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SUPPRESSING ANXIETY AND IMPROVING ACHIEVEMENT: THE ROLE OF THE ADLX INTROFLEX TERPADU MODEL IN MATHEMATICS LEARNING

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ABSTRACT
Mathematics anxiety is a psychological obstacle that consistently decreases students' motivation and learning achievement, especially at the junior high school level. This study aims to analyze the influence of the Integrated ADLX Introflex model on mathematics learning outcomes and mathematical anxiety of junior high school students in Bandar Lampung. The study used a quantitative approach with a Quasi-Experimental Pretest-Posttest Control Group design, involving 79 students in grade VIII divided into 38 students in the experimental class and 41 students in the control class. The instruments used included a learning achievement test (α = 0.87) and a mathematical anxiety questionnaire (α = 0.89). The data were analyzed using MANOVA after the assumption of normality and homogeneity was met. Partial test results showed F = 56.907 (η^2 = 0.428) for learning achievement and F = 25.889 (η^2 = 0.254) for anxiety, both significant at p = 0.000. The MANOVA test yielded Pillai's Trace = 0.522 with p = 0.000, proving that the model had a simultaneous effect on both variables. This model is proven to integrate cognitive, affective, and spiritual dimensions holistically. It is recommended to replicate at different levels and triangulate anxiety instruments psychophysiologically to strengthen the validity of further research.
Keywords: active learning; integrated adlx introflex model; islamic value integration; mathematics anxiety; mathematics learning outcomes

ABSTRACT
Mathematics anxiety represents a persistent psychological barrier that consistently undermines students' motivation and academic achievement, particularly at the junior secondary level. This study aimed to analyze the effect of the Integrated ADLX Introflex Terpadu model on mathematics achievement and mathematical anxiety among junior high school students in Bandar Lampung. A quantitative approach with a Quasi-Experimental Pretest-Posttest Control Group Design was employed, involving 79 eighth-grade students comprising 38 experimental and 41 control group participants. Instruments included a mathematics achievement test (α = 0.87) and a mathematics anxiety questionnaire (α = 0.89). Data were analyzed using MANOVA following confirmed assumptions of normality and homogeneity. Partial test results yielded F = 56.907 (η^2 = 0.428) for achievement and F = 25.889 (η^2 = 0.254) for anxiety, both significant at p = 0.000. MANOVA produced Pillai's Trace = 0.522 at p = 0.000, confirming simultaneous significant effects on both dependent variables. The model effectively integrates cognitive, affective, and spiritual dimensions holistically. Replication across different educational levels and psychophysiological triangulation of anxiety measurement instruments are recommended to strengthen the validity of future research.
Keywords: *active learning; integrated adlx introflex integrated model; islamic values integration; mathematics achievement; mathematics anxiety*

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Introduction

Anxiety learning math (*math anxiety*) has long been identified as a psychological barrier that consistently erodes the academic potential of students at various levels of education. This condition is not just a feeling of discomfort, but a complex emotional and cognitive response, characterized by tension, excessive fear, and loss of confidence when dealing with mathematical situations (Ashcraft, 2002). (Wigfield & Meece, 1988) suggests that untreated anxiety will have a direct impact on a decrease in learning motivation and academic achievement that is far from optimal. Further, (Ma, 1999) Through its meta-analysis, it proved that there was a significant negative correlation between mathematical anxiety and learning achievement, which was then strengthened by (Hembree, 1990) which confirms that students with high levels of anxiety tend to avoid learning math systematically. This condition is reflected in the field, especially in junior high school students in Bandar Lampung City, Lampung Province, who mostly view mathematics as a scary, psychologically exhausting, and difficult subject to understand, thus having a direct impact on their low confidence and learning achievement. International data from the OECD through the framework also confirm that mathematics anxiety contributes greatly to the low mathematical literacy of students globally, making this issue not just an individual problem, but a systemic challenge that demands a planned and innovative learning response.

The urgency to overcome math anxiety is amplified when placed in relation to motivation and learning outcomes. (Zakaria & Nordin, 2008) confirms that students who experience high anxiety in math show a significant decrease in intrinsic motivation, which ultimately leads to unsatisfactory learning outcomes. (Dowker, Sarkar, & Looi, 2016) reinforcing these findings by stating that anxiety not only impacts the cognitive aspect, but also suppresses the entire motivational system of students. In this context, (Pekrun & Linnenbrink-Garcia, 2014) emphasizing that a fun, interactive, and emotionally challenging learning atmosphere has been proven to be able to suppress anxiety while optimizing students' learning potential. Innovative learning models have also been tested in response to this problem. *Discovery learning* Proven to be effective in improving understanding of mathematical concepts and reducing students' anxiety (Hidayat, Angela, Dwitarakanita, & Mumtaz, 2025a), *Project-based learning* Contribute to increased motivation, confidence, and learning outcomes (A. R. Putri & Rahayu, 2020), and *Problem-based learning* help students deal with contextual problems more confidently and improve their learning outcomes (Marlina & Rahman, 2020). However, these studies are still partial because they only focus on one specific dimension, both cognitive and affective, without simultaneously integrating academic, emotional, contextual, and spiritual aspects in a complete and holistic learning framework. This gap is what drives the need for a new learning model that is able to comprehensively answer the complexity of these problems.

