

Cognitive Behavioral Therapy Intervention: Enhancing Vocational High School Students' Enthusiasm in Islamic Education

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Abstract: Cognitive Behavioral Therapy (CBT) represents one of the most well-established psychotherapeutic approaches, centered on the reconstruction of negative thoughts and maladaptive beliefs into more positive and psychologically tenable alternatives. This study examines the effectiveness of CBT in enhancing students' enthusiasm for learning in Islamic Religious Education (PAI) at SMK Negeri 3 Palu. Confronting the persistent challenge of diminished motivational engagement in Islamic Education contexts, the study investigates whether a psychologically grounded intervention rooted in cognitive restructuring can significantly elevate students' affective involvement in the subject. A quasi-experimental design incorporating pre-test and post-test control groups was employed, involving 26 students divided into an experimental class and a control class. Hypothesis testing was conducted using an Independent-Samples t-test after verifying the assumptions of normality and homogeneity. Instrument reliability was confirmed by a Cronbach's alpha value exceeding the accepted threshold. Statistical analysis was conducted primarily using JASP software. At the outset, both the experimental and control groups were positioned at equivalent levels, as evidenced by a homogeneity probability value (sig.) of 0.907, which surpasses the 0.05 threshold. Hypothesis analysis further revealed a significant difference between pre-test and post-test scores, with a probability value (sig.) of 0.034, falling below the 0.05 significance level, indicating that a meaningful change occurred following the application of the CBT approach. Departing from this shared baseline, the cognitive behavioral therapy implemented within the experimental class yielded results that substantively confirm CBT's effectiveness in enhancing PAI learning enthusiasm among students in the experimental group.

Keywords: cognitive behavioral therapy, enthusiasm, Islamic studies, journaling-self monitoring.

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■ INTRODUCTION

Mental health concerns have long occupied a central place in scholarly discourse, attracting sustained attention across multiple disciplines. Prioritizing mental health, providing accessible supports, increasing mental health literacy, fostering connections, and strengthening best practices in teaching and learning can improve student mental health and wellbeing in higher education (Lindsay et al., 2023). Daily running practice improves students' mental health and academic motivation, with extrinsic motivation gradually dominating intrinsic motivation (Ma et

al., 2025). Students with a passion for studying tend to have more favorable psychological characteristics, fewer mental or somatic health symptoms, and greater personal resources than those without such a passion (Larionow & Gabryøe, 2024). Students with a strong intrinsic drive toward learning tend to approach instructional activities with markedly greater enthusiasm, and this heightened engagement, in turn, fosters deeper conceptual comprehension alongside more effective real-world application of acquired knowledge. It follows, therefore, that cultivating high levels of learning interest functions

not merely as a motivational catalyst but as a structural prerequisite for achieving meaningful educational outcomes. Indeed, enthusiasm for learning has been identified as a defining indicator of rapid knowledge advancement in contemporary educational contexts (Avazbekova, 2025).

Teacher enthusiasm has a positive effect on students' enjoyment and boredom, which in turn mediate the association between teacher enthusiasm and social-behavioral engagement (Dewaele & Li, 2021). Equally significant, enthusiasm for learning in Islamic Religious Education is a crucial factor shaping both students' understanding of religious teachings and their ability to apply them in everyday life. When enthusiasm is lacking, student engagement tends to diminish correspondingly, with downstream consequences for their personal development. Prior research confirms that learners' enthusiasm in religious education is shaped by a constellation of interacting factors, including instructional methods, communication quality, parental support, and the broader school environment (Kunter et al., 2011).

When enthusiasm for both learning and teaching is fully realized, a distinctive educational experience takes shape, one in which students channel remarkable energy into completing exercises to build genuine competence. Beyond mere effort, the vitality inherent in this kind of educational experience also manifests as animation, a quality that fundamentally transforms the classroom dynamic. Students are no longer passive recipients sitting in silence; they actively and continuously engage with their immediate circumstances, drawing meaning from each moment as the experience unfolds (Candra et al., 2023).

In practice, however, the pedagogical approach commonly employed in Islamic religious education tends to rely heavily on one-directional lecturing and narrative delivery. Such

an approach, predictably, breeds disengagement among students, particularly when educators fail to adapt their teaching to contemporary developments or remain disconnected from students' existing assumptions and frames of reference. Left unaddressed, this pattern carries consequences that extend far beyond momentary boredom: over time, it can erode students' capacity to apply the full spectrum of knowledge they acquire creatively. However, religion remains, fundamentally, an indispensable dimension of human life. It is precisely through religious understanding that individuals are guided toward a more purposeful and ethically grounded existence (Syahfitri et al., 2024).

Islamic religious education (PAI), despite occupying a pivotal role in shaping students' character and everyday moral conduct, has paradoxically begun losing its appeal among learners. A considerable number of students report experiencing fatigue with the subject; in more severe cases, this disengagement manifests as outright difficulty in grasping material that ought to be highly relevant to their long-term well-being (Ginanjari et al., 2025). Several factors contribute to this decline. Outdated instructional methods are frequently cited as a primary culprit, compounded by a perceived disconnect between the curriculum content and the realities of contemporary student life. Addressing these challenges, therefore, calls for a pedagogical shift toward approaches that are not only innovative but also effective, contextually relevant, and genuinely engaging. The core problem, then, does not reside in the intrinsic importance of PAI itself; rather, it lies in how it is taught and in whether the surrounding environment supports or impedes meaningful student engagement (Amin, 2025).

Learning effectiveness serves as a key indicator of educational quality, typically assessed across several dimensions, including goal attainment and the precision with which a given situation is managed, often termed "doing the right

things” (Myronova, 2022; Xie et al., 2025). Effective learning, in this regard, represents far more than a single variable; it constitutes an integrated association encompassing human attitudes, material resources, facilities, equipment, and procedures, all of which must be appropriately deployed to steer students’ behavior toward a positive trajectory aligned with their individual potential, ultimately in service of predetermined learning objectives (Hernández-Campos, 2025). Given the recurring challenges educators encounter, coupled with the unmet needs students bring into the classroom, the present study adopts a psychological approach best suited to translating cognitive patterns into tangible behavioral outcomes. This approach is widely recognized as cognitive-behavioral therapy, commonly abbreviated as CBT (Morris, 2021).

