

Short-Term Effects of Musical Participation on Adolescents' Self-Efficacy: A Pretest–Posttest Study

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ABSTRACT: This study examines the effect of musical participation on adolescents' self-efficacy using a one-shot pretest–posttest design. A total of 30 high school students voluntarily took part in a structured musical activity, which involved singing a self-selected musical or film OST piece. The General Self-Efficacy Scale (GSES), including 10 standard items and 2 custom items related to stage confidence and emotional expression, was administered before and after the activity. Data were analyzed using reliability testing, paired-sample t-tests, and Pearson correlation. The results revealed a statistically significant increase in self-efficacy scores following musical participation ($t = -4.58, p < .001$). The greatest improvements were observed in items related to stage confidence, stress regulation, and multitasking. Although not statistically significant, a negative correlation was observed between initial self-efficacy and score improvement ($r = -0.35, p = 0.057$), suggesting that students with lower initial confidence may benefit more from the intervention. These findings suggest that short-term musical engagement can serve as a meaningful psychological boost for adolescents, particularly those with lower baseline self-efficacy. The study highlights the potential of school-based musical activities as effective tools for promoting emotional regulation and building confidence during adolescence.

KEYWORDS: Behavioral and Social Sciences, Sociology and Social Psychology, Adolescent Mental Health, Self-Efficacy Assessment, General Self-Efficacy Scale (GSES).

■ Introduction

Research Motivation:

Adolescence is a critical period during which individuals shape their sense of direction and identity. Self-efficacy formed at this stage significantly influences future decisions in areas such as career choices and interpersonal relationships. However, today's adolescents often experience self-doubt, a fear of failure, and a feeling of helplessness, driven by intense academic competition and the pressures of social media. These observations prompted us to explore potential methods for enhancing adolescent self-efficacy.

As the president and vice president of the musical theater club at the Korean Minjok Leadership Academy, the authors have extensive experience planning performances, coaching peers, and engaging in vocal and dance rehearsals. Throughout this process, we frequently observed that students found relief from stress and gained a sense of joy and accomplishment through musical practice. The collaborative experience of memorizing lines, expressing emotions, singing, and performing as a group seemed to transcend the typical boundaries of extracurricular activities. These experiences inspired the central question of this study: Can musical participation serve as more than a leisure activity and contribute meaningfully to the psychological development of adolescents? To address this, we aimed to systematically and quantitatively examine the impact of musical engagement on adolescent self-efficacy.

Literature Review:

1) Self-Efficacy:

Self-efficacy refers to an individual's belief in their capacity to execute specific behaviors necessary to produce a desired outcome.¹ Bandura defined self-efficacy beliefs as a crucial determinant of human motivation, emotion, and behavior, exerting influence through motivational, cognitive, and affective mediators.² These beliefs enable individuals to regulate their behavior and respond proactively to environmental demands.

According to Bandura, self-efficacy is developed through four primary sources of information,² as illustrated in Figure 1:

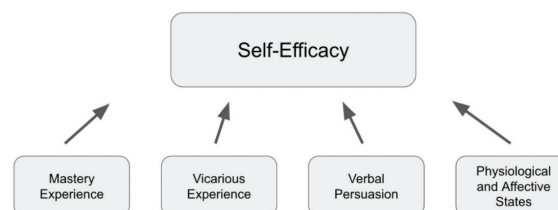


Figure 1: Four Sources of Self-Efficacy as Proposed by Bandura: Mastery Experience, Vicarious Experience, Verbal Persuasion, and Physiological & Affective States. This framework explains how mastery, modeling, encouragement, and affective cues shape efficacy beliefs; in this study, musical rehearsal naturally engages all four sources.

- **Mastery Experience:** Individuals tend to engage in tasks they believe they can accomplish and avoid those perceived as too difficult. Bandura posited that repeated success in past tasks builds high self-efficacy, while repeated failure lowers it.
- **Vicarious Experience:** Observing others, particularly peers or role models, succeed in tasks can lead individ-

uals to believe they can grow as well, and the reverse is also true.

- Verbal Persuasion: Encouragement or discouragement from others—such as praise or criticism—can strongly influence an individual's belief in their capability.
- Physiological and Affective States: Physical and emotional conditions can influence how individuals judge their strengths and weaknesses.³

These sources collectively shape how a person evaluates their capabilities, forming a psychological construct shaped through interactive experiences and internal states.

