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The Relationship between Academic Rational Belief and Student Engagement among Senior High School Students

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Abstract

Student engagement is an important indicator of learning quality because it reflects students' behavioral, emotional, and cognitive involvement in the learning process. Although student engagement has been widely discussed in previous studies, research specifically examining its relationship with academic rational belief among senior high school students remains limited. This study aims to analyze the relationship between academic rational belief and student engagement among eleventh-grade students at SMA Negeri 13 Padang. A quantitative approach with a correlational design was employed, involving 356 eleventh-grade students selected using total sampling. Data were collected using the Student Engagement Scale and the Academic Rational Beliefs Scale, then analyzed using descriptive statistics, normality testing, linearity testing, and Pearson Product Moment correlation with the assistance of SPSS. The findings show that both student engagement and academic rational belief were generally in the moderate category. Correlation analysis revealed a significant positive relationship between academic rational belief and student engagement, with a correlation coefficient of $r = 0.619$ and a significance value of $p < .001$. These results indicate that students with higher academic rational belief tend to demonstrate higher engagement in learning activities. This study contributes to

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the development of student engagement literature by emphasizing academic rational belief as an internal cognitive factor associated with students' learning involvement. Practically, the findings imply that schools, teachers, and counselors should strengthen students' rational academic beliefs through counseling services, reflective learning activities, and adaptive learning strategies.

Keywords: Academic Rational Belief; Student Engagement; Senior High School Students; Correlational Study; Learning Involvement

INTRODUCTION

Student engagement has become a crucial issue in contemporary education because the success of learning is not only determined by students' physical attendance in the classroom, but also by their active involvement in cognitive, emotional, and behavioral learning processes. Students with high engagement tend to show stronger persistence, learning effort, participation, and academic achievement. Previous studies have confirmed that student engagement is positively associated with academic performance and the quality of learning experiences (Lei et al., 2018; Wang et al., 2022). Conversely, low engagement is often related to various academic and psychosocial problems, including decreased learning motivation, difficulty adapting to academic demands, and an increased risk of dropping out of school.

At the international level, low student engagement has been widely discussed as a serious educational concern because it may affect students' academic continuity and psychological well-being. Española & Ouano (2024) found that a lack of engagement, particularly low dedication to learning activities, can predict students' intention to discontinue their education. Similarly, Sinval et al. (2025)reported that low engagement is associated with negative psychological conditions, such as stress and anxiety, which may contribute to dropout tendencies. At the national level, the net enrollment rate at the senior high school and vocational school levels in Indonesia in 2024 was approximately 64%, indicating that participation in upper secondary education still requires serious attention. Although this figure does not directly represent student engagement, it provides an initial indication that educational participation and learning involvement remain important issues to be examined.

The issue of student engagement is particularly relevant at the senior high school level because students are in an important developmental phase marked by biological, cognitive, social, and emotional changes. During adolescence, students often face increasing academic demands, peer-related pressures, and expectations related to future educational or career choices. Salmela-Aro et al. (2021) and Symonds et al. (2026) stated that student engagement tends to change and decline during adolescence, especially at the secondary education level. This condition may be reflected in decreasing participation in classroom activities, reduced learning enthusiasm, and lower persistence in completing academic tasks. Therefore, improving student engagement is an important strategy for schools to prevent broader academic and psychosocial consequences (Ariani, 2019; Jian, 2022) .

Conceptually, student engagement consists of three main dimensions: behavioral engagement, emotional engagement, and cognitive engagement (Fredricks et al., 2004). Behavioral engagement refers to students' participation in academic and classroom activities, emotional engagement reflects students' interest, enthusiasm, and sense of belonging, while cognitive engagement is related to students' effort, strategy use, and willingness to understand learning materials deeply. Prananto et al. (2025) emphasized that students with strong engagement tend to demonstrate consistent academic effort and better achievement. Meanwhile, Archambault et al. (2022) dan Szabó et al. (2024)explained that low engagement is often associated with problematic behavior, academic maladjustment, and dropout risk. These findings indicate that student engagement is not merely a learning behavior, but also an important psychological and educational indicator.