Aaron T. Beck, widely credited as the originator of Cognitive Behavioral Therapy, conceived this therapeutic approach to transform negative thought patterns or rigid, maladaptive beliefs into more positive and acceptable ones, ultimately influencing how individuals make decisions. Underlying this framework is a deceptively simple yet logically grounded premise: the way a person feels and behaves is shaped largely by their thought patterns and by how they interpret and make sense of their own experiences (Beck, 1952, in Syahfira et al., 2024). CBT combines cognitive therapy and behavioral therapy to help individuals identify and change dysfunctional beliefs, thoughts, and behaviors that contribute to their problems (Morris et al., 2021). Central to this approach is the conviction that individuals can restructure their own cognition and, in doing so, alter the extent to which their thoughts affect their emotional well-being (Clark, 2022).

Cognitive Behavioral Therapy (CBT) offers educators a viable approach for enhancing students’ motivation and enthusiasm toward

learning, one that extends beyond merely accommodating instructors’ pedagogical intentions to also incorporate students’ own volition in accordance with their innate abilities (Khurshid et al., 2025). What distinguishes CBT is its psychological orientation, particularly its emphasis on the interrelationship among thoughts, emotions, and behavior. Within an educational context, this therapeutic approach proves instrumental in helping students identify and restructure negative thought patterns that might otherwise impede motivation to learn, patterns that, left unaddressed, would inevitably affect academic outcomes (Nakano et al., 2020). Beyond this, CBT equips students with practical skills in stress management and problem-solving, thereby strengthening their capacity to navigate the challenges inherent to the learning process (Shahrokhian et al., 2022).

The CBT technique employed in this study specifically draws on self-monitoring, a method situated within the broader CBT framework. Self-monitoring, frequently referred to interchangeably as self-management, comprises two core elements: self-observation and self-recording (Sulu et al., 2024). In practice, children are instructed to observe their own behavior and document instances of on-task behavior as they occur, with the latter serving as the primary target of intervention. Beyond mere observation, children are also asked to transform their recorded data into graphical form. This practice, known as self-graphing, represents one manifestation of self-evaluation (Xu et al., 2023). Through self-graphing, children can track the trajectory of their on-task behavior over time and observe patterns that might otherwise remain invisible to them (Arco, 2024). Crucially, because outcomes rendered in graphical form are readily interpretable, this visual feedback tends to bolster children’s motivation to sustain on-task behavior (Maag et al., 1992, as cited in Isnannisa & Hildayani, 2020).

A terminological clarification is warranted here. Self-monitoring is not equated with the full multi-component CBT protocol typically delivered by a licensed therapist; rather, it is treated as one of CBT's core behavioral techniques, operationalizing the self-observation and self-evaluation processes through which cognitive restructuring is put into practice (Xu et al., 2023). The journaling and leaderboard media used here were designed specifically to prompt students to notice their own negative thought patterns, record instances of on-task engagement, and visually track change over time, functioning as a scaled-down, classroom-deliverable

adaptation of CBT's self-monitoring component rather than as a claim that the full clinical CBT protocol was administered. This bounded scope is acknowledged as a limitation of the intervention's fidelity to the broader CBT framework and is revisited in the Discussion (Listin & Enggar, 2024). Graphical representation renders change more readily observable, enabling direct comparison between current and prior performance while also providing visual feedback that can project the trajectory of subsequent performance outcomes (DiGangi et al., 1991). The following illustrates the self-monitoring CBT media utilized in this study:

journaling
Cognitive Behavioral Therapy
muhasabah & spirit for Islamic studies

Knock knock... Who's there? hai saya _____

Daily Planner
Date: _____
S M T W T F S
☺ ☹ ☹ ☹ ☹ ☹
CURRENTLY TODAY
Apa yang terjadi di kelas PAI hari ini?

OVERTHINKING SPACE
Pikirkan apa yang sesekali muncul di benakmu hari ini?

INSIGHT:

POV ISLAM
Bagaimana Islam menjawab pikiran itu?

SMALL WINS
Hal kecil yang akan aku lakukan untuk boosting mood
○
○ Misi rahasia hari ini

Space Bercerita
silakan tulis apa aja, dan jadilah dirimu sendiri -

Leader Board
SELAMAT kamu adalah sang pendaki sesungguhnya 🏔️
The Winner (Grab your gift)
Al-Fatih (Sang Penakluk)
Skip ahead last spaces.
Al-Muflih (Yang Beruntung)
Solat Dzuhur berjamaah
Al-Mukhlis (Yang Jujur)
As-salikh (Penempuh Jalan)
Al-Mujaahid (Sang Pejuang)
kumpulkan hp saat belajar PAI
lakukan 3 kebaikan
Al-Mubtadi' (Pemula)
Start Here!
ADDITION MISSION

Figure 1. Interface of media self-monitoring-cognitive behavioral therapy

A substantial body of prior research has documented favorable outcomes from the application of cognitive behavioral therapy (CBT) across various domains, education included. Research specifically examining CBT's effectiveness in enhancing students' enthusiasm

for learning Islamic Religious Education (PAI) at the vocational high school (SMK) level in Palu, however, remains conspicuously limited. It is precisely this gap that the present study seeks to address by investigating the extent to which a cognitive-behavioral therapeutic approach can

foster greater enthusiasm for learning among students enrolled in PAI courses at the vocational secondary level.

Beyond this locational gap, the present study advances the CBT in education literature in two further respects. Theoretically, prior educational applications of CBT have concentrated overwhelmingly on general academic motivation or behavioral disorders, leaving the affective domain of religious-subject learning largely unexamined; by situating cognitive restructuring within the enthusiasm construct specific to Islamic Religious Education, this study extends CBT's explanatory reach into a normative-spiritual learning context governed by different motivational dynamics than secular subjects. Methodologically, the intervention was designed and delivered as a teacher-administered, classroom-embedded self-monitoring protocol rather than a therapist-facilitated clinical procedure, which offers a low-cost, scalable adaptation of CBT principles suited to the resource constraints of vocational secondary schools, a contribution distinct from the clinic- or counseling-based CBT protocols reported in most prior education studies.

