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A Meta-Analysis of the Impact of Innovative Poetry Teaching Methods on Reading, Writing, and Comprehension Skills

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Abstract

The purpose of this meta-analytic study is to evaluate the effects of innovative approaches and practices in teaching poetry on academic performance, including reading, writing, and understanding. A total of 574 studies were initially identified using relevant keywords from the Web of Science, Taylor & Francis, Science Direct, Scopus, and ERIC databases. Of these, 35 studies met the inclusion criteria for the meta-analysis. The selected studies employed experimental or quasi-experimental designs with pretest/posttest or posttest control group setups and provided adequate data (n-values, means, standard deviations, or t, F, or χ^2 values) for effect size calculation. The meta-analysis encompassed a comprehensive sample size of 5,208 participants and examined studies published between 2010 and 2024, a period marked by the rise of innovative teaching approaches. The findings, analyzed using a random-effects model, revealed a statistically significant positive effect of these innovative practices on reading, writing, and understanding poetry. Among the moderator variables, only the publication year, teaching method, and targeted skill were identified as significant moderators. The analysis emphasizes the important role of innovative approaches and practices in enhancing academic performance in poetry education.

Keywords: *Academic success, educational games, meta-analysis, teaching poetry*

Introduction

Poetry has been used to emphasize the beauty and meaning of language across cultures. In education, it is considered a key element for teaching linguistic nuances and enriching students' emotions, thoughts, and vocabulary. Poetry instruction focuses on exploring the rhythmic and auditory aspects of language, understanding word meanings, and mastering their usage, thereby enhancing students' reading and comprehension skills (Fiore, 2015). Particularly in early childhood education, poetry aids in learning grammar rules more effectively (Jusslin & Höglund,

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2021). As a key component of literary education, poetry not only expands students' linguistic and intellectual horizons but also deepens their understanding of language in different cultural and historical contexts (Chen & Lin, 2016).The metaphorical language, multi-layered structures, and rhythmic elements in poetry allow development of reading, writing, and comprehension skills, fostering a deeper engagement with these processes. The rhythmic structure of poetry also improves students' awareness of the musicality and sound patterns of language (Xerri, 2016). Research on poetry in education shows its potential to build empathy, increase emotional intelligence, and develop critical thinking about social issues (Jaxa, 2024; Sigvardsson, 2017). The multi-layered structure of poetic language encourages different interpretations and supports the cultivation of deep reading habits (Bowie, 2013). Thus, poetry serves as a powerful medium for students to explore both personal and societal meanings.

The role of poetry in education has also been supported by modern pedagogical approaches. Constructivist learning theory suggests a learning process where students actively discover new information and create their own interpretations (Ugwuozor & Hui, 2020). Research has also highlighted the effectiveness of multi-sensory approaches in improving the quality of poetry teaching. Furthermore, advancements in technology, such as artificial intelligence, Z-books, and distance education tools, have introduced novel and effective methods for teaching poetry (Jack, 2015; Kilag et al., 2023; Ugwuozor & Hui, 2020).

Meta-analysis is a statistical method employed to consolidate findings from multiple scientific studies on similar topics, producing conclusions that are more reliable and broadly applicable (Petitti, 2000). This method involves stages such as data collection, coding, effect size calculation, weighting, and result synthesis. By surpassing the limitations of individual studies, meta-analysis strengthens findings and increases statistical power. Moreover, it enriches scientific literature by integrating research conducted across various locations, time periods, and participant groups, offering a more comprehensive perspective (Borenstein et al., 2009).

Therefore, meta-analysis is a very effective method that aims to evaluate scientific studies in depth and obtain more solidly based results (Kulinskaya et al., 2008). This study employs meta-analysis to examine the effects of innovative approaches in poetry teaching on academic processes like reading, writing, and comprehension.

Theoretical Framework

Traditional Methods in Teaching Poetry

Traditional methods of teaching poetry involve structured lessons emphasizing poetry analysis and word meaning. These methods often focus on the poem's formal features, such as meter, rhyme, and rhythm, as well as its thematic elements (Foster & Freeman, 2008). In this model, teachers explain the text while students are expected to analyze its meaning. While this method can enhance understanding and linguistic awareness, it may also reduce students' interest in poetry and limit their creative participation (Fitzpatrick & Fitzpatrick, 2010). Traditional methods often reduce poetry to a literary puzzle, limiting students' ability to develop their own interpretations. In such teacher-centered approaches, students' passive roles hinder the full exploration of poetry's rich meanings (Fiore, 2015; Park, 2023; Deel, 2024). While traditional methods provide a foundation for understanding poetry's multi-layered structure, they fall short in fostering creative thinking, critical analysis, and personal interpretation skills. Consequently, educational research has increasingly focused on developing innovative methods that promote active student participation and foster a deeper, more personal connection with poetry (Crawley, 2024; Xerri, 2016).