To understand the empirical condition in the research setting, the researcher conducted a preliminary survey among eleventh-grade students at SMA Negeri 13 Padang. The results of a brief interview showed that 22 students were actively involved in learning and participated in classroom discussions, while 6 students appeared passive and showed limited learning initiative. Active students were more likely to ask questions, answer teachers' questions, and participate in classroom discussions. Meanwhile, passive students tended to follow the lesson without meaningful participation. These findings indicate variations in student engagement, as seen from students' behavioral engagement through classroom participation, emotional engagement through interest and enthusiasm, and cognitive engagement through their effort to understand learning materials.

A further preliminary survey using a questionnaire indicated that belief was the most dominant factor influencing student engagement. This finding is consistent with Qian & Saidin (2025) , who stated that belief is one of the important internal factors affecting student engagement. In the educational context, belief can be understood as students' internal perspective in interpreting academic demands, challenges, and learning experiences. Therefore, academic rational belief becomes a relevant psychological construct to examine because it may help explain why some students remain engaged in learning, while others tend to be passive or less involved in academic activities.

Academic rational belief refers to logical, flexible, and realistic beliefs that help individuals respond adaptively to various situations. Awais et al. (2025); Qudrat-Ullah (2025) explained that rational beliefs enable individuals to manage emotions, make adaptive decisions, and maintain effort when facing challenges. In the academic context, students with strong academic rational beliefs are more likely to regulate themselves, control their responses, and apply effective coping strategies when dealing with academic difficulties. Recent studies also indicate that rational beliefs support adaptive emotional and behavioral responses, which help individuals achieve their goals more effectively (Houcan & Xiangang, 2025). Through psychological mechanisms such as self-regulation, learning motivation, and coping ability, academic rational belief may contribute to stronger student engagement in classroom learning.

Several studies have also shown that rational belief-based approaches are beneficial in improving students' psychological and academic functioning. Turner et al. (2025) dan Dinayanti & Daulay (2024) found that learning motivation can be improved through a rational emotive behavior therapy approach. Kaşıkcı et al. (2024)reported that individuals who develop rational beliefs tend to have better coping abilities and resilience in dealing with academic pressure. Noormohamadi et al. (2022) also confirmed that rational emotive behavior therapy contributes to the improvement of psychological functioning and individual adaptation in stressful situations. These findings strengthen the theoretical assumption that academic rational belief can help students set realistic goals, persist in facing academic difficulties, and maintain engagement despite experiencing failure or pressure.

Previous studies on academic rational belief have mostly focused on academic stress and procrastination rather than student engagement. For example, Mimma Anissa P.

and Haryanta (2022) found that academic rational beliefs and self-control significantly contributed to reducing academic procrastination among university students. Aulia (2022) examined the effect of academic belief on students' academic stress. These studies indicate that academic rational belief is important in academic contexts, but the research has mainly focused on university students and issues related to stress or procrastination. Research specifically examining the relationship between academic rational belief and student engagement among senior high school students in Indonesia remains limited. Moreover, studies on student engagement are still largely dominated by discussions of learning outcomes and external factors, while internal cognitive factors such as academic rational belief have not been widely explored (Putra et al., 2024; Sutedjo, 2024). Based on this gap, the present study aims to examine the relationship between academic rational belief and student engagement among eleventh-grade students at SMA Negeri 13 Padang. This study is expected to provide theoretical contributions to the development of student engagement studies and practical insights for schools in strengthening students' active involvement in learning through the development of rational academic beliefs.