SMK Negeri 3 Palu, more commonly known as STM (*Sekolah Teknik Menengah*, or Technical Secondary School), has long had a stigmatized public reputation for troublemakers prone to disruptive conduct among peers. This perception is not entirely without basis: the school's student population skews predominantly male, and its students have historically been characterized by assertive, sometimes volatile temperaments, occasionally culminating in inter-school brawls serious enough to draw police involvement and institutional accountability. Such societal labeling, it can be argued, has contributed substantially to a decline in students' enthusiasm for learning. This dynamic ultimately informed the researcher's decision to select this institution as the site of investigation. Notably, however, over

the past decade, the school's public image, along with that of its students, has improved markedly, with the school increasingly recognized for achievements rather than disciplinary concerns.

Building on this background, the present study poses the following research question: To what extent is the cognitive behavioral therapy (CBT) approach effective in enhancing students' enthusiasm for learning in Islamic Religious Education (PAI) courses at SMK Negeri 3 Palu?

■ **METHOD**

Research Design

This study adopted a quantitative experimental approach, specifically bivariate analysis, implemented within a quasi-experimental research design. Bivariate analysis was selected for its capacity to examine differences that emerge in response to a particular treatment or intervention condition (Cook et al., 1979). By dividing participants into experimental and control classes, the researcher was positioned to measure the extent to which CBT is effective when applied within the experimental group. Quantitative research, broadly understood, is characterized by its reliance on numerical data analysis and the systematic development and application of mathematical models, theoretical frameworks, and hypotheses that demonstrate a demonstrable correlation with the phenomena under investigation (Ghanad, 2023).

Participants

The sampling technique employed in this study falls under non-probability sampling, specifically purposive sampling, also known as criterion-based or judgmental sampling. Rather than drawing participants at random, the researcher employed purposive sampling by establishing specific criteria for the prospective research subjects and selecting those deemed most informative to the study's objectives (Klar & Leeper, 2019; Memon et al., 2024). Prior

observational activities conducted by the researcher served as the basis for identifying participants who met the established eligibility criteria, with additional input obtained through consultative deliberation with the concerned PAI subject teacher. For this study, participants were drawn from Grade XI TAV students at SMK Negeri 3 Palu. Specifically, participants were recruited from two classes, as detailed below:

Participants were divided into two groups: an experimental class and a control class. Class XI TAV (A), comprising 14 students, was designated as the experimental group, while Class XI TAV (B), with 12 students, served as the control group. The discrepancy in group size was not arbitrary; it reflects the actual enrollment conditions in the school setting, as participant numbers were adjusted to match the real-world composition of each class rather than being artificially standardized for research purposes.

Because participants were minors enrolled at a public vocational secondary school, the study was conducted with institutional research permission obtained from the SMK Negeri 3 Palu school administration and in coordination with the PAI subject teacher, who was informed of and agreed to the intervention design prior to implementation. Students were informed of the purpose and voluntary nature of the pre-test/post-test activity, and parental/guardian notification was coordinated through the school in line with standard institutional procedures for classroom-embedded instructional activities. No personally identifying data beyond what was necessary for pre- and post-test matching was collected or reported.

Instrument

The pre-post test design represents one of the most widely adopted frameworks in quantitative experimental research. Its core function is to measure changes in a dependent variable in response to a specific intervention or

treatment condition (Dziadkowiec, 2024; Hwalek et al., 2024). A pre-test, in this context, refers to the measurement administered prior to the delivery of the intervention, while a post-test denotes the measurement conducted upon its completion. In the present study, a questionnaire was employed as the primary data collection instrument, administered at both the pre and post intervention stages. This choice of instrument is well-justified given the nature of the variable under investigation. Learning enthusiasm, as the dependent variable, belongs to the affective domain and is shaped by both psychomotor and cognitive dimensions; consequently, a statement-based questionnaire embedded within the pre-post test structure constitutes the most appropriate and methodologically coherent tool for its measurement.

The questionnaire employed in this study is one of the primary data collection techniques, operating by presenting a series of prepared written statements for respondents to complete independently (Nair et al., 2025). Broadly speaking, questionnaires can be categorized into two principal forms. The first is the structured questionnaire, which presents respondents with predefined answer choices, thereby requiring them only to select the option most applicable to their experience; this form is also commonly classified as a closed-ended instrument. The second is the unstructured questionnaire, an open-ended format that affords respondents considerable latitude to express their views in detail, unconstrained by predetermined response options (Saglam, 2024).

A critical consideration in questionnaire construction is that the instrument must be systematically derived from the variable under investigation (Shrestha, 2021). That variable is first decomposed into its constituent dimensions, which are then further broken down into measurable indicators. It is precisely these indicators that subsequently serve as the

referential basis for formulating each item within the questionnaire (Taherdoost, 2022). Accordingly, the development of the questionnaire proceeded by organizing the constituent elements of the data collection instrument into a structured, systematic format, as presented in Table 1.