Understanding the limitations of traditional poetry teaching methods reveals the need for new approaches in poetry education. Traditional strategies, particularly those focused on memorization, have been criticized for causing students to disengage from poetry and lose interest in its artistic aspects (Sigvardsson, 2017). To address this,, more creative and student-centered methods have been developed, emphasizing emotional engagement and individual interpretative skills in poetry instruction.

Innovative Poetry Teaching Methods

In recent years, innovative methods in poetry education have gained theoretical and practical importance. These methods aim to enhance students' reading, writing, and comprehension skills by moving beyond traditional strategies to offer more interactive and student-centered experiences. The integration of technology and multisensory methodologies has introduced novel approaches to poetry instruction, providing deeper engagement with the subject and fostering more effective learning. Khan (2020) and Threlfall (2013) claim that poetry instruction involving multiple senses enables a more comprehensive understanding of poetic meaning. By incorporating visual, auditory, and kinesthetic elements, these methods strengthen students' emotional and cognitive connections to poetry.

Multisensory learning approaches create a more inclusive experience in teaching poetry, allowing students to engage with poems through listening, reading, and interacting with drama and art. These methods facilitate creativity while enhancing the understanding of poetic meaning. Threlfall (2013) claims that using audio-visual materials in poetry teaching helps students internalize poems more meaningfully. Technology further enhances the effectiveness of poetry instruction by offering students an interactive and autonomous learning environment. This section examines the current literature on the use of digital tools, technology-based methods, and multi-sensory approaches in poetry instruction.

Digital Tools and Technology-Based Methods

Technological advances have introduced innovative tools with the potential to transform poetry teaching and learning experiences. These digital tools increase opportunities for both individual and collaborative learning by encouraging active student engagement with poetry. Digital platforms and applications are particularly effective in fostering interactive and dynamic poetry instruction (Fleming-May & Green, 2016).

E-books and poetry applications open new avenues for poetry teaching by enabling students to read, analyze, and write poetry in a digital environment. These tools create a more dynamic reading experience through interactive text features, allowing students to explore poetic elements in a multidimensional way (Beatty & Ball, 2010). Digital platforms like the "Poetry Foundation" grant students access to extensive poetry collections, providing opportunities to study poems from different periods and cultures. This enhances their literary knowledge and strengthens their language skills. Electronic poetry books and applications offer an accessible and interactive reading experience, often incorporating visual and auditory elements alongside text, aligning with the theory of multiple intelligences (Xerri, 2012). Technology-based methods such as digital storytelling and video poems are vital in poetry teaching, as they blend visual and auditory elements to deepen students' comprehension of poems. Video poems help students understand poetry not just textually but also through visual and auditory dimensions (Jack, 2015). Gamification is an innovative method used to increase motivation and make learning more fun in teaching poetry more engaging. Platforms such as Kahoot and Quizlet increase student participation by hosting quizzes about poems. Several recent studies have proven the effectiveness of these methods Substantial increases in motivation and achievement levels are particularly evident among lower and middle school students (Gregory, 2013). Online collaboration platforms

and social media also offer innovative approaches to teaching poetry (Threlfall, 2013). Social media platforms effectively share poems and reach broader audiences. When students share their poems online, they receive feedback and develop critical thinking skills. This approach improves writing skills while enhancing digital literacy (Jafarikamangar & Ahmadipoor Anari, 2021).

Multi-Sensory Approaches

Multisensory approaches allow students to engage with poetry both physically and emotionally, fostering a deeper understanding and retention of the material. By incorporating visual, auditory, tactile, and even olfactory stimuli, these methods address diverse intelligence structures and learning styles. Visual and auditory materials improve understanding of poetic imagery and emotions (Widodo, 2023). Integrating visual arts with poetry helps students explore thematic and metaphorical elements more profoundly. Supporting poetry instruction with pictures, photographs, or videos makes abstract poetic concepts more tangible (Sheppard, 2016). Additionally, auditory performances enable students to understand the rhythm, harmony, and sound structure of poems, improving their poetry reading skills and allowing them to experience the melodic and rhythmic qualities of poetic language (Xerri, 2012).