In response to these gaps, the *ADLX Introflex Terpadu* It is present as a learning solution designed to answer the complexity of math anxiety problems as a whole. In simple terms, the model integrates three main frameworks: *ADLX* (*Active, Deep, Learner, Experience*) that inspired the idea (Bahgat, 2019) and is based on *Learner Experience Framework* (Pollock, Jefferson, & Wick, 2010); Syntax *Introflex* which includes *Individualization, Interaction, Observation*, and *Reflection*; and

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Integrated Framework which includes the stages *Study, Exploration, Formulate, Present, Apply, Worldly*, and *Ukhrowi*, as developed by (JSIT Surakarta, 2023) and (JSIT Indonesia, 2022). The main advantage of this model over previous models lies in its ability to build meaningful learning experiences through deep thinking activation, collaborative interaction, and authentic contextual application, thereby simultaneously suppressing anxiety and building students' emotional resilience. In addition, this model directly supports the development of 21st century skills emphasized by UNESCO and *World Economic Forum*, i.e. *Critical Thinking*, *creativity*, and *Collaboration* as part of the essential cognitive competencies that must be developed through innovative learning (Trilling & Fadel, 2009). It is this relevance that makes the model *ADLX Introflex Terpadu* not just a procedural innovation, but also a response to the demands of mathematical education that is more humanistic, adaptive, and useful for students' real lives (Dahlia, 2020; Lidinilah, Syafriandi, & Ramadhona, 2015; Yayuk, 2019).

Although its relevance is very strong theoretically, until now there has been no research that specifically examines the influence of the model *ADLX Introflex Terpadu* on the anxiety and learning achievement of mathematics students in junior high school, especially in the local context of Bandar Lampung which has different student characteristics compared to other big cities (Barroso et al., 2021). Previous studies examining mathematical anxiety and innovative learning models have tended to focus on one specific aspect, without touching on the integration of affective and spiritual dimensions simultaneously (El-Far, El-Mutaz, & Ghariani, 2024; Gopal BC, 2025). The novelty of this research lies in three things that have never been studied simultaneously: first, the simultaneous integration of academic, emotional, and spiritual dimensions in one junior high school mathematics learning model; second, an explicit focus on reducing mathematical anxiety as an affective variable that is often overlooked in similar studies; and third, model testing in the local context of Bandar Lampung as an effort to equalize the research literature of mathematics education in Indonesia. Based on this background, this study aims to analyze the influence of the application of the model *ADLX Introflex Terpadu* in junior high school mathematics learning on the ability to suppress anxiety and improve student learning achievement in Bandar Lampung. The results of this research are expected to broaden the perspective of teachers in designing learning strategies that are more holistic, adaptive, and relevant to the academic and emotional needs of students in the 21st century education era.

Research Methods

Research Design

This study uses a quantitative approach because the data collected and analyzed is in the form of numerical data (numbers) (Sugiyono, 2017). The type of research used is *Quasi Experimental Design* (Pseudo Experiment) with the plan *Post-Test Only control Group Design.* This design was chosen to measure changes in bound variables before and after the treatment was administered (Campbell & Stanley, 2015).

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Research Subjects and Samples

The population consisted of all eighth-grade junior high school students in Bandar Lampung. The sample was selected purposively based on demographic similarity, availability of parallel classes, and school consent, resulting in two classes: an experimental class (38 students) using the Integrated ADLX Introflex model and a control class (41 students) using Direct Instruction show in Table 1.

Table 1. Demographic Characteristics of Respondents

Demographic Information		Experimental Classes	Control Class	Quantity	Percentage (%)
Total Responden		38	41	79	100
Gender	Male	15	18	33	42
	Women	23	23	46	58
Age	13	15	21	36	46
	14	21	20	41	52
	15	2	0	2	2

Research Instruments

1. *Mathematics Learning Achievement Test*

The learning achievement test instrument was adapted from Prabowo & Puspa (2020), which was developed to measure the mastery of the Two-Variable Linear Equation System (SPLDV) material in junior high school students. The instrument consists of 5 description questions with a maximum score of 100, covering four indicators: (1) understanding the concept of SPLDV, (2) modeling the problem into the form of a two-variable linear equation, (3) solving the SPLDV using substitution, elimination, and mixing methods, and (4) interpretation of solutions in the context of real problems. Adaptation is carried out by adjusting the context of the question to the characteristics of the research subject without changing the measured construct, accompanied by re-examination by experts. The validity of the content was obtained through *expert judgment*, the empirical validity was used the *product moment correlation test*, and the reliability was tested with *Cronbach's Alpha* which resulted in a value of $\alpha = 0.87$, so that the instrument was declared suitable for use.