Table 1. The operational indicators of variables

Variable	Dimension	Indicator
<i>Cognitive Behavioral Therapy (CBT) / X</i>	1. Negative Mind Identification	1. Identifying the thoughts that hinder enthusiasm. 2. It is capable of identifying irrational beliefs. 3. An awareness of self-harmful thought patterns.
	2. Cognitive Restructuring	1. The ability to transform negative thoughts into positive ones. 2. It is capable of challenging the validity of irrational beliefs. 3. The ability to view problems from different perspectives
	3. Behavior Activity	1. Participation in enjoyable learning activities. 2. An initiative to foster interaction during lessons. 3. Being able to take small steps to overcome reluctance.
	4. Coping and Problem Solving	1. Able to manage stress or anxiety related to learning. 2. The ability to find solutions to obstacles in learning. 3. Using relaxation or mindfulness techniques when feeling stressed.
<i>Enthusiasm for learning Islam / Y</i>	1. Focus and Interest	1. Interest in the topics covered in the PAI lessons. 2. The focus and concentration of the students while the teacher is explaining. 3. Active participation in class discussions. 4. Initiative to ask questions or seek additional information.
	2. Emotional Engagement	1. Feeling happy or enthusiastic while studying Islamic Education (PAI). 2. The students do not feel bored or anxious during the lessons. 3. Demonstrating a positive attitude towards the PAI task or project.
	3. Active Participation	1. The willingness to answer questions from the teacher. 2. Collecting assignments on time and in full. 3. Active participation in every religion agenda at school (perform Zuhr prayer in congregation).
	4. Perseverance and Persistence	1. Striving to complete the PAI tasks, even though they are difficult. 2. In response to the tendency to procrastinate or delay in completing PAI tasks. 3. It is not easy to give up when facing challenges. 4. Having an intrinsic motivation to continue learning Islamic studies (PAI).

In relation to the variable operationalization outlined above, the research instrument is a structured questionnaire using a Likert scale. The Likert scale is a ratio-level measurement tool designed to assess internal states about the attitudes, opinions, and perceptions of individuals or groups toward a particular phenomenon or social condition within the research domain (Rosita et al., 2021).

The response Likert scale indicates that for positively worded statements, a score of 1 represents strong disagreement with the given statement, while a score of 4 reflects strong agreement. For negatively worded statements, the scoring direction is reversed accordingly. The measurement spectrum of the Likert scale is ordinal in nature, given that it positions attitudinal responses along a continuous affective continuum ranging from “strongly positive,” signifying endorsement of the psychological object of interest within the study, to “strongly negative,” indicating the absence of such endorsement toward that same focal psychological object. The Likert scale is a survey measurement instrument that produces ordinal data (Huh & Gim, 2025) by asking respondents to choose from ordered, ranked response categories (Koo & Yang, 2025).

Although the Likert scale is ordinal at the level of a single item, the composite enthusiasm score used in the hypothesis test is a summated scale formed by summing multiple items across the four indicator dimensions described above. Following common practice in social and educational measurement, such summated Likert scores are treated as approximating interval-level data once aggregated across a sufficient number of items, provided the resulting distribution satisfies parametric assumptions. In this study, that condition was verified empirically: both the pre-test and post-test composite scores passed the Shapiro-Wilk normality test and Levene’s homogeneity test (see the Results section below), which is the justification adopted here for

proceeding with the Independent Samples t-test rather than a non-parametric alternative such as the Mann-Whitney U test. This is acknowledged as a methodological choice rather than a settled matter.

Research Procedure

In this study, the control class received no specialized intervention from the researcher; instruction proceeded as usual, delivered by the subject teacher in accordance with standard classroom practice. The experimental class, by contrast, received a CBT-based treatment using self-monitoring techniques, with daily journaling serving as the primary instructional medium during each Islamic Religious Education (PAI) session. Personal journals were distributed to each participant to help students focus their attention and sustain enthusiasm throughout the learning process. To support progressive engagement, the researcher prepared a series of daily challenges in a graduated sequence, allowing students to advance incrementally through successive levels. This advancement was further incentivized through a leaderboard system, motivating participants to compete for the highest attainable rank. The highest tier on the leaderboard was designated “Al-Fatih” (The Conqueror), the apex achievement students were encouraged to pursue. This instructional design architecture, taken as a whole, functioned to redirect students’ attention toward the learning process itself, given that the daily challenges were intrinsically tied to the subject matter under study and demanded sustained diligence, precisely the quality of enthusiasm the intervention sought to cultivate.

The instructional process was carried out across both the experimental and control classes over four weeks, encompassing two distinct subject modules that formed the basis of instruction throughout the intervention: The first addressed the ethics of social media usage, with cognitive behavioral therapy integrated into the

pedagogical delivery of this content. The second covered the legal foundations, conditions, and provisions governing marriage in accordance with Islamic law, likewise implemented through a CBT-informed instructional approach. Importantly, both classes received identical subject matter, a decision grounded in the study’s actual circumstances, with scheduling adjusted to accommodate each class’s timetable. The planned distinction between the two groups, therefore, resided specifically in the learning media employed throughout the instructional process.

Table 2. Research procedures

Phase	Time	Experiment Group	Control Group
Pre-test	Week 1	Measurement of antusiasme students of learning Islamic religion	Measurement of antusiasme students of learning Islamic religion
Treatment	Week 2-3	Using Cognitive Behavioral Therapy (CBT) approach	Without Cognitive Behavioral Therapy (CBT) approach
Post-test	Week 4	Measurement of antusiasme students of learning Islamic religion	Measurement of antusiasme students of learning Islamic religion

Data Analysis

Data analysis is consistently described as a systematic process that turns raw data into meaningful findings or evidence (Nnachi et al., 2024). Its purpose is to discover useful information, support conclusions, and guide decisions or answers to the study problem (Guzik & Wiêckowska, 2023). Across quantitative methodology, analysis is expected to align with the research questions and often begins with a clear analysis plan or statistical analysis plan (Kotronoulas et al., 2023). Research-methods sources also place data analysis after problem identification, hypothesis formulation, and data collection as a crucial stage for interpreting results meaningfully (Chadli et al., 2021). Once the research data had been fully gathered, analysis was conducted in two sequential methodological stages: assumption testing and hypothesis testing. All statistical computations in this study were performed using JASP (Jeffreys’ Amazing Statistics Program), version 0.97.1, a free (open-source) statistical analysis software developed by the Department of Psychological Methods at the University of Amsterdam’s psychological methods group, Netherlands (Yulianto, 2019), designed to make common statistical analyses accessible through a graphical interface. It is consistently

described as cross-platform, user-friendly, and especially valuable for researchers and students who want SPSS-like point-and-click analysis without proprietary licensing costs (McBride & Garcés-Manzanera, 2024). The data analysis procedure in this study proceeded through the following stages: First, the Shapiro-Wilk test was applied to determine whether the data conformed to a normal distribution, and the test was computed using the JASP application. Second, homogeneity of variance was assessed using Levene’s Test within the JASP computing environment. Third, once the data were confirmed to be normally distributed and sufficiently homogeneous in variance, an independent-samples t-test was conducted in JASP to evaluate the intervention’s effectiveness.