Tactile and kinesthetic learning engages students in poetry instruction through physical movement and the use of concrete materials. While often overlooked, these methods are particularly effective for primary and secondary school students. Associating words with tangible objects or exploring poetic concepts through physical movement during the writing process enhances learning (Cibils & Marlatt, 2019). Drama and movement-based activities also help students understand the theme and emotional depth of a poem. Pairing poetic expressions with bodily movements allows for a more meaningful and personal experience of poetic language. These kinesthetic approaches encourage creativity and foster an emotional connection to poetry (Bowie, 2013).Think-aloud strategies and creative drama are effective multisensory approaches for exploring poetic language. The think-aloud technique encourages students to verbalize their mental processes while reading or listening to poetry, aiding in their understanding of complex poetic structures (Jusslin & Höglund, 2021). By expressing their thoughts, feelings, and questions aloud, students engage more actively with the text. Creative drama, in contrast, provides a performative avenue for exploring poetry. Acting out poems allows students to deeply connect with characters, emotions, and events, using their bodies to experience poetic meaning.

This approach enhances understanding and makes learning more lasting (Sheppard, 2016). Innovative poetry teaching methods, in contrast to traditional narrative techniques, emphasize interactive and experience-based approaches to develop students' creative thinking, critical analysis, and linguistic expression skills (Myhill & Wilson, 2013). This study explores several hypotheses regarding the effects of these methods on poetry instruction, focusing on variables such as the research year, the educational level of the experimental process, targeted skills (e.g., reading, writing, comprehension), applied techniques, and cultural context. The findings have the potential to reshape pedagogical paradigms in poetry teaching and inform strategies to enhance students' linguistic competence. By examining the outcomes of innovative practices, this research provides educators, linguists, and program developers with valuable insights for creating more effective poetry teaching environments.

A review of the relevant literature reveals that studies on poetry teaching have explored the effects of different methods and technologies on student success, attitudes, and skills (Sutrimah et al., 2019; Ugwuozor, 2020; Hutagalung et al., 2021). Topics include poetry poetics supported by online technologies (Aituganova et al., 2023), the process writing approach (Bayat, 2014), and grammar-based writing instruction (Jones et al., 2013). In the EFL context, research has focused on teaching vocabulary through poetry (Özen & Mohammadzadeh, 2012), independent poetry classes (Vk & Savaedi, 2014), and paragraph development through poetry writing (Mahmud, 2017). Studies have also examined e-learning and digital technologies in poetry instruction (Hutagalung et al., 2021, 2022; Kangasharju et al., 2022) and the integration of classical and modern teaching methods (Lin & Sun, 2023). Constructivist approaches (Ugwuozor, 2020), the use of audiovisual materials (Rukayah et al., 2018), and mobile learning applications (Hutagalung et al., 2021) have gained attention as innovative methods. While the development of teaching materials has been studied in different contexts (Sutrimah et al., 2019), no research has comprehensively examined innovative poetry teaching methods using a meta-analytical approach. This meta-analytic study evaluates the impact of innovative approaches and practices in teaching poetry on academic performance, including reading, writing, and comprehension. The research seeks to determine how various pedagogical methods affect the development of linguistic competencies related to poetry. It systematically compares traditional poetry teaching methods with novel techniques, such as the integration of technology and multisensory learning strategies. The study examines factors that may affect outcomes, including the type of skill targeted,

educational level, publication year, experimental procedures, and cultural context. For this purpose;

(i) the type of skill focused on (such as reading, writing and understanding),

(ii) the level of education in which the research was conducted,

(iii) the year of publication,

(iv) the techniques applied in the experimental groups and

(iv) the culture in which the research was conducted were determined as moderators.

The following hypotheses were tested in relation to these variables:

H1 Innovative poetry teaching approaches positively affect student success based on *academic skills* such as reading, writing and understanding poetry.

H2 *The skill type* considered plays a moderator role in the effect of innovative poetry teaching approaches on student success.

H3. *Educational levels* are moderators in the effect of innovative poetry teaching approaches on student success.

H4. *Publication Year* is a moderator in the effect of innovative poetry teaching approaches on student success.

H5. *Culture* is a moderator in the effect of innovative poetry teaching approaches on student success.

H6 *The innovative teaching model* considered plays a moderator role in the effect of poetry teaching approaches on student success.

Method

Research Design

This study used the meta-analysis technique, a quantitative research method designed to synthesize and statistically analyze results from several independent studies on a specific topic (Petitti, 2000; Littel et al., 2008). Meta-analysis combines findings from different studies systematically to produce broader, more reliable conclusions. This approach assesses consistency across data sets and uses statistical techniques to calculate the overall impact of the studies, considering factors such as sample sizes, methodologies, and measurement tools. By integrating findings from diverse research, meta-analysis provides more robust and generalizable results (Hedges, 1992; Macaskill et al., 2023). Meta-analysis enables the inclusion of data from studies with small sample sizes or

limited subject groups, effectively addressing variability within the literature. This approach allows researchers to evaluate findings across studies with greater precision. Additionally, it serves as a valuable tool for resolving conflicting or inconsistent results related to a specific research question. By combining results and accounting for factors such as demographic and geographical variables, meta-analysis offers a more nuanced and comprehensive understanding (Hedges, 1992; Petitti, 2000).