2. *Math Anxiety Questionnaire*

The mathematical anxiety questionnaire was adapted from (Juniardi, Rahmi, Yuniati, & Kurniati, 2024), which is designed to measure junior high school students' anxiety levels in math learning. The instrument consisted of 28 Likert-scale statements (four points) covering four indicators: anxiety in learning, problem-solving, evaluation, and emotional responses to mathematics. It was adapted through wording adjustments, validated by expert judgment and Product Moment correlation, and showed high reliability with Cronbach's Alpha of 0.89.

Research Procedures and Stages

The implementation of the research lasted for six meetings (± 2 × 40 minutes each) on the subject of SPLDV. The stages of the research procedure include: (1) providing *a pretest* to measure the initial condition of the two classes; (2) treatment

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implementation — the experimental class followed learning with the Integrated ADLX *Introflex* model , while the control class received *Direct Instruction learning*; and (3) the administration of *a posttest* to measure the final achievement of both groups. The relationship between the learning model and the dependent variables is presented in Table 2 below.

Table 2. Research Design

Learning Model (X)	Math Anxiety (Y1)	Learning Achievement (Y2)
ADLX Introflex Integrated (X1)	X1Y1	X1Y2
Conventional Learning (X2)	X2Y1	X2Y2

Remarks: X1Y1 = effect of ADLX Introflex Integrated on anxiety; X1Y2 = effect of ADLX Introflex Terpadu on performance; X2Y1 = conventional influence on anxiety; X2Y2 = conventional influence on performance.

The ADLX Introflex Terpadu model was developed based on the guidance of the Integrated Islamic School Network (JSIT) and consists of six main syntax stages that are mutually continuous, as shown in Figure 2 below.

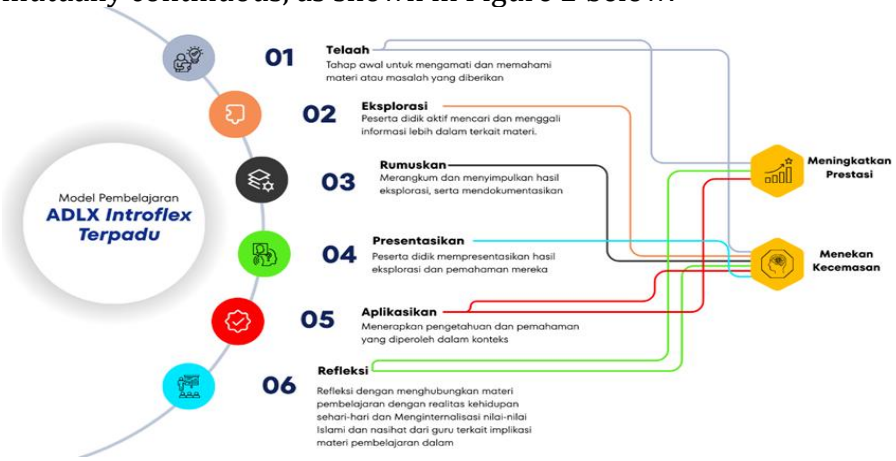

Figure 2. Syntax of the Integrated ADLX Introflex Learning Model

The six stages include: (1) *Study* — students observe and understand the material or problem given as a starting point for learning; (2) *Exploration* — students actively dig deeper information related to SPLDV material; (3) *Formulate* — students summarize and document the results of exploration; (4) *Present* — students present the results of their understanding in front of the class; (5) *Apply* — the knowledge gained is applied in a real context; and (6) *Reflection* — students relate the material to daily life and internalize the Islamic values conveyed by the teacher. All of these stages are designed to encourage active cognitive engagement while building affective stability through the integration of spiritual values, thereby contributing to increased learning achievement as well as reducing students' math anxiety.

Data Analysis Techniques

The collected data is analyzed gradually. *First*, descriptive analysis was carried out to obtain an overview of the maximum, minimum, average, median, mode, and standard deviations of the two groups. *Second*, the prerequisite test

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includes the normality test with *the Shapiro-Wilk* test and the homogeneity test with *the Levene test*, where the data is declared to be normally and homogeneously distributed if the p value > 0.05. *Third*, partial hypothesis testing was carried out using *univariate analysis of variance* to test the influence of the model separately on mathematics learning achievement and mathematics anxiety. *Fourth*, simultaneous testing was carried out using *Multivariate Analysis of Variance* (MANOVA) to test the influence of the model simultaneously on the two dependent variables. All analyses used a significance level of $\alpha = 0.05$ and were processed using SPSS software version 26.

Results and Discussion

Data were collected after the completion of learning on SPLDV material. Mathematics learning outcomes and anxiety from both groups were then analyzed descriptively using measures of central tendency and dispersion (maximum, minimum, mean, median, mode, and standard deviation) to provide an initial overview before inferential analysis shows in Figure 3.