In addition to its theoretical underpinnings, self-efficacy possesses unique attributes that distinguish it from related concepts such as self-esteem and confidence.⁴ These include:

- Judgment of Capabilities: Rather than focusing on innate traits, self-efficacy centers on one's perceived ability to accomplish a specific task.
- Multidimensionality: Self-efficacy is not a singular trait—it can vary across different domains such as mathematics, language, or the arts.
- Context-Dependency: Beliefs about one's abilities can fluctuate depending on the situation. For example, competitive environments may reduce self-efficacy, whereas collaborative contexts may enhance it.
- Mastery-Based Assessment: Self-efficacy is evaluated based on whether one believes a task can be accomplished, rather than through comparison with others.
- Prospective Nature: Self-efficacy is measured before action takes place, making it a predictive factor rather than a *post hoc* outcome.

Various empirical studies also confirm the practical implications of self-efficacy. For instance, higher self-efficacy has been linked to greater interpreting accuracy among language learners and to stronger job competence among paramedics.^{5,6}

2) Adolescents and Self-Efficacy:

Adolescence, a transitional stage between childhood and adulthood, typically includes individuals aged 10–18 in South Korea, though definitions vary globally. Erikson described the core developmental task of adolescence as the establishment of identity, which requires a “moratorium” period in which individuals can integrate previously developed components of the self.⁷ Failing to do so may lead to identity confusion, expressed through frustration or negative behavior.

Bandura emphasized that goal-directed behavior is sustained when individuals believe in their capacity to succeed.² Thus, self-efficacy plays a foundational role in shaping adolescents' perception of their identity and their chosen roles in society.

Puberty brings rapid cognitive, emotional, and social changes. Adolescents become more sensitive to external evaluations, particularly from teachers and peers, and self-efficacy becomes closely tied to their social environment. Consequently, self-efficacy is a crucial factor in adolescent development and the formation of identity.

3) Arts Participation and Self-Efficacy:

The Korean Standard Dictionary defines “art” as all human activities and products aimed at expressing and creating beauty. Previous research has indicated that various forms of artistic engagement can positively affect adolescents' psychological development. For example, Seong and Kim found that participation in youth orchestra programs significantly improved general self-efficacy ($p < .001$).⁸ Hughes and Wilson also demonstrated that youth theatre promotes personal and social development among adolescents.⁹ Additionally, Jo and Koo reported significant improvements in self-esteem, creativity, and appreciation for the arts based on adolescents' hours of participation in cultural and artistic programs.¹⁰

4) Musical Theatre and Self-Efficacy:

Musical theatre is a modern American art form that combines music, singing, and dance, often incorporating elements of revue, spectacle, and showmanship. According to the National Institute of the Korean Language, it is defined as a comprehensive stage art that integrates musical comedy, musical plays, and other performative elements.

Musical participation inherently encompasses various sources of self-efficacy, including mastery experience (such as memorizing lines and rehearsing choreography), vicarious experience (observing and comparing oneself to peers), and verbal persuasion (receiving applause from audiences). Prior research suggests that engaging in musical activities can improve emotional regulation in middle school students.¹¹

Taken together, these studies suggest that artistic experiences can enhance self-efficacy and personal growth. Given that musicals integrate multiple forms of art—including theatre and music—it is hypothesized that musical theatre may have an especially strong effect on self-efficacy. Therefore, the present study aims to empirically test the impact of musical theatre participation on adolescents' self-efficacy.

Conceptual Framework and Hypotheses:

1) Research Model:

This study aims to empirically examine the effect of musical rehearsal participation on changes in adolescents' self-efficacy. By measuring self-efficacy scores before and after participation in musical activities, the study examines whether such experiences lead to statistically significant improvements.

- Independent Variable: Participation in musical rehearsals (pre/post comparison)
- Dependent Variable: Change in self-efficacy scores (measured as score difference)

The research model is illustrated in Figure 2.



Figure 2: Research Model: The Effect of Musical Rehearsal Experience on Changes in Self-Efficacy. The single-group pre–post design tests whether rehearsal elevates self-efficacy; subsequent analyses supported the model, showing a significant mean increase after participation.

A single-group pre-post design is used, and a paired t-test is conducted to compare mean differences in self-efficacy before and after participation. Additionally, item-level changes and correlations between baseline scores and the magnitude of change are analyzed to enable a more detailed interpretation.