Survey Strategy and Inclusion/Exclusion Criteria

To identify studies suitable for inclusion in the meta-analysis, a search was conducted using the Web of Science, Taylor & Francis, Science Direct, Scopus, and ERIC databases. The search parameters targeted titles and keywords, utilizing terms such as "Poetry" AND "Teaching", "Poetry" AND "Teach", "Poetry" AND "Technology", "Poetry" AND "Innovative", "Poetry" AND "Achievement", and "Poetry". The inclusion deadline was set as September 2024, and the study population comprised research articles, books, and book chapters.

This research employed a comprehensive methodology to identify studies for inclusion in the meta-analysis. An initial search encompassed all works related to experimental research on innovative approaches in poetry instruction and academic achievement, resulting in 574 studies based on titles and keywords. A rigorous abstract review excluded 486 non-experimental studies. The remaining 86 studies underwent an in-depth review, and 35 were ultimately deemed suitable for inclusion, while the rest were excluded from the analysis. The studies show that experimental studies based on innovative approaches in teaching poetry have been published in the *International Journal of Early Childhood Special Education (INT-JECSE*), *International Journal of Instruction, International Journal of Education in Mathematics, Science, and Technology (IJEMST), Journal of Science Education and Technology, International Journal of Language Education, Reviews of Adhesion and Adhesives, Cogent Education, Journal of Language Teaching and Research, Reading and Writing, Journal of Education and Practice, Educational Sciences: Theory & Practice, Science and Education, Journal of Language and Communication, Advances in Language and Literary Studies, International Journal of Academic and Applied Research, International Online Journal of Primary Education, Procedia - Social and Behavioral Sciences, Acta Psychologica, and Computers and Education: Artificial Intelligence.* The combination of these 35 studies showed a total sample size of 5208 participants. The studies were conducted

between 2010 and 2024, a period marked by the growing adoption of innovative approaches. Detailed descriptive statistical profiles of these selected studies are summarized in Table 1.When analyzing the publication years of the studies, it is evident that studies from 2022 onward account for a major proportion (48.57%) compared to earlier periods. Regarding school levels, secondary school and university levels are equally represented at 34.29% each, while high school accounts for 31.43%. When analyzing the range by country, the majority of studies originated from China (25.71%) and Indonesia (17.14%), with Turkey ranking third at 11.43%. Additionally, contributions were made by 11 other countries. In terms of databases, 37.14% of the studies were sourced from WOS, 22.86% from Science Direct, 20% from Scopus, 11.43% from ERIC, and 8.57% from Taylor & Francis.

Table 1

Profile of studies included in the meta-analytic review

Variable	Category	N	%
Publication year	2010-2013	7	20,00
	2014-2017	5	14,29
	2018-2021	6	17,14
	2022-	17	48,57
School level	Secondary	12	34,29
	High school	11	31,43
	University	12	34,29
Country	China	9	25,71
	Indonesia	6	17,14
	Türkiye	4	11,43
	Philippines	3	8,57
	Czech Republic	3	8,57
	USA	2	5,71
	Kazakhstan	1	2,86
	Nigeria	1	2,86
	England	1	2,86
	Saudi Arabia	1	2,86
	Namibia	1	2,86
	South Sumatera	1	2,86
	Iran	1	2,86
	Finland	1	2,86
Database	WOS	13	37,14
	Science Direct	8	22,86
	Scopus	7	20,00
	Eric	4	11,43
	Taylor & Francis	3	8,57
Total		35	100,00

The criteria for including research studies in the meta-analysis were defined as follows:

i. Study designs adhered to pretest/posttest or posttest control group experimental or quasi-experimental paradigms.

ii. Adequate data were reported to calculate effect sizes (with n values in each group and $\bar{X}$, SD or t, F or x2 values in each group).

In addition, studies were excluded from the meta-analysis based on the following conditions:

i. Lack of quantitative data, which is indicative of a qualitative research tendency.

ii. Inadequate data reporting prevents calculation of effect sizes.

iii. Lack of emphasis on student academic achievement.

iv. Departure from the focus of innovative poetry teaching.

v. If more than one skill was focused on in the experimental groups, each skill was included as a separate study.