METHODS

This study employed a quantitative approach with a correlational research design. The quantitative approach was selected because the variables examined, namely academic rational belief and student engagement, are psychological constructs that can be measured through numerical indicators and analyzed statistically. According to Sugiyono (2017), quantitative research is based on a positivistic paradigm and is used to test theories by measuring observable variables. The correlational design was considered appropriate because this study did not provide treatment or intervention, but aimed to examine the direction and strength of the relationship between academic rational belief as the independent variable and student engagement as the dependent variable. This design is relevant to the research objective, which focuses on identifying whether students' rational academic beliefs are significantly related to their engagement in learning activities.

The population of this study consisted of all eleventh-grade students at SMA Negeri 13 Padang, totaling 356 students. The sampling technique used was total sampling, in which the entire population was selected as the research sample. This technique was applied because the population size was accessible and allowed the researcher to obtain a

comprehensive description of the relationship between academic rational belief and student engagement among eleventh-grade students. Sugiyono (2019) explains that total sampling is a sampling technique in which all members of the population are used as research samples. Data were collected using two questionnaire scales. Student engagement was measured using the Student Engagement Scale based on Fredricks et al. (2004), adapted into Indonesian by Sa'diyah and Qudsyi (2016), consisting of behavioral, emotional, and cognitive engagement dimensions. Academic rational belief was measured using the Academic Rational Beliefs scale developed by Egan et al. (2007) and adapted into Indonesian by Eunike (2017), covering evaluation, work habits, and support aspects. Both instruments used a five-point Likert scale, and their validity and reliability were examined through content validity, construct validity, item discrimination, and Cronbach's Alpha reliability analysis.

The research procedure consisted of preparation, instrument testing, data collection, and data analysis. During the preparation stage, the researcher determined the research topic, reviewed relevant literature, formulated the research problem and hypothesis, and selected appropriate measurement instruments. Data were collected by distributing questionnaires to respondents through Google Forms shared via WhatsApp. After the data were collected, the researcher conducted assumption testing, including the normality test using Kolmogorov-Smirnov and the linearity test. Data were considered normally distributed when the significance value was greater than 0.05, and the relationship between variables was considered linear when the significance value of deviation from linearity was greater than 0.05 (Mardiatmoko, 2020). Hypothesis testing was conducted using Pearson Product Moment correlation with the assistance of SPSS. This analysis was used to determine the strength, direction, and significance of the relationship between academic rational belief and student engagement. In addition, descriptive categorization was carried out based on Azwar's (2012) hypothetical score norms to classify respondents' scores into very low, low, moderate, high, and very high categories.

RESULTS

1. Description of Research Data

The description of the research data includes hypothetical scores and empirical scores used as the basis for understanding the score distribution of each variable. The

presentation of these data aims to provide a general overview of the subjects' tendencies toward both variables before further statistical analysis is conducted. The descriptive statistics of the research data are presented in Table 1.

Table 1. Results of Descriptive Analysis

Variable	Hypothetical Min	Hypothetical Max	Hypothetical Mean	Hypothetical SD	Empirical Min	Empirical Max	Empirical Mean	Empirical SD
Academic Rational Belief	9	45	27	6	23	45	34.43	4.412
Student Engagement	15	75	45	10	34	73	55.91	7.446

Based on Table 1, the hypothetical score of the Academic Rational Belief variable ranged from 9 to 45, with a hypothetical mean of 27 and a standard deviation of 6. Meanwhile, the empirical score obtained from the research data showed a minimum value of 23 and a maximum value of 45, with an empirical mean of 34.43 and a standard deviation of 4.412. The empirical mean, which was higher than the hypothetical mean, indicates that students generally had a level of academic rational belief that tended to be above the theoretical average.

Furthermore, for the Student Engagement variable, the hypothetical score ranged from 15 to 75, with a hypothetical mean of 45 and a standard deviation of 10. The empirical analysis showed a minimum score of 34 and a maximum score of 73, with an empirical mean of 55.91 and a standard deviation of 7.446. The empirical mean, which was also higher than the hypothetical mean, indicates that students' level of student engagement generally tended to be above the theoretical average.