2) Research Questions and Hypotheses:

The study addresses the following research questions:

- How does participation in musical theatre affect adolescents' self-efficacy?
- What correlations exist among individual items and subfactors of self-efficacy?
- Does the effect of participation vary depending on the participant's initial self-efficacy level?

Based on these questions, the following hypotheses are proposed:

- H1: Adolescents will show a statistically significant increase in self-efficacy scores after participating in musical rehearsal and performance.
- H2: There will be a significant positive correlation between GSES items and supplementary survey items reflecting musical participation.
- H3: Participants with lower baseline self-efficacy will show greater improvements after participation.

■ Methods

Research Design and Procedure:

This study employed a one-shot pretest-posttest experimental design to examine the effect of musical participation on adolescents' self-efficacy. The experiment was conducted in June 2025 in an experimental space set up on the 2nd floor of Deokgo Hall at the Korean Minjok Leadership Academy (KMLA).

Before the experiment, the researcher coordinated schedules with participants and allocated approximately 6 minutes of individual session time per participant. To ensure psychological stability and immersion in the task, each participant was asked to submit in advance a link or instrumental (MR) file of a musical or movie OST they were familiar with and wished to perform. This approach aimed to reduce tension and enhance natural emotional expression and self-awareness by avoiding unfamiliar songs.

Upon arrival at the experiment site, participants were first asked to complete a pretest using the General Self-Efficacy Scale (GSES). The questionnaire consisted of 12 items: 10 standard items from the GSES and 2 additional items specifically developed by the researcher to assess confidence and emotional expression in musical contexts. These two items were included in both the pretest and posttest to ensure consistency and measure psychological responses in performance settings.

After completing the pretest, the researcher left the room, allowing the participant to sing freely along with their pre-submitted MR. Participants were permitted to view lyrics during the performance, and researchers remained outside, only monitoring the audio playback without interfering in any way. This

arrangement was designed to help participants feel secure and express themselves authentically.

Immediately after the performance, the researcher re-entered the room and administered the posttest using the same 12-item questionnaire. The response format and environment were kept identical to those of the pretest to enable consistent comparisons.

Songs used in the experiment included familiar musical and Disney OSTs such as "A Whole New World," "Do You Hear the People Sing?," "How Far I'll Go," "This is Me," and "Let It Go." Participants were free to choose songs that reflected their identity or aspirations, encouraging natural emotional flow through self-expression, immersion, and self-awareness.

Participants:

This procedure was consistently applied to all 30 participants. The researchers minimized intervention throughout to ensure the internal validity of naturally occurring changes in self-efficacy.

This study was conducted in June 2025 with 30 first-year students enrolled at the Korean Minjok Leadership Academy (KMLA). Participants were recruited based on their interest in musical activities and their willingness to participate voluntarily in the study.

On the day of the experiment, participants confirmed their consent by checking a statement at the beginning of the questionnaire: "I agree with the purpose of the study and voluntarily participate." All participants were required to check this item to proceed with the survey, thereby ensuring the ethical validity of the survey.

The 30 participants were divided into three cohorts and took part in the experiment sequentially. The number of students and gender distribution for each cohort are shown in Table 1:

Table 1: Participants' Grade and Gender Information. Thirty adolescents (16 male, 14 female; ages 15–17) participated, providing a balanced sample for pre-post comparisons.

Age	Total	Male	Female
17	14	9	5
16	10	4	6
15	6	3	3

Of the 30 participants, 16 were male, and 14 were female, resulting in a relatively balanced gender ratio. Since the study focused on adolescents, the experimental environment was designed to minimize psychological burden and external evaluation. Participants were explicitly informed that the experiment did not involve evaluating or comparing singing ability. They were also reminded of their right to withdraw from the experiment at any time. The setting was carefully arranged to ensure psychological comfort and allow for authentic self-expression without external interference.

Instruments:

1) General Self-Efficacy Scale (GSES):

To measure changes in self-efficacy before and after musical participation, this study employed the General Self-Efficacy Scale (GSES). Originally developed by Schwarzer and Jerusalem based on Bandura's self-efficacy theory, the GSES assesses

an individual's belief in their ability to solve problems and achieve goals, even in difficult situations. The Korean version of the scale was used for this study.

The original GSES consists of 10 items, each rated on a 5-point Likert scale (1 = Not at all true to 5 = Exactly accurate). Higher scores indicate higher general self-efficacy.