■ RESULT AND DISCUSSION

Measurement Model

Prior to proceeding with the primary stage of in-depth analytical testing, an essential preliminary step involved evaluating the psychometric properties of the research instrument. This evaluation serves as a critical determinant of the integrity, credibility, and precision of the resulting research findings. Generally, such an evaluation encompasses an

assessment of internal consistency, commonly referred to as reliability and validity testing of the instrument (Lim, 2025).

In this study, the validity of the research instrument, comprising the pre-post test questionnaire, was assessed using content validity, based on evaluative judgments from two expert validators whose areas of specialization aligned with the research objectives. One validator held the rank of Professor with expertise in Islamic Religious Education, while the other was a Clinical Counselor with specialization in Cognitive Behavioral Therapy (CBT). Instrument validation employed a Likert scale ranging from 1 to 4, where 1 indicated invalid, 2 indicated less valid, 3 indicated valid, and 4 indicated very valid.

The validity assessment framework comprised eight evaluative indicators organized under three principal aspects. The first was the content aspect, which assessed the degree of alignment between the instrument's scope of statements and the research objectives. The second was the language aspect, which examined the appropriateness of grammar and the clarity of expression for the intended respondents. The third was the presentation aspect, which addressed the systematic ordering, clarity, and informational coherence of the statements as they appeared within the instrument.

Given that this study employed two raters (validators), Cohen's Kappa was determined to be the most appropriate statistical measure for

Table 3. The results of the validation calculation for the research instrument

Validator	Amount Score	% Agreement	Aiken's V (Average)	S-CVI/Ave (Scale-Level CVI)
V1	8	87.5	0.89	0.94
V2	7			
Interpretation/Level		High Agreement	Highly Validity	Qualified High Validity

Source: Data processing result, 2026

quantifying inter-rater agreement (McHugh, 2012). To establish the content validity of the learning enthusiasm questionnaire, the instrument was evaluated by two expert validators specializing in educational psychology and learning assessment. Ratings were assigned using a four-point Likert scale (1 = Not Relevant, 2 = Less Relevant, 3 = Sufficiently Relevant, 4 = Highly Relevant). However, given the notably high degree of uniformity in validator agreement and the limited volume of data in this study, this highlights a limitation of using binary Cohen's Kappa when there is high prevalence bias (positivity bias) among raters. To address this and provide a more accurate representation of content validity, were not conducive to a meaningful application of Cohen's kappa. Instead, in this study, applied Inter-validator agreement was examined using percentage agreement (McHugh,

2012), while Aiken's V index was employed to quantify the strength of weighted consensus (Tajuddin et al., 2025). The Item-Level Content Validity Index (I-CVI) was used to assess the proportion of items deemed relevant across evaluators (Lukmanul et al., 2025).

Based on the analysis presented in Table 3, the majority of statement items demonstrated excellent validity. Inter-validator agreement, as measured by percentage agreement, was 87.5%, which falls within the high agreement category. The mean Aiken's V across all instrument items was 0.896, exceeding the recommended threshold of 0.70, indicating that the validators shared strong consensus on each item's relevance to the measured construct. Similarly, the mean I-CVI was 0.938, indicating that nearly all items were deemed relevant by the majority of validators; accordingly, the interpretation of the

mean I-CVI classifies the instrument as highly valid (with conditions). More specifically, seven of the eight statement items attained maximum scores on both indices (Aiken's $V = 1.00$ and I-CVI = 1.00), encompassing items 1, 2, 4, 5, 7, and 8. Items 3 and 5 returned an Aiken's V of 0.833 while nonetheless retaining an I-CVI of 1.00. This outcome indicates that, despite minor variation in rating intensity (scores of 3 versus 4), both validators consistently agreed that the items in question were "Relevant" (scores ≥ 3).

One notable exception was identified in Item 6, which returned an Aiken's V of 0.667 and an I-CVI of 0.500. These diminished values stemmed from a substantial perceptual divergence between Validator 1, who assigned a score of 2 (Less Relevant), and Validator 2, who assigned a score of 4 (Highly Relevant). Given that I-CVI calculations involving a small number of validators ($n = 2$) require full consensus (a value of 1.00) for an item to be accepted without revision, Item 6 was subsequently subjected to an expert consensus discussion. Through in-depth

deliberation, it was determined that editorial ambiguity in the item's phrasing had led to divergent interpretations. Following targeted revision to clarify its operational meaning, the item reached mutual agreement among the validators and was retained in the final instrument. Consequently, all instrument items were declared content-valid for use in this study.

The next step in evaluating the instrument's psychometric properties was reliability testing. Reliability assessment is fundamentally concerned with the consistency and stability of a measurement instrument, ensuring that it yields comparably consistent results each time it measures a given research indicator. It is through this process that an instrument's trustworthiness and dependability as a measurement tool are established (Lim, 2025). The statistical results of the reliability computation, performed using JASP, are presented in the table below:

Reliability testing, conducted by distributing questionnaires to subjects outside the actual sample, yielded a notably favorable outcome. The

Table 4. Reliability statistics results

Frequentist Scale Reliability Statistics				
			95% CI	
Coefficient	Estimate	Std. Error	Lower	Upper
McDonald's ω	0.744	0.127	0.335	0.853
Cronbach's α	0.738	0.088	0.503	0.837

obtained Cronbach's alpha coefficient (α) of 0.738 positions the instrument within the acceptable to good reliability category, as this value falls within the acceptable benchmark for Cronbach's $\alpha > 0.70$ (Pentapati et al., 2025).