However, the categorization results showed that most students were in the moderate category. This condition indicates that although the empirical mean showed a fairly high tendency, the distribution of students' scores had not widely reached the high category, but was still concentrated in the moderate score range based on the categorization criteria used. This may be influenced by the heterogeneous characteristics of students in public schools and the academic pressure experienced by eleventh-grade students. In other words, most students had scores slightly above the average, but not high enough to be classified in the high category.

Overall, the descriptive analysis results indicate that eleventh-grade senior high school students had relatively good levels of academic rational belief and student engagement, although both variables were still mostly in the moderate category based on the score distribution.

The categorization of the Student Engagement variable in this study was arranged based on Azwar's categorization norms, using the hypothetical mean and standard deviation as the basis for determining category intervals (Azwar, 2012). The results are presented in Table 2.

Table 2. Category of Student Engagement Scale

Category	Score	Frequency	Percentage
Very Low	$X < 41$	10	2.8%
Low	$41 < X \leq 48$	46	12.9%
Moderate	$48 < X \leq 63$	238	66.9%
High	$63 < X \leq 70$	57	16.0%
Very High	$X > 70$	5	1.4%
Total		356	100%

Based on the classification results in Table 2, most subjects were in the moderate category, with 238 students or 66.9%. Furthermore, 57 students or 16.0% were in the high category, and 5 students or 1.4% were in the very high category. Meanwhile, 46 students or 12.9% were in the low category, and 10 students or 2.8% were in the very low category. These results indicate that the majority of students had a moderate level of student engagement. This suggests that students' involvement in the learning process was fairly good, but not yet optimal. Nevertheless, some students had shown high to very high levels of engagement, indicating variations in students' learning involvement.

Table 3. Category of Academic Rational Belief Scale

Category	Score	Frequency	Percentage
Very Low	$X \leq 26$	14	3.9%
Low	$26 < X \leq 30$	47	13.2%
Moderate	$30 < X \leq 39$	248	69.7%
High	$39 < X \leq 43$	40	11.2%
Very High	$X > 43$	7	2.0%
Total		356	100%

Based on the classification results, the largest number of subjects was in the moderate category, with 248 students or 69.7%. Furthermore, 40 students or 11.2% were in

the high category, and 7 students or 2.0% were in the very high category. Meanwhile, 47 students or 13.2% were in the low category, and 14 students or 3.9% were in the very low category. These results indicate that the majority of students had a moderate level of Academic Rational Belief. However, there were still some students with low levels of academic rational belief, indicating the need for continuous efforts to strengthen students' rational academic beliefs.

2. Normality Test

The normality test was conducted to determine whether the data of each research variable followed a normal distribution. In this study, normality was tested using the One-Sample Kolmogorov-Smirnov method. The data were considered normally distributed if the Asymp. Sig. value was greater than 0.05, while the data were considered not normally distributed if the Asymp. Sig. value was less than 0.05.

Table 4. Results of the Normality Test

Variable	Asymp. Sig.	Description
Academic Rational Belief	0.072	Normal
Student Engagement	0.367	Normal

Based on Table 4., the Asymp. Sig. value for Academic Rational Belief was 0.072, while the Asymp. Sig. value for Student Engagement was 0.367. Both values were greater than 0.05. Therefore, it can be concluded that the data for both variables were normally distributed. Thus, the data met the assumption required for parametric statistical analysis using Pearson Product Moment correlation.

3. Linearity Test

The linearity test was conducted to determine whether the relationship between the variables in this study was linear. A linear relationship is indicated by a significance value of deviation from linearity greater than 0.05. In this study, the linearity test was used to examine the relationship between Student Engagement and Academic Rational Belief. The results of the linearity test showed that the significance value of deviation from linearity was greater than 0.05. Therefore, it can be concluded that the relationship between the two variables was linear. Thus, the linearity assumption was fulfilled, and parametric correlation analysis using Pearson Product Moment could be applied in this study.