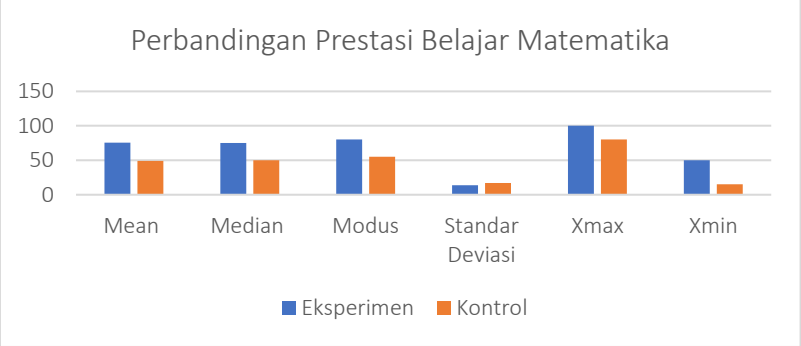

Figure 3. Mathematics Learning Outcome Data

Based on Figure 3, the experimental class outperformed the control class across all measures of central tendency, with a mean of 75, median of 75, and mode of 80, compared to the control class (mean = 48, median = 48, mode = 55). The 27-point difference indicates a substantial improvement in students' mathematics learning outcomes.

The experimental class also showed a lower standard deviation (12) than the control class (15), indicating more homogeneous achievement. Additionally, the experimental class achieved higher maximum (100) and minimum (48) scores compared to the control class (80 and 15). These findings suggest that the Integrated ADLX Introflex model not only improves learning outcomes but also promotes more equitable achievement among students shows in Figure 4.

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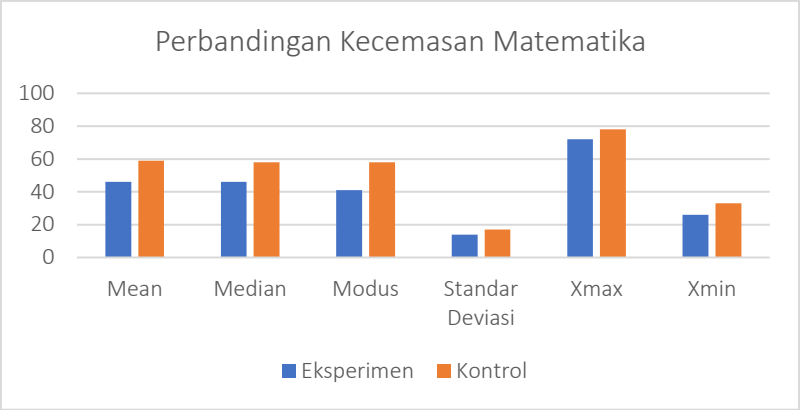

Figure 4. Mathematical Emergency Data

Based on Figure 4, the experimental class showed consistently lower mathematical anxiety than the control class across all measures of central tendency, with a mean of 45, median of 45, and mode of 40, compared to the control class (mean = 60, median = 58, mode = 58). The 15-point difference indicates that students in the experimental class experienced lower anxiety levels.

The experimental class also had a smaller standard deviation (15) than the control class (18), indicating more stable affective conditions. Additionally, the maximum (70) and minimum (25) anxiety scores in the experimental class were lower than those in the control class (78 and 33). These findings suggest that the learning environment in the experimental class was more supportive and effective in reducing students' mathematical anxiety.

When the emotional condition of students is more stable, the capacity of *Working Memory* can operate more optimally, so that the cognitive process to understand mathematical concepts takes place more efficiently (Ashcraft, 2002). (Putwain & Wood, 2023) Strengthen this understanding by showing that the relationship between anxiety, perception of control, and learning outcomes is reciprocal and mutually influential, so that affective and cognitive interventions are absolutely carried out simultaneously and cannot be separated from each other.

Before the main test using *Multivariate Analysis of Variance* (MANOVA) is carried out, a prerequisite test is first carried out which includes a normality test and a homogeneity test. The fulfillment of these two assumptions is an absolute requirement so that the results of MANOVA's analysis can be interpreted validly and can be accounted for methodologically shows in Figure 5.

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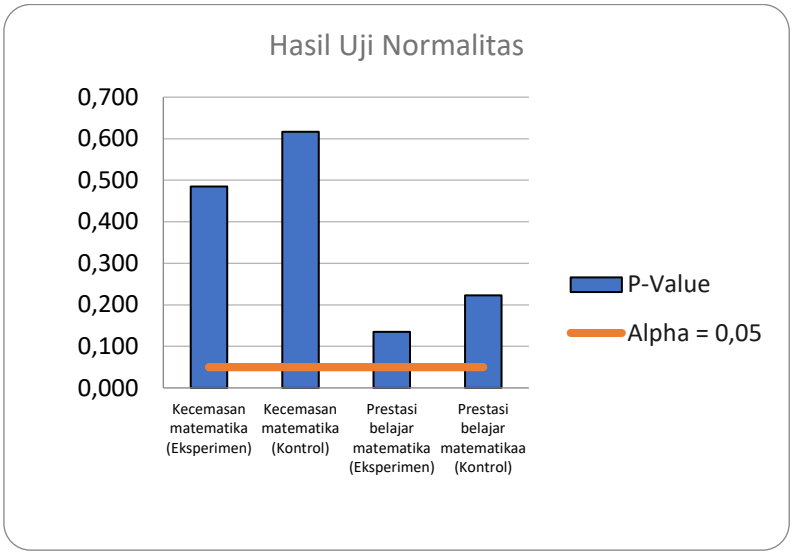

Figure 5. Normality Data

Based on Figure 5, the entire group showed *a p-value* > 0.05. The red horizontal line on the graph marks the significance limit of α = 0.05 which is used as a reference in statistical decision-making. Based on these results, it was concluded that the data from each group were normally distributed. The fulfillment of the assumption of normality proves that the distribution of learning outcomes and mathematical anxiety scores follows the Gaussian distribution, so that the use of parametric statistical methods such as MANOVA can be accounted for methodologically shows in Figure 6.