In addition to the original 10 items, the present study included two researcher-designed items specifically tailored to assess self-expression in musical contexts. These items were added to more precisely measure confidence in stage performance and psychological responses in expressive settings. Thus, the final survey consisted of 12 items and was administered both before and after the musical activity, with the item order and conditions held constant to ensure valid comparisons.

The exact questionnaire is provided in the Appendix. The surveys were administered via Google Forms. Participants completed the pretest in writing upon arrival at the experiment site and responded to the posttest in the same manner after the musical performance. The wording and order of the pre- and post-surveys were identical to ensure consistency.

2) Reliability Analysis:

Table 2: Cronbach's α Reliability Coefficients for Pre- and Posttest Surveys. Internal consistency was high and improved from pretest ($\alpha = .858$) to posttest ($\alpha = .908$), supporting the reliability of the 12-item instrument.

Type	No. of Items	Cronbach's α
Pretest	12	0.858
Posttest	12	0.908

The study employed pre- and post-surveys to assess the impact of musical participation on self-efficacy. As shown in Table 2, all 30 students completed both surveys, which included the same 12 items at each time point.

To assess internal consistency, Cronbach's α was calculated. For all 12 items, the reliability was $\alpha = 0.858$ for the pretest and $\alpha = 0.908$ for the posttest, indicating high internal consistency of the instrument.

Additionally, when excluding the two musical context-specific items (Item 11: "I am confident singing or acting on stage" and Item 12: "I feel that I can naturally express my emotions"), the α values improved: $\alpha = 0.890$ for the pretest and $\alpha = 0.916$ for the posttest. This suggests that the two additional items may measure slightly different constructs from general self-efficacy.

These results support the reliability of the instrument used and its appropriateness for analyzing changes in self-efficacy before and after participation in music.

Data Analysis:

To empirically examine the effect of musical participation on self-efficacy, the data were analyzed using the SPSS statistical software according to the following procedures:

1) Reliability Analysis:

To verify the internal consistency of the self-efficacy measurement tool, Cronbach's α was calculated separately for the pretest and posttest. Reliability was analyzed in two formats: including all 12 items (10 standard GSES items + 2 custom

items) and excluding the 2 custom items. This dual approach allowed us to assess whether the instrument as a whole demonstrated sufficient consistency and stability.

2) Normality Test:

In preparation for paired-sample t-tests, the difference scores between pretest and posttest were tested for normality using the Kolmogorov-Smirnov test. Paired-sample t-tests were only applied if the assumption of normal distribution was met.

3) Paired-Sample t-Test:

To examine whether the difference in mean self-efficacy scores before and after musical participation was statistically significant, a paired-sample t-test was conducted. The test was applied to both the total scores and the individual item scores to identify specific areas of self-efficacy that may have improved.

4) Item-Wise Score Change Analysis:

For each of the 12 GSES items, the mean difference between pre- and posttest scores was calculated. These results were visualized using graphs and tables to highlight which psychological domains showed the greatest changes in self-efficacy. This exploratory analysis provided insight into the specific psychological dimensions affected by musical participation.

5) Correlation Analysis Between Items:

To explore the structural relationships among subcomponents of self-efficacy, Pearson correlation coefficients were calculated between individual items. This helped identify patterns of interaction among sub-factors and revealed whether certain response tendencies were shared across items.

6) Correlation Between Initial Scores and Change:

To determine whether participants with lower initial self-efficacy benefited more from the musical experience, a Pearson correlation was computed between the pretest scores and the difference scores (posttest – pretest). This allowed us to examine whether those with lower starting levels of self-efficacy experienced greater gains.

Results and Discussion

Normality Test Results:

To assess whether the differences in self-efficacy scores before and after musical participation followed a normal distribution, a Kolmogorov-Smirnov test was conducted. The results are presented in Table 3.

Table 3: K-S Statistic and p-Value. The difference scores met normality ($K-S = 0.136$, $p = .592$), validating the use of parametric tests for mean change.

K-S Statistic	p-Value
0.136	0.592

The Kolmogorov-Smirnov (K-S) test is a non-parametric method used to evaluate whether a given dataset follows a specific distribution—in this case, the normal distribution. This test is commonly employed to validate the assumptions required for parametric statistical analyses.

In this study, the test was applied to the difference scores between the posttest and pretest self-efficacy measurements. The result showed a K-S statistic of 0.136 and a p-value of 0.592, which exceeds the conventional significance threshold of 0.05.

