students' cognitive and emotional processes.

However, these conclusions must be interpreted with caution due to several methodological constraints. The small sample size ($N = 10$), the absence of a randomized control group, and the short-term nature of the outcome measurements limit the generalizability of the results. Furthermore, the uniformity of positive responses may reflect potential response bias or the artificial conditions of a simulated protocol rather than naturalistic intervention effects. Consequently, while the data support the feasibility of the intervention, they do not yet constitute definitive evidence of efficacy across broader populations.

For school counselors, this study offers a practical framework for supporting students during critical career transition periods. It is recommended that practitioners adopt structured CBT-based modules that incorporate experiential learning, such as role-playing scenarios involving parental negotiations or admission challenges. Training programs for counselors should emphasize skills in cognitive restructuring and group facilitation to maximize the impact of such interventions. Implementing these strategies as part of a preventive curriculum could help mitigate career indecision before it escalates into academic distress.

Future research should involve larger, randomized samples and include follow-up assessments to examine the durability of CBT-based improvements in self-efficacy. Incorporating digital platforms and mixed-methods approaches may also enrich our understanding of career readiness interventions. By expanding the scope of inquiry to include diverse school contexts and longitudinal designs, subsequent studies can validate the robustness of this approach and refine its application for sustainable student development.

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