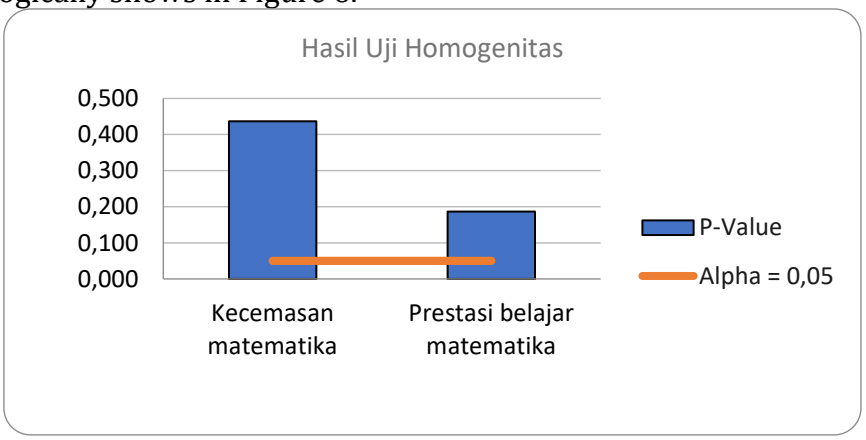

Figure 6. Homogeneity Data

Based on Figure 6, all groups showed a *p-value* > 0.05, so it was concluded that the variance of the sample data was homogeneous and met the homogeneity assumption. The fulfillment of these two prerequisite assumptions strengthens the justification for using MANOVA as the main analysis instrument, since MANOVA requires a relatively equal variance-covariance matrix between groups. Thus, advanced analysis can be carried out with an adequate level of statistical confidence shows in Table 3.

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Table 3. Partial Test Results

Source	Dependent Variable	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Groups	Mathematics Learning Outcomes	13979,22	1	13979,22	56,907	0,000
	Mathematical Anxiety	3294,542	1	3294,542	25,889	0,000

Based on Table 3, the p-value for mathematics learning outcomes is 0.000 (F = 56.907), indicating a significant effect. The partial eta squared value ($\eta^2 = 0.428$) shows a large effect size, meaning that 42.8% of the variation in learning outcomes is explained by the Integrated ADLX Introflex model.

Similarly, mathematical anxiety also shows a significant effect (p = 0.000; F = 25.889) with a large effect size ($\eta^2 = 0.254$), indicating that 25.4% of the variation in students' anxiety levels is influenced by the treatment. These results demonstrate that the model has a substantial impact on both cognitive and affective aspects of learning shows in Table 4

Table 4. MANOVA Test Results

Effects	Value	*F*	*Hypothesis df*	*Error df*	*Sig.*
Group – Pillai's Trace	0,522	41,576	2,000	76,000	0,000
Group – Wilks' Lambda	0,478	41,576	2,000	76,000	0,000
Group – Hotelling's Trace	1,094	41,576	2,000	76,000	0,000
Group – Roy's Largest Root	1,094	41,576	2,000	76,000	0,000

The MANOVA results in Table 4 show that all multivariate statistics (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) have p-values of 0.000, indicating a significant multivariate effect. Pillai's Trace value of 0.522 suggests that 52.2% of the combined variance in the dependent variables is explained by the treatment, while Wilks' Lambda (0.478) confirms a strong effect.

These results indicate that the Integrated ADLX Introflex model is statistically and practically effective in improving mathematics learning outcomes while simultaneously reducing students' mathematical anxiety.

These findings form a coherent cause-and-effect narrative of how the ADLX model *Introflex* Integrated works in layers. At the cognitive level, the approach *Active Learning* which is a key pillar of this model encourages the active involvement of learners in the construction of knowledge, resulting in a deeper conceptual understanding (Biggs & Tang, 2011). Learners are encouraged to build connections between concepts independently, which in turn strengthens long-term knowledge retention. These findings are in line with the results of the study (A. Putri, Iswara, & Hakim, 2021) which concludes that *Active Learning* has a significant impact on improving mathematics learning outcomes, as well as research (Kholid, Al Basyari, Saman, Nurhadi, & Mulhat, 2025) that proves the approach *Deep Learning* able to improve conceptual understanding in a more meaningful way than conventional learning. (Santosa, 2025) reinforcing this by explaining that the core elements *Deep Learning*, such as conceptual connectivity, intrinsic motivation, and metacognition, are essential components that drive high-level mathematical thinking.