Table 5. Results of the Linearity Test

Variables	Linearity Sig.	Deviation from Linearity Sig.	Description
Student Engagement and Academic Rational Belief	0.000	0.542	Linear

Based on Table 5, the test results showed that the significance value of linearity was 0.000 ($p < 0.05$), while the deviation from linearity value was 0.542 ($p > 0.05$). This indicates that the relationship between Academic Rational Belief and Student Engagement was linear. Therefore, the linearity assumption was fulfilled.

4. Hypothesis Testing

Hypothesis testing was conducted to examine whether there was a significant relationship between Academic Rational Belief and Student Engagement. Since the normality and linearity assumptions had been fulfilled, the hypothesis was tested using Pearson Product Moment correlation.

Table 6. Results of Hypothesis Testing

Variables	Pearson's r	Sig. (2-tailed)	N	Description
Student Engagement and Academic Rational Belief	**0.619**	**0.000**	**356**	**Strong, positive, and significant correlation**

Based on Table 6, the Pearson correlation analysis indicated a significant positive relationship between Academic Rational Belief and Student Engagement, with a correlation coefficient of $r = 0.619$ and a significance value of $p = 0.000$ ($p < 0.01$). This means that the higher the students' academic rational belief, the higher their student engagement. Therefore, the research hypothesis was accepted.

DISCUSSION

This study aimed to examine the level of student engagement and academic rational belief among eleventh-grade senior high school students and to analyze the relationship between the two variables. The descriptive analysis showed that most students had a moderate level of student engagement, with 238 students or 66.9% falling into this category. This finding indicates that students had shown sufficient involvement in learning activities, but their engagement had not yet reached an optimal level. Students were generally able to participate in classroom activities, follow learning instructions, and show

interest in academic tasks. However, the moderate category suggests that further improvement is still needed, particularly in emotional and cognitive engagement, so that students can participate more actively, meaningfully, and consistently in the learning process.

The descriptive results also showed that most students had a moderate level of academic rational belief, with 248 students or 69.7% included in this category. This result indicates that students generally had fairly good rational academic beliefs, especially in understanding that academic success can be achieved through effort, appropriate learning strategies, and adaptive responses to academic demands. However, the presence of students in the low and very low categories shows that some students still need support in developing more rational, flexible, and realistic beliefs toward academic challenges. Students with weak academic rational beliefs may be more vulnerable to negative academic thoughts, avoidance behavior, and low persistence when facing learning difficulties.

The finding that most students were in the moderate category for both student engagement and academic rational belief can be understood in relation to adolescent developmental characteristics. Eleventh-grade students are generally in the middle adolescence phase, which is marked by adjustment to academic demands, emotional changes, and identity development. At this stage, students begin to face more complex academic responsibilities, including increased learning materials, assignments, evaluations, and preparation for future educational plans. These conditions may explain why students' engagement and rational academic beliefs were relatively adequate but not yet consistently high. In addition, the context of a public school with a large number of students may also influence the learning process. Limited teacher-student interaction, varied classroom management, and differences in learning climate may affect students' emotional and cognitive involvement in learning.

The hypothesis testing using Pearson Product Moment correlation showed a significant positive relationship between academic rational belief and student engagement, with a correlation coefficient of $r = 0.619$ and a significance value of $p = 0.000$ ($p < 0.01$). This result indicates that the higher the students' academic rational belief, the higher their student engagement. The strong correlation suggests that academic rational belief is an important internal factor related to students' active participation in learning. Students who hold rational academic beliefs tend to interpret academic challenges more realistically,

believe that effort contributes to achievement, and respond to difficulties in a more adaptive way. As a result, they are more likely to show behavioral, emotional, and cognitive engagement in classroom learning.