Descriptive Results of The Research

Descriptive statistics in this section were used to assess the effectiveness of the Cognitive Behavioral Therapy (CBT) approach in enhancing students' enthusiasm for learning at SMK Negeri 3 Palu in Islamic Religious Education (PAI).

Detailed outcomes, however, could only be determined following a series of classical assumption tests, which served the critical function of identifying the appropriate form of hypothesis testing to be applied, whether parametric or non-parametric, to ensure that the statistical tool selected was well-suited to the nature of the data and that the data obtained could be classified as valid. Two primary conditions governed this determination: the data were required to satisfy the criteria for both normality and homogeneity of variance.

Given that the sample in this study is relatively small, yet demands a high degree of sensitivity and measurement accuracy, the Shapiro-Wilk test was selected as the appropriate procedure for assessing the normality of the data distribution. This test is particularly well-suited for examining the independence and identical distribution of data in samples of up to

50 observations. According to the Shapiro-Wilk interpretation framework, the W statistic operates within the range of $W \leq 1$, whereby values approaching 1 are indicative of a more normally distributed dataset (Rani, 2016). Table 5 presents the results of the assumption test and independent samples t -Test as computed through JASP:

Table 5. Summary of assumption tests (shapiro-wilk, levene) and independent samples t -test results

Variable		Pre-Enthusiasm	Post-Enthusiasm
Shapiro-Wilk W		0.969	0.963
Normality p		0.587	0.454
Levene F		0.014	—
Levene p		0.907	—
t		-0.316	1.911
t -test p		0.623	0.034
Cohen's d		-0.124	0.752
Coefficient of variation	experiment	0.080	0.074
	control	0.084	0.064
Mean	experiment	50.07	53.86
	control	50.58	51.08
SD	experiment	4.009	3.997
	control	4.231	3.288

Levene's test was conducted on the pre-test only to confirm baseline homogeneity between groups; the assumption was carried forward for the post-test comparison. Based on the data presented in Table 5, the p -value for pre-test enthusiasm was recorded at 0.587, while the p -value for post-test enthusiasm was obtained at 0.454. The significance threshold used in this analysis was set at $\alpha = 0.05$, with a p -value exceeding 0.05 taken as an indication of normally distributed data (Ghasemi et al., 2012). Both values obtained satisfy this criterion: the pre-enthusiasm p -value (0.587) and the post-enthusiasm p -value (0.454) each exceed the 0.05 threshold, confirming that the data collected in this study are normally distributed. This finding is further corroborated by the W statistic, which approached 1, indicating that the data's distributional quality is excellent and consistent with the normality assumption.

To satisfy the second prerequisite assumption, the researcher examined whether the

variance in pre-post test enthusiasm scores across the experimental and control classes was sufficiently homogeneous. This assessment was carried out using Levene's test, also known as the F -test, a statistical procedure specifically designed to evaluate the equality of variances across independent groups. The p -value from Levene's test was 0.907 for pre-enthusiasm. These values constitute the primary basis for determining whether the variance between the experimental and control classes is equivalent (homogeneous). Both p -values exceed the 0.05 significance threshold, confirming that the variances across the two groups are homogeneous and therefore statistically comparable (Hair et al., 2019).

Therefore, the probability variables in this study could be defined through their probability distributions and valid inferences from distributional parameters were attainable, or in other words, the prerequisite assumptions were satisfactorily met. Accordingly, parametric testing

was adopted as the inferential statistical method for this study. Specifically, the Independent Samples t test was selected because the two groups under comparison operated independently of one another (Kim, 2015). This testing technique served as the primary analytical step through which the research questions were addressed and the study's hypotheses resolved.

Together with the descriptive statistics reported above, demonstrate internal continuity and cross-data consistency. The descriptive statistics reveal that this interpretation is further supported by the coefficient of variation, which fell well below the 30% threshold, with a coefficient of 0.074 (7.4%) for the experimental class following the implementation of cognitive behavioral therapy. Baseline analysis at the pre-test stage yielded a t-value of -0.316 and a p-value (sig.) of 0.623, which exceeds the 0.05

threshold. This result confirms that prior to the intervention, no statistically significant difference in learning enthusiasm existed between the experimental and control classes; both groups, in other words, commenced from a comparable starting point. Turning to the post-intervention analysis, the t-value was 1.911, with a p-value (sig.) of 0.034, which falls below the 0.05 significance threshold. This outcome indicates a statistically significant difference between the experimental and control classes following the CBT treatment, and one that extends beyond mere statistical significance. The effect size, as measured by Cohen's d, shifted from a negligible pre-intervention value of $d = -0.124$ to a substantially elevated post-intervention value of $d = 0.752$, reflecting a strong practical effect of the intervention. A visualization of the independent samples t-test results is provided in Figure 2 below:

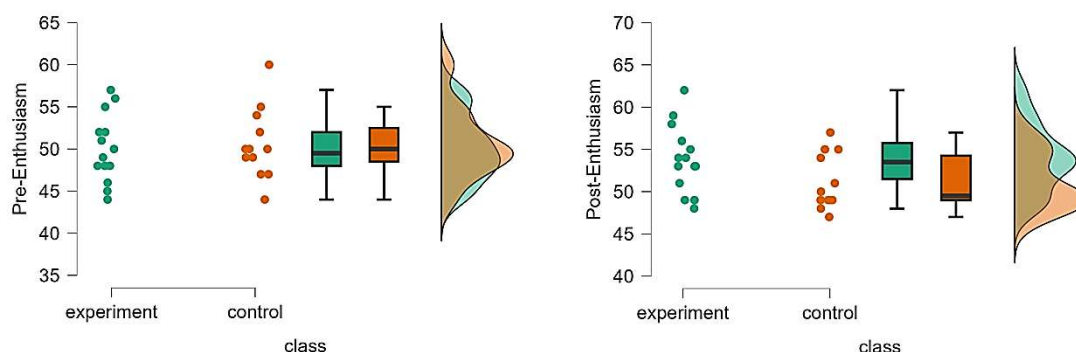


Figure 2. Vertical display raincloud plots of independent sample T-test

The raincloud plots presented above provide a comprehensive visual interpretation of data distribution, central tendency, and individual score variability within each group. At the pre-test stage, considerable overlap is evident between the two groups: the experimental group had a mean of 50.07 (SD = 4.009) and the control group a mean of 50.58 (SD = 4.231), with the medians of both groups falling within a near-identical range. The dispersion of individual data points, along with the probability density curves

(violin/cloud), indicates comparable variability across both groups, thereby confirming the absence of any systematic pre-existing difference between them. This finding aligns with the non-significant results of the independent-samples t-test ($t = -0.316$, $p = 0.623$).