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However, not all studies show consistent results. Active learning does not always improve outcomes without adequate student readiness, facilitator competence, and appropriate instructional design. This discrepancy may be due to differences in implementation, as the ADLX Introflex Terpadu model is applied holistically by integrating cognitive, affective, and spiritual aspects, which becomes its key advantage and novelty compared to previous models.

At the affective level, the decrease in mathematical anxiety in the experimental class can be interpreted through two complementary explanatory lenses. First, through the lens of cognitive psychology: (Ashcraft, 2002) confirms that mathematical anxiety directly interferes with capacity *Working Memory*, thereby significantly lowering the ability to process mathematical information. By creating a safer and more collaborative learning environment, the ADLX model *Introflex* Integrated succeeded in reducing the cognitive burden caused by psychological pressure. (Sammallahti, Finell, Jonsson, & Korhonen, 2023) through *Meta-analysis* Against 50 math anxiety intervention studies found *effect size* moderate for reduced anxiety (g = -0.467) and performance improvement (g = 0.502) through an approach that combines cognitive support with emotion regulation. The η^2 value obtained in this study even exceeded the average *effect size* indicates that the combination of active, profound, and spiritual dimensions in the ADLX model *Introflex* Integrated provides a more comprehensive impact. Second, (Aprillia & Lestari, 2022) and (Wulandari, Candiasa, & Sugiarta, 2023) found a significant negative correlation between mathematical anxiety and learning achievement. This reciprocal dynamic indicates that interventions that are able to suppress anxiety indirectly also encourage an increase in learning outcomes, forming a positive cycle that reinforces each other in a sustainable manner.

The most prominent distinguishing dimensions of the ADLX model *Introflex* Integrated is the integration of Islamic values into the mathematics learning process. Values such as patience, *Trust*, *ta'awun*, academic honesty, and the belief that learning is part of meaningful worship, are instilled contextually in each learning session. This integration is not decorative, but functional: it forms *Meaning Framework* which makes mathematics learning activities not just a cognitive task, but a spiritual practice that has transcendental value. (Rahmawati & Auliya, 2021) emphasizing that the internalization of religious values in learning can increase learning motivation and foster a positive attitude towards subjects. (Fitrah & Kusnadi, 2022) He further underlined that the integration of Islamic values in a relevant and contextual manner in mathematics learning is able to form students with character and competence integratively.

Psychologically, the integration of spiritual values contributes to the emotional stability of students through mechanisms that are *top-down*: When learners believe that learning efforts have a transcendental dimension, they tend to have a stronger goal orientation, a higher tolerance for failure, and capacity *Self-regulation* which is better. (Hidayat, Angela, Dwitarakanita, & Mumtaz, 2025b) Finding empirical evidence that religious values-based learning approaches can reduce learning anxiety because students feel calmer and have better self-control in dealing with academic challenges. (Barokah, Lubis, & Siregar, 2024) reinforcing this by proving that learning that integrates religious character values has a positive impact on self-confidence and *Perseverance* students in solving mathematical

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problems, an indicator *Academic Resilience* which is very relevant. (Aviola, Hayati, Pebria, & Imamuddin, 2023) adding that Islamic integrated mathematics learning has been proven to contribute to the formation of students' character holistically, beyond just improving cognitive competence.

The ADLX Introflex Terpadu model offers a more comprehensive approach by integrating cognitive, affective, and spiritual aspects simultaneously, unlike previous studies that focus on a single dimension. Its novelty lies in empirically demonstrating the synergy of these three aspects within a structured model, supported by a rigorous experimental design and MANOVA analysis. However, the study is limited by a relatively small sample from one school and the use of self-report instruments, which may introduce bias. Overall, this model represents a holistic and relevant approach that has strong potential to be applied more broadly in mathematics learning contexts.

Conclusion and Suggestion

This study aims to analyze the influence of the Integrated ADLX Introflex model on mathematics learning outcomes and mathematical anxiety of junior high school students in Bandar Lampung. Overall, this model has proven to be statistically and practically effective in improving learning outcomes while simultaneously reducing students' mathematical anxiety, with the category of large effects on both variables. The scientific contribution of this research is empirical proof that the synergy of cognitive, affective, and spiritual dimensions in one structured learning model produces a holistic impact that goes beyond conventional approaches. These findings have direct implications for teachers in designing learning strategies that are more adaptive, inclusive, and responsive to students' academic and emotional needs in the 21st century education era. The limitations of the study include single samples and self-report-based anxiety measurements, so the generalizability of the findings still requires further confirmation.

Mathematics teachers are advised to adopt the ADLX Introflex Terpadu model as a holistic learning framework that accommodates students' cognitive as well as affective dimensions. Further research should replicate this model at the elementary and high school levels to test the consistency of its effectiveness across educational levels. Exploration of technology integration such as digital platforms and gamification needs to be carried out to optimize model implementation in the digital era. Longitudinal analysis is highly recommended to measure the sustainability impact of the model on learning outcomes and anxiety in the long term. In addition, triangulation of anxiety measurement instruments using a psychophysiological approach in subsequent studies will strengthen the validity of the construct and minimize social desirability bias methodologically.