Therefore, it can be concluded that the difference scores are normally distributed. Based on this result, a paired-sample t-test was subsequently conducted to examine whether the mean change in self-efficacy before and after musical participation was statistically significant.

Paired-Sample t-Test Results:

To determine whether the change in self-efficacy following musical participation was statistically significant, a paired-sample t-test was conducted. The results are shown in Table 4.

Table 4: Paired-Sample t-Test Results. Self-efficacy increased by 0.55 points on average (pre: 3.20; post: 3.75), a highly significant gain ($t(29) = -4.58$, $p < .001$).

Variable	Pretest M (SD)	Posttest M (SD)	Difference M (SD)	t	p
Musical Participation	3.20 (0.66)	3.75 (0.75)	0.55 (0.73)	-4.58	.00008

To examine the effect of musical participation on adolescents' self-efficacy, a paired-sample t-test was conducted on the mean self-efficacy scores before and after the activity. The analysis revealed that the mean pretest score was 3.20 (SD = 0.66), and the mean posttest score was 3.75 (SD = 0.75). The average increase in scores was 0.55 (SD = 0.73).

The paired t-test yielded a statistically significant result, $t(29) = -4.58$, $p < .001$, indicating that the increase in self-efficacy following musical participation was highly significant. This suggests that the improvement was unlikely to have occurred by chance.

Additionally, despite the standard deviations being similar between pretest and posttest scores (0.66 and 0.75, respectively), the significant increase in the mean score implies that the musical activity may have contributed to a genuine psychological enhancement rather than a temporary or situational response.

Item-by-Item Score Change Analysis:

To examine the change in self-efficacy across individual items more specifically, the difference in mean scores (posttest – pretest) for all 12 items is visualized in Figure 3. This analysis was used to explore and interpret how musical participation influenced the subcomponents of self-efficacy.



Figure 3: Changes in Item-Level Self-Efficacy Scores Before and After Musical Activity (Posttest – Pretest Mean Scores). Largest gains appeared in stage confidence (Item 11, $\Delta M = 0.90$), stress regulation (Item 9, $\Delta M = 0.80$), and multitasking (Item 8, $\Delta M = 0.77$), while calmness under difficulty (Item 3) changed least.

According to the figure, Item 11 (“I feel confident singing or acting on stage”) showed the largest increase in mean score ($\Delta M = 0.90$), which can be interpreted as being directly related to the nature of musical activities. This result suggests that opportunities for self-expression, stage experience, and perceived success during performance positively contributed to enhanced self-efficacy.

In addition, Item 8 (“I believe I can manage several different tasks at the same time”) and Item 9 (“I believe I can manage and regulate stress well”) also demonstrated notable increases in scores ($\Delta M = 0.77$ and $\Delta M = 0.80$, respectively). These results suggest that the multifaceted nature of musical experiences, including script memorization, stage rehearsal, time management, and collaboration, contributed to improved self-perception in areas such as executive function and emotional regulation.

On the other hand, Item 3 (“I can remain calm even in difficult situations”) showed a relatively smaller change ($\Delta M = 0.27$), suggesting that certain emotional stability traits may be less susceptible to short-term interventions.

Overall, the item-level score patterns indicate that musical participation had especially positive effects on self-expression, emotional expression, stress regulation, and the ability to handle complex tasks.

Item-to-Item Correlation Analysis:

To examine the interrelationships among the sub-items of the self-efficacy scale, a Pearson correlation analysis was conducted. The analysis was based on a total of 60 observations, integrating both pre- and post-survey responses. The goal was to explore the similarity in response patterns across items and to identify structural associations among the subcomponents of self-efficacy. The results are shown in Figure 4.