A statistically distinguishable, though practically modest, pattern emerged at post-test. The experimental group ($M = 53.86$, $SD = 3.997$) and the control group ($M = 51.08$, $SD = 3.288$) were separated by a mean difference of

only 2.78 points on the enthusiasm scale. The raincloud plot shows that the two distributions still overlap substantially, even as the experimental group's density shifted somewhat toward higher scores. This visualization is consistent with the statistical findings, which indicate a significant difference in post-intervention enthusiasm scores ($t(24) = 1.911$, $p = 0.034$) and a large standardized effect size ($d = 0.752$). The large Cohen's d alongside a small raw mean difference reflects the relatively low variability within this sample rather than a dramatic separation between groups; accordingly, this study interprets the result

as evidence of a statistically reliable but practically moderate intervention effect, rather than the wholesale transformation the raw effect-size label might otherwise suggest.

To complement the descriptive analysis and group-level hypothesis testing, individual-level trajectory analysis is presented through the Scatter Plot in Figure 3 below:

This visualization compares each student's pre-test score (X-axis) against their post-test score (Y-axis), the diagonal identity line ($Y = X$) serving as the line of equality, demarcating the threshold between improvement and decline.

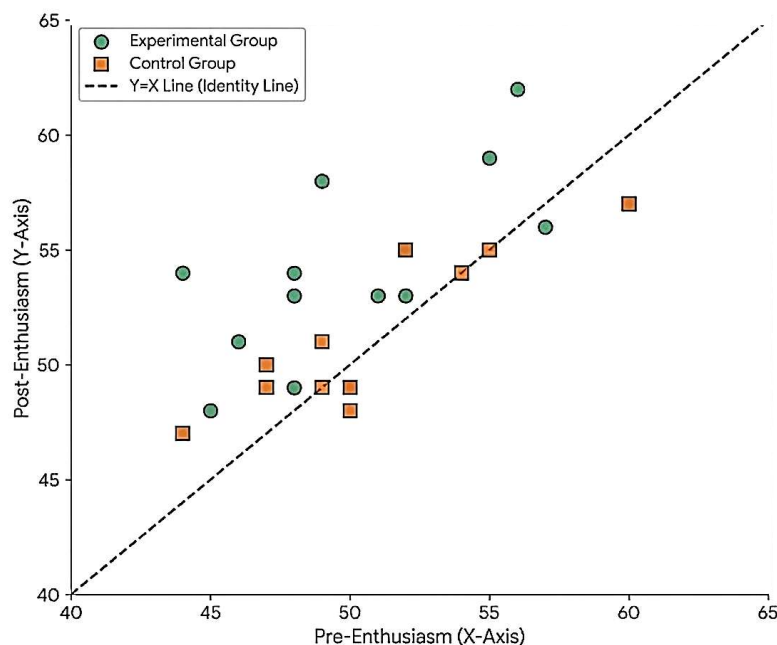


Figure 3. Visualization of individual-level enthusiasm change trajectories

Data points positioned above the $Y = X$ line indicate a gain in enthusiasm scores ($\text{Post} > \text{Pre}$), while those falling below it signal a decrease ($\text{Post} < \text{Pre}$). As shown in Figure 3, reveals a pronounced trajectory disparity between the two groups. A clear pattern emerges. The majority of subjects in the experimental group (85.7%; $n = 12$ of 14) are consistently positioned above the $Y = X$ line, providing compelling evidence that the learning intervention meaningfully increased enthusiasm at the individual level. By contrast, data points from the control group cluster

predominantly along or below the $Y = X$ line, suggesting that students' enthusiasm for learning in the absence of intervention remained relatively stagnant or, in some cases, declined. This visual evidence confirms that the treatment's effectiveness was not confined to aggregate group-level averages; rather, it was broadly reflected across individual participants.

The successful implementation of Cognitive Behavioral Therapy (CBT) to increase students' enthusiasm for Islamic Religious Education (PAI) at SMK Negeri 3 Palu has crucial theoretical and

practical implications. This explicitly confirms that the alternative hypothesis (H_a/H_1) of the present study is accepted, indicating that the CBT approach is significantly effective in enhancing learners' enthusiasm for learning. Although both groups began from an equivalent affective baseline, empirical findings reveal a markedly different picture by the end of the study. A significant performance divergence emerged, with the experimental class consistently outperforming its control counterpart. Such statistical evidence suggests that the cognitive-behavioral intervention applied here was not merely a transient stimulant; rather, it functioned as a method capable of penetrating the very roots of students' psychological processing in their perception of learning activities.

This quasi-experimental study is anchored in a form of psychological therapy applied directly within the classroom learning process. CBT was implemented during Islamic Religious Education instruction in the experimental class through the following stages: Initial Stage: In the Pre-test session researcher established rapport with participants and negotiated a set of shared agreements governing the subsequent learning process. Because the scheduling of religious education classes varied across the research site, the researcher was able to observe students' learning conditions in real time. This circumstance proved advantageous: it allowed the entire research procedure to unfold naturally, without imposing undue pressure on the subjects, thereby enabling a more objectively measurable outcome. Core Phase: The Treatment session spanned two weeks and comprised six intervention sessions. Prior to implementation, the researcher had introduced students to the learning model and classroom agreements, ensuring the treatment phase could proceed systematically once it began. During each session, students received a confidential mission tailored to that day's instructional material. Functioning as a motivational

driver, this mission encouraged learners to pursue their daily learning targets through approaches suited to their individual learning styles. A leaderboard, illustrated in the attached media (Figure 1), served as a visual indicator of each student's progress and development, allowing them to gauge, by the end of the session, how far they had succeeded in overcoming their own limitations. This treatment protocol was administered continuously and incrementally until the session concluded. Finally, in the Post-test session, the researcher measured and compiled students' step-by-step progress and subsequently discussed the results individually with each participant to foster deeper self-understanding.