Reference

Aprillia, E., & Lestari, K. E. (2022). Efektivitas Model Connected Mathematics Project terhadap Kemampuan Penalaran Matematis dan Kecemasan Matematika. *Jurnal Educatio FKIP UNMA*, *8*(3), 873–882. https://doi.org/10.31949/educatio.v8i3.2305

e-ISSN 2746-5594
p-ISSN 2746-5608

Ashcraft, M. H. (2002). Math Anxiety: Personal, Educational, and Cognitive Consequences. *Current Directions in Psychological Science*, *11*(5), 181–185. https://doi.org/10.1111/1467-8721.00196

Aviola, N., Hayati, S., Pebria, W., & Imamuddin, M. (2023). Pengaruh Pembelajaran Matematika Terintegrasi Islam Terhadap Pembentukan Karakter Siswa Pendahuluan, *Jurnal Multidisiplin Ilmu*, *2*(2), 195–204. https://koloni.or.id/index.php/koloni/article/ view/477

Bahgat, M. M. (2019). *First Framework: 5 Domains, 15 Principles for Learning and Performance*. Cairo: SeGa Group.

Barokah, P. R., Lubis, M. S., & Siregar, T. J. (2024). Pengaruh Kepercayaan Diri dan Kecemasan Terhadap Kemampuan Pemecahan Masalah Matematis. *Relevan: Jurnal Pendidikan Matematika*, *4*(5), 1–12. https://www.ejournal. yana.or.id/index.php/relevan/article/view/1148

Biggs, J., & Tang, C. (2011). *First Framework: 5 Domains, 15 Principles for Learning and Performance*. New York: McGraw-Hill Education.

Campbell, D. T., & Stanley, J. C. (2015). *Experimental and Quasi-Experimental Designs for Research*. Boston: Houghton Mifflin.

Dahlia, D. (2020). Pentingnya Berpikir Kritis dalam Pembelajaran Matematika untuk Menghadapi Tantangan MEA. *Jurnal Inovasi Pembelajaran*, *1*(1), 1–7. https://journal.unnes.ac.id/sju/prisma/article/view/21554

Dowker, A., Sarkar, A., & Looi, C. Y. (2016). Mathematics Anxiety: What Have We Learned in 60 Years? *Frontiers in Psychology*, *7*(April), 1–11. https://doi.org/10.3389/fpsyg.2016.00508

El-Far, S. E., El-Mutaz, A. M., & Ghariani, F. A. (2024). Mathematics Anxiety Among High School Students: Causes, Consequences, and Coping Mechanisms. *International Journal of Mathematics and Science Education*, *1*(1), 55–61. https://doi.org/10.62951/ijmse.v1i1.81

Fitrah, Muh., & Kusnadi, D. (2022). Integrasi Nilai-Nilai Islam dalam Membelajarkan Matematika sebagai Bentuk Penguatan Karakter Peserta Didik. *Jurnal Eduscience (JES)*, *9*(1), 152–167. https://doi.org/10.36987/jes.v9i1.2550

Gopal BC. (2025). Cognitive, Motivational, and Pedagogical Factors Influencing Effective Teaching and Learning in Math Education. *Journal of Musikot Campus*, *3*(1), 186–199. https://doi.org/10.3126/jmc.v3i1.81219

Hembree, R. (1990). The Nature, Effects, and Relief of Mathematics Anxiety. *Journal for Research in Mathematics Education*, *21*(1), 33–46. https://doi.org/10.2307/749455

Hidayat, S. A., Angela, A., Dwitarakanita, T., & Mumtaz, N. (2025a). Pengaruh Kecemasan Belajar Terhadap Kemampuan Pemecahan Masalah Matematika. *Sindoro: Cendikia Pendidikan*, *16*(12), 1–9. https://doi.org/10.9644/sindoro. v3i9.252

Hidayat, S. A., Angela, A., Dwitarakanita, T., & Mumtaz, N. (2025b). Pengaruh Kecemasan Belajar Terhadap Kemampuan Pemecahan Masalah Matematika. *Sindoro: Cendikia Pendidikan*, *16*(12), 1–9. https://doi.org/10.9644/sindoro. v3i9.252

JSIT Indonesia. (2022). Upayakan Pembelajaran Berkualitas, JSIT Kota Surakarta Gelar Pengimbasan ADLX Introflex Terpadu. Retrieved November 8, 2022, from JSIT Indonesia website: https://jsit.id

e-ISSN 2746-5594
p-ISSN 2746-5608

JSIT Surakarta. (2023). Upayakan pembelajaran berkualitas, JSIT kota Surakarta gelar pengimbasan ADLX introflex terpadu. Retrieved December 9, 2023, from JSIT Surakarta website: https://jsit.id