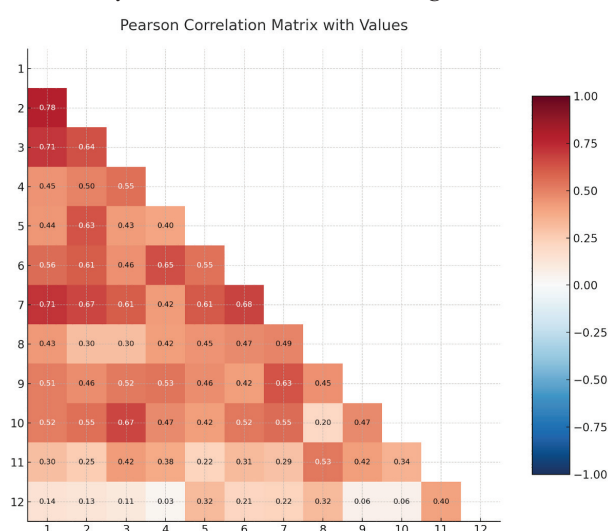


Figure 4: Correlation matrix between items. Core cognitive-behavioral efficacy items showed moderate-to-strong associations (e.g., Item 1–2 $r = .78$), whereas stage confidence (Item 11) and emotional expression (Item 12) were more weakly linked, indicating context-specific components.

The results indicated predominantly positive correlations between most item pairs, with the following item pairs showing particularly strong correlations:

- Item 1 (Ability to solve unexpected difficulties) – Item 2 (Solving important problems): $r = 0.78$
- Item 1 – Item 7 (Overcoming obstacles): $r = 0.71$
- Item 3 (Staying calm in difficult situations) – Item 10 (Sense of control over life): $r = 0.67$
- Item 2 – Item 5 (Persistence when facing challenges): $r = 0.63$

These findings suggest that problem-solving ability, self-regulation, goal persistence, and a sense of control are closely interrelated within the self-efficacy construct. In particular, the cognitive and behavioral efficacy domain (Items 1–7 and 10) showed generally moderate-to-strong correlations ($r \geq 0.5$), supporting the construct validity of the scale.

In contrast, Item 11 (Confidence on stage) and Item 12 (Ease of emotional expression) showed weaker correlations with most other items. For example, Item 12 was only weakly correlated with Item 1 ($r = 0.14$) and Item 2 ($r = 0.13$). This suggests that these items reflect distinct, experience-based psychological factors that differ from general cognitive components of self-efficacy. In the context of musical participation, they may function as independent psychological constructs.

Correlation Between Pre-Test Scores and Score Changes:

To analyze whether the impact of musical participation on self-efficacy improvement varies depending on initial levels of self-efficacy, a Pearson correlation analysis was conducted between the pre-test mean scores and the score changes (post-test minus pre-test). The analysis yielded a correlation coefficient of $r = -0.35$ with a p -value of .057.

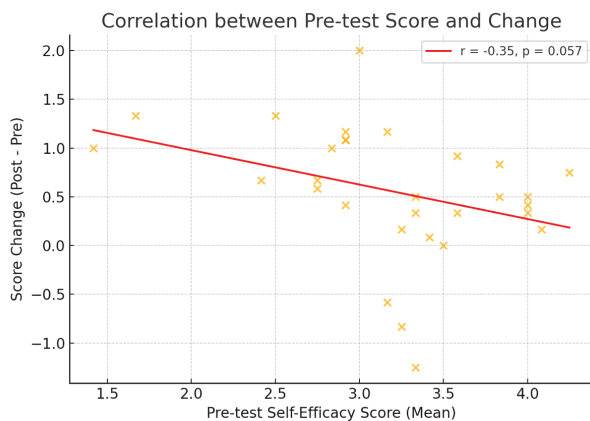


Figure 5: Scatterplot of pre-test self-efficacy scores and score changes. Score change trended negatively with baseline ($r = -.35$, $p = .057$), suggesting students starting lower tended to improve more after rehearsal.

Figure 5 presents a scatterplot showing each participant's pre-test self-efficacy score (x-axis) and the corresponding change in score (y-axis). The regression line in the scatterplot has a negative slope, indicating a general trend: participants with lower initial self-efficacy scores tended to show greater improvements. For example, students whose initial scores were in the 2-point range often recorded increases of over 1 point. In contrast, those with already high pre-test scores (e.g., above 4 points) exhibited minimal or no change.

Although the p -value of .057 is slightly above the conventional significance level of 0.05, making it difficult to assert a

statistically significant correlation, the negative trend remains observable. This trend may serve as preliminary evidence that musical participation could be a more effective intervention for students with lower initial self-efficacy. Further studies with larger sample sizes are needed to validate this finding.

Conclusion

Summary and Interpretation of Findings:

This study quantitatively analyzed the impact of musical participation on adolescents' self-efficacy and aimed to examine the psychological structure and characteristics of that effect. A one-shot pretest–posttest design was applied to a sample of 30 high school students, and various statistical analyses yielded the following results.