This finding is consistent with the theory of student engagement proposed by Huang et al. (2022) , which explains that engagement consists of behavioral, emotional, and cognitive dimensions. These dimensions are influenced not only by external learning conditions, but also by students' internal perceptions and beliefs about learning. Students with rational academic beliefs are more likely to maintain concentration, show persistence, feel emotionally connected to learning activities, and use cognitive strategies to understand academic materials. Therefore, academic rational belief can be understood as a cognitive foundation that supports students' engagement in the learning process.

The results of this study also support the view of Wong & Chapman (2024) , who explained that rational academic beliefs contribute to learning persistence, responsibility toward academic tasks, and adaptive management of academic pressure. Similarly, Grimm & Richter (2025) stated that individuals with rational thinking patterns in academic situations tend to be more optimistic, active, and able to persist when facing learning difficulties. The findings of this study strengthen these theoretical assumptions by showing that students with stronger academic rational beliefs tend to demonstrate higher student engagement. This relationship appears in the way students participate in class, maintain motivation, and invest effort in understanding learning materials.

Furthermore, this study is in line with Augenstein et al. (2025), who found that students with strong rational academic beliefs tend to show higher student engagement, as reflected in their consistency in attending learning activities, persistence in completing assignments, and commitment to academic goals. However, although the correlation between academic rational belief and student engagement was strong, student engagement cannot be explained by academic rational belief alone. Other factors, such as teacher support, parental support, classroom climate, peer relationships, students' psychological conditions, and school environment, may also contribute to students' engagement. Therefore, academic rational belief should be viewed as one important factor among several variables that influence student engagement.

The findings of this study provide both theoretical and practical implications. Theoretically, this study contributes to the literature on student engagement by highlighting

the role of academic rational belief as an internal cognitive factor associated with students' involvement in learning. Previous studies on academic rational belief have often focused on academic stress, procrastination, or psychological adjustment, while its relationship with student engagement among senior high school students has received less attention. Practically, the findings suggest that schools need to strengthen students' rational academic beliefs through counseling services, reflective learning activities, and teaching strategies that encourage adaptive thinking. Teachers and school counselors can help students develop realistic views about academic success, understand the value of effort, and manage academic pressure more constructively.

Despite its contributions, this study has several limitations. First, the data were collected using self-report questionnaires, which may lead to subjective bias because students' responses depend on their own perceptions and honesty. Second, the correlational design of this study does not allow causal conclusions. Therefore, although academic rational belief was significantly related to student engagement, this study cannot confirm that academic rational belief directly causes higher student engagement. Third, the study was conducted in only one school, namely SMA Negeri 13 Padang, so the generalization of the findings to broader student populations should be made carefully. Future studies are recommended to involve larger and more diverse samples from different school contexts, use mixed-method designs, and examine additional variables such as teacher support, learning motivation, self-regulation, and classroom climate to provide a more comprehensive understanding of student engagement.

CONCLUSION

This study concludes that the level of student engagement among eleventh-grade senior high school students was generally in the moderate category. This indicates that students had been involved in the learning process, but their engagement had not yet reached an optimal level. Similarly, students' academic rational belief was also in the moderate category, suggesting that students had fairly rational academic beliefs, although these beliefs still need to be strengthened to become more adaptive in facing academic demands. The results also showed a significant and positive relationship between academic rational belief and student engagement. In other words, the higher the students' academic

rational belief, the higher their engagement in the learning process. Therefore, the hypothesis proposed in this study was accepted.

The findings of this study contribute to the development of student engagement literature by emphasizing academic rational belief as an important internal cognitive factor related to students' behavioral, emotional, and cognitive involvement in learning. Practically, this study suggests that schools, teachers, and counselors should support students in developing more rational, realistic, and adaptive academic beliefs through counseling programs, reflective learning activities, and classroom strategies that encourage persistence and positive academic thinking. Future research is recommended to involve broader samples from different school contexts and to examine other variables, such as learning motivation, self-regulation, teacher support, parental support, and classroom climate, to provide a more comprehensive understanding of factors influencing student engagement.

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