Juniardi, M. A., Rahmi, D., Yuniati, S., & Kurniati, A. (2024). Tingkatan Math Anxiety Siswa SMP Berdasarkan Gender. *SIGMA: Jurnal Pendidikan Matematika*, *16*(1), 1–10. https://journal.unismuh.ac.id/index.php/sigma/article/view/14425

Kholid, I., Al Basyari, M. M., Saman, Nurhadi, & Mulhat. (2025). Menumbuhkan Pemahaman Konseptual Matematika Melalui Deep Learning: Sebuah Kajian Sistematik Literatur. *Pedagogy: Jurnal Pendidikan Matematika*, *10*(4), 1494–1506. https://doi.org/10.30605/pedagogy.v10i4.7108

Lidinilah, I., Syafriandi, & Ramadhona, R. (2015). Peranan Pembelajaran Matematika Dalam Membangun Pengetahuan Siswa. *Jurnal Pendidikan Matematika*, *9*(2), 45–53. https://journal.unnes.ac.id/sju/prisma/article/view/19603

Ma, X. (1999). A Meta-Analysis of The Relationship Between Anxiety Toward Mathematics and Achievement in Mathematics. *Journal for Research in Mathematics Education*, *30*(5), 520–540. https://www.jstor.org/stable/749772

Marlina, D., & Rahman, F. (2020). Problem Based Learning dalam Mengurangi Kecemasan Matematika dan Meningkatkan Hasil Belajar. *Jurnal Didactical Mathematics*, *1*(2), 55–64. https://e-journal.metrouniv.ac.id/linear/article/view/9698

Pekrun, R., & Linnenbrink-Garcia, L. (2014). *International Handbook of Emotions in Education*. New York: Routledge.

Pollock, R. V. H., Jefferson, A., & Wick, C. W. (2010). *The Six Disciplines of Breakthrough Learning: How to Turn Training and Development Into Business Results* (2nd ed.). San Francisco: Pfeiffer.

Putri, A., Iswara, A. D., & Hakim, A. R. (2021). Menumbuhkembangkan Kemampuan Pemecahan Masalah Matematis Peserta Didik dalam Pembelajaran Matematika. *Himpunan: Jurnal Ilmiah Mahasiswa*, *1*(2), 124–133. https://jim.unindra.ac.id/index.php/himpunan/article/view/3599

Putri, A. R., & Rahayu, S. (2020). Project Based Learning untuk Meningkatkan Motivasi, Prestasi, dan Menurunkan Kecemasan Belajar Siswa SMP. *Jurnal Pembelajaran Matematika Inovatif*, *5*(2), 101–110. https://doi.org/10.22460/jpmi.v5i2.101-110

Putwain, D. W., & Wood, P. (2023). Anxiety in the Mathematics Classroom: Reciprocal Relations with Control and Value, and Relations with Subsequent Achievement. *ZDM – Mathematics Education*, *55*(2), 285–298. https://doi.org/10.1007/s11858-022-01390-2

Rahmawati, E., & Auliya, N. N. F. (2021). Kolerasi antara Kecerdasan Spiritual dan Motivasi Belajar dengan Hasil Belajar Kognitif Akidah Akhlak Kelas VIII di MTs Hidayatul Mustafidin. *JEID: Journal of Educational Integration and Development*, *1*(2), 116–133. https://embada.com/index.php/jeid/article/view/83

e-ISSN 2746-5594
p-ISSN 2746-5608

Sammallahti, E., Finell, J., Jonsson, B., & Korhonen, J. (2023). A Meta-Analysis of Math Anxiety Interventions. *Journal of Numerical Cognition*, *9*(2), 346–362. https://doi.org/10.5964/jnc.8401

Santosa, Y. T. (2025). Toward a Theoretical Model of Deep Mathematical Thinking: Integrating Deep Learning and Mathematical Reasoning Frameworks. *Journal of Deep Learning*, *1*(2), 109–126. https://journals2.ums.ac.id/index.php/jdl/article/view/11142

Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.

Trilling, B., & Fadel, C. (2009). 21st century skills: Learning for life in our times. In *Jossey-Bass.* San Francisco: Jossey-Bass.

Wigfield, A., & Meece, J. L. (1988). Math Anxiety in Elementary and Secondary School Students. *Journal of Educational Psychology*, *80*(2), 210–216. https://doi.org/10.1037/0022-0663.80.2.210

Wulandari, N. N. A., Candiasa, I. M., & Sugiarta, I. M. (2023). Model Struktural Konsep Diri, Kecemasan dan Prestasi Belajar Matematika Siswa. *Jurnal Penelitian Dan Evaluasi Pendidikan Indonesia*, *13*(1), 1–16. https://ejournal2.undiksha.ac.id/index.php/jurnal_ep/article/view/1420

Yayuk, A. (2019). *Dasar dan Proses Pembelajaran Matematika*. Semarang: Universitas Negeri Semarang Press.

Zakaria, E., & Nordin, N. M. (2008). The Effects of Mathematics Anxiety on Matriculation Students as Related to Motivation and Achievement. *Eurasia Journal of Mathematics, Science and Technology Education*, *4*(1), 27–30. https://doi.org/10.12973/ejmste/75303