First, the average self-efficacy score significantly increased after the musical activity ($t = -4.58$, $p < .001$), suggesting that musical experiences can positively influence adolescents' self-perception and emotional self-efficacy. In particular, item-level analyses revealed notable increases in stage confidence (Item 11), stress regulation (Item 9), and multitasking ability (Item 8). These findings suggest that musical participation can enhance self-efficacy through psychological self-regulation, emotional expression, and the execution of complex tasks.

Correlation analysis between items revealed significant positive relationships among subcomponents of self-efficacy, especially strong correlations between problem-solving abilities (Items 1, 2, 7) and persistence toward goals. In contrast, items related to stage confidence (Item 11) and emotional expression (Item 12) showed relatively lower correlations with other items, suggesting that these are specific psychological components more closely tied to the musical context.

Additionally, although not statistically significant ($r = -0.35$, $p = .057$), the negative correlation between pretest scores and score change suggests that students with lower initial self-efficacy experienced greater improvements. This trend suggests that musical participation may provide particularly powerful psychological reinforcement for adolescents with lower initial levels of self-efficacy.

Comparison with Previous Research:

These findings align with both Bandura's theory of self-efficacy and previous research on the psychological benefits of arts-based activities.

Bandura identified four sources of self-efficacy—mastery experience, vicarious experience, verbal persuasion, and physiological/emotional states—all of which were present throughout the participants' musical engagement.¹ Specifically, the rehearsal and performance processes provided mastery experiences, while the emotional tension and release surrounding performances contributed to affective gains, collectively enhancing self-efficacy.

The results are also consistent with studies such as Seong & Kim on orchestra participation, Jo & Koo on arts-based activities improving self-esteem and creativity, and Hughes & Wilson on the contributions of youth theaters to social de-

velopment.⁹⁻¹¹ These works collectively suggest that artistic activities promote adolescent psychological growth and identity formation. This study adds further empirical support by focusing on musical theater as a comprehensive artistic intervention.

Furthermore, the item-level correlation structure and sensitivity patterns correspond to Zimmerman's characterization of self-efficacy as context-dependent and multidimensional.⁴ The presence of items that responded more sensitively to the musical activity supports the theoretical view that situational and task-specific factors influence self-efficacy.

The observed tendency for students with lower baseline self-efficacy to show greater gains echoes Bandura's assertion that self-regulation is reinforced through repeated success experiences, as well as Kim's findings on the relationship between self-efficacy and job competence, and Zareai's study on how self-efficacy influences interpretation quality.^{2,3,5} These parallels suggest that arts-based interventions may be especially effective for students with initially lower confidence, offering important educational implications.

Limitations and Significance:

However, this study has several limitations:

First, the sample consisted of 30 students from a single high school who voluntarily participated, limiting the generalizability of the findings. Variations based on region, socioeconomic background, or educational environment were not considered, indicating a need for future studies with larger, more diverse samples that include adolescents from varied socioeconomic backgrounds, geographic regions, and school types (e.g., public vs. private, urban vs. rural), in order to be context-dependent.

Second, the use of a one-shot pretest–posttest design without a control group limits the ability to attribute the observed improvements solely to the musical activity. External factors such as personal motivation or other life events may have influenced the outcomes. Future studies should incorporate a control group engaging in a non-musical structured activity of similar duration (e.g., a focused reading or art-drawing session) to isolate whether the observed self-efficacy gains are specific to musical participation or a broader effect of any engaging extracurricular experience.

Third, the study did not assess the long-term effects or sustainability of the observed improvement. Therefore, it remains unclear how lasting the impact of a one-time musical experience is. Future research should incorporate structured follow-up assessments administered at one day, one week, and one month post-intervention to evaluate whether the gains in stage confidence, stress regulation, and multitasking ability are sustained over time or represent only a momentary psychological response to the activity.

Despite these limitations, this study has meaningful implications, presenting quantitative evidence of the effectiveness of arts-based interventions in improving adolescent self-efficacy. It affirms that musical theater—a comprehensive and integrated art form—can make a positive contribution to identity formation and psychological growth during adolescence. These findings may serve as foundational data for designing

future school-based arts education programs or psychological intervention models. Provide a summary of the results of the research concisely.

■ Acknowledgments

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We would also like to sincerely thank the 30 students who voluntarily participated in this study, whose openness and willingness to engage made this research possible.

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