Once students' thinking orientation shifts toward a more positive stance, the emotional responses elicited by learning stimuli undergo a correspondingly linear reconstruction. This cognitive realignment automatically triggers positive affect, which materializes in the field as observable indicators of learning enthusiasm. Higher attentional intensity, active participation in group dynamics, and greater resilience when confronted with academic tasks all became evident among students. Such collective transformation is transparently confirmed by the vertical raincloud plot visualization presented earlier; far from representing mere statistical fluctuation, it reflects a substantive psychological shift among students as a consequence of the CBT intervention.

Furthermore, the findings of this study both reinforce and extend the existing body of literature on the clinical and educational applications of CBT. Consistent with prior research by Syahfira, A., & Siregar, A. (2024), the present results affirm that cognitive behavioral modification is highly effective in restoring affective engagement and mitigating students' psychological barriers within educational institutions. The novelty of this study, however, lies elsewhere. Its specific contribution is situated in the locus of intervention

itself, targeting a cluster of vocational high school (SMK) students within the normative-spiritual subject domain, namely PAI.

Vocational high schools, by their curricular nature, tend to be dominated by practical vocational content, so theoretical religious subjects often receive only marginal priority or attention within the broader instructional landscape. Against this backdrop, the present study demonstrates that CBT can serve as an effective methodological bridge to address this challenge. In practical terms, the implications of these findings extend directly to educators and school counseling practitioners. Diminished student enthusiasm, this study suggests, should no longer be construed merely as a manifestation of laziness; rather, it ought to be understood as an information-processing impediment, one requiring structured intervention grounded in cognitive psychology.

Two limitations qualify these conclusions and should temper how the findings are read. First, the intervention media incorporated visible gamification elements, including a leaderboard and a “Skip ahead” progression mechanic culminating in the “Al-Fatih” rank, as well as the self-monitoring journaling task. These competitive, achievement-oriented features may themselves generate extrinsic motivation independent of any cognitive restructuring process, meaning that part of the measured increase in enthusiasm could reflect students’ desire to win or advance rank rather than the self-monitoring mechanism specifically attributed to CBT. Because the design did not isolate gamification from self-monitoring as separate factors, the present results should be read as evidence for the combined self-monitoring-plus-gamification package rather than as unambiguous evidence for the self-monitoring component in isolation; disentangling these two influences is an important task for future research using a factorial or dismantling design.

Second, the treatment phase spanned only two weeks (Week 2-3) across six sessions, a duration that is short relative to the time typically required for affective and cognitive change to stabilize. The post-test scores reported here should therefore be understood as capturing an immediate or short-term shift in enthusiasm rather than a durable trait-level change, and the study makes no claim about whether the observed gains persist beyond the measurement window. This constraint is consistent with the modest raw mean difference reported above and reinforces the need for the delayed follow-up measurement recommended in the Conclusion.

■ CONCLUSION

This study demonstrates that the cognitive behavioral therapy approach, implemented through journaling and self-monitoring media during the learning process, enhances students’ enthusiasm for learning in Islamic Religious Education classes to a statistically reliable, practically moderate degree. Drawing on the empirical data presented earlier, the intervention proved statistically significant, though, as discussed above, the modest raw mean difference and the confounding presence of gamification elements counsel a measured rather than sweeping interpretation of its practical impact. The visual pattern in the raincloud plot (Figure 2) shows the density cloud of the experimental group shifting somewhat away from that of the control group, consistent with the cognitive restructuring technique having some effect in easing negative thought patterns or emotional barriers that had previously suppressed students’ enthusiasm for learning. Moreover, the homogeneity of variance was preserved after the intervention; as reflected in the boxplot, whose shape did not deviate substantially, the effects of CBT appear to have been distributed fairly evenly across participants. Nevertheless, this study is not without limitations. First, as the developer of the CBT-based

journaling self-monitoring media, the researcher conducted this investigation with a relatively small sample of 26 students. Second, the study was constrained by a short two-week treatment window, insufficient to establish whether the observed gains in enthusiasm are durable. Third, gamification elements embedded in the intervention media were not isolated from the self-monitoring component, leaving open the question of how much of the effect is attributable to each.

For PAI teachers and school counselors, these findings suggest three concrete steps. First, treat diminished student enthusiasm as an information-processing pattern that can be addressed with structured self-monitoring tools, such as a short daily journal tied to the day's lesson, rather than attributing it solely to laziness or disinterest. Second, introduce simple, low-cost progress-tracking devices, for example a personal or class checklist rather than necessarily a competitive leaderboard, so that the motivational contribution of self-monitoring can be distinguished from that of gamification in ordinary classroom practice. Third, pair any such intervention with periodic teacher check-ins with students, mirroring the individualized post-test discussion in this study, to reinforce the technique's self-reflective component. For future research, the authors recommend: (1) extending the treatment period well beyond two weeks, with a delayed follow-up measurement to test whether enthusiasm gains persist; (2) using a factorial or dismantling design that varies gamification and self-monitoring independently, to isolate their respective contributions; (3) replicating the study with a larger sample across multiple vocational schools to improve statistical power and generalizability; and (4) incorporating qualitative data, such as student interviews or journal-content analysis, to complement the quantitative enthusiasm scores with a richer account of the cognitive-restructuring process itself.

■ DECLARATION OF GENERATIVE AI USAGE IN THE WRITING PROCESS

During the drafting of this manuscript, the authors used Claude.ai, Thaura.ai, and Scispace to refine sentence structure and translate text. Following the use of these tools, the authors reviewed and revised the content as necessary and accept full responsibility for the final content of the article.

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