Coding Process

The coding technique employed a fundamental data classification method to identify and differentiate data sets with the clarity and relevance required for inclusion in the research. A detailed coding structure was meticulously developed before the statistical analysis began, and the coding process adhered strictly to this framework. The primary goal was to create a coding system that offered a holistic assessment of the selected studies while ensuring that all important characteristics specific to each study were accurately recorded (Kulinskaya et al., 2008).The coding framework includes the following dimensions: (i) bibliographic references of the relevant research studies, (ii) details of the sampled population, (iii) arithmetic mean and standard deviation values of the studied groups, (iv) type of skill addressed, (v) educational level, (vi) experimental methods employed, (vii) temporal dimension, particularly the year of publication, (viii) country of publication, (ix) name of the journal, and (x) index information.

Statistical Processes

CMAMeta-Analysis software was utilized to conduct the meta-analytic procedures. This study employed a random effects model as the methodological basis for the meta-analysis. In studies

using mean ($\bar{X}$) and standard deviation (SD) values, effect size was calculated by determining the mean difference between experimental and control groups, measured as both pre-test and post-test or only post-test, following the formula outlined by Rosenthal (1979). Additionally, for studies that provided data in the form of mean, t, F, or $\chi 2$ statistics for each relevant group, effect sizes were computed using the formula procedures described by Lipsey and Wilson (2001).It is important that all studies included in this comprehensive review follow either an experimental design with participant randomization or a quasi-experimental design without randomization. In both cases, a pretest and posttest or pretest-posttest equalized experimental framework was maintained, enabling the calculation of effect sizes for each study based on a comparative analysis between the experimental and control groups. Data were obtained from an experimental group using innovative approaches to poetry teaching compared to a control group using traditional practices. Studies that used poetry teaching in language or foreign language education were also included. In the data analysis, each experimental-control comparison was incorporated into the dataset. Furthermore, when multiple poetry skills were evaluated between the experimental and control groups in a given study (e.g., reading, writing, and comprehension), each skill was categorized as an independent subgroup for analysis.

There are two main models in meta-analysis studies: fixed effect model and random effect model. The choice of which model to use depends on the characteristics of the studies included in the meta-analysis, ensuring they meet the prerequisites for the selected model (Borenstein et al., 2009; Kulinskaya et al., 2008). The fixed effect model assumes (i) that the studies are functionally identical and (ii) that the effect size is calculated for a specific population. If the studies are believed to be functionally different and generalization to larger populations is desired, the random effect model is the appropriate choice. Given these conditions, the random effect model was employed in the meta-analysis processes of this study.

Moderator Variables

To determine the statistical significance of the moderators in the study, Qb values were examined (little et al., 2008). Variance among the moderator variables was assessed using the Q statistic technique developed by Hedges and Olkin (1985). This method separates the Q statistic into two components: Qbetween [Qb] and Qwithin [Qw], each of which supports different analytical procedures. Specifically, Qw measures homogeneity within individual moderator variables, while

Qb tests for homogeneity across different groups (Ay, 2017; Borenstein et al., 2009; Bektaş et al., 2015; Kulinskaya et al., 2008).

i. Within the scope of this study, five moderator variables were identified as having a high probability of significantly contributing to the mean effect size. The first moderator examined was skill type, followed by the level of education. Additionally, the year of publication, cultural context of the study, and the teaching model used were considered as moderator variables. ***Publication Bias*** Publication bias is based on the assumption that not all studies on a subject are published. Specifically, studies where statistically significant relationships are not found or where weak relationships are identified may be deemed unworthy of publication, which negatively affects the total effect level and artificially increases the average effect size (Öztürk & Ay, 2015; Hanrahan et al., 2008). This effect, often referred to as missing data, skews the total effect in meta-analysis studies. Therefore, the potential for publication bias is carefully considered in meta-analysis research. In the present study, the following questions were addressed to examine publication bias. Is there any evidence of publication bias?

ii. Could the overall effect size be a result of publication bias?

iii. How much of the overall effect size is due to publication bias?

In meta-analyses, various calculation methods are used to statistically address the questions related to the possibilities mentioned above. One of the most important methods is the funnel plot. Although the figure produced by this method is not completely objective, it helps to identify whether the studies included in the analysis are affected by publication bias (Little et al., 2008). The funnel plot for the studies included in this meta-analysis is illustrated in Figure 1. No evidence was found in Figure 1 to suggest that publication bias affected the studies included in the meta-analysis. A seriously asymmetric funnel plot, particularly with scattering on the right side, could indicate publication bias. However, this study did not reveal any clear or proven indicators of publication bias in any of the 35 data sets. Therefore, it is important to note that this study upholds the integrity of the meta-analytic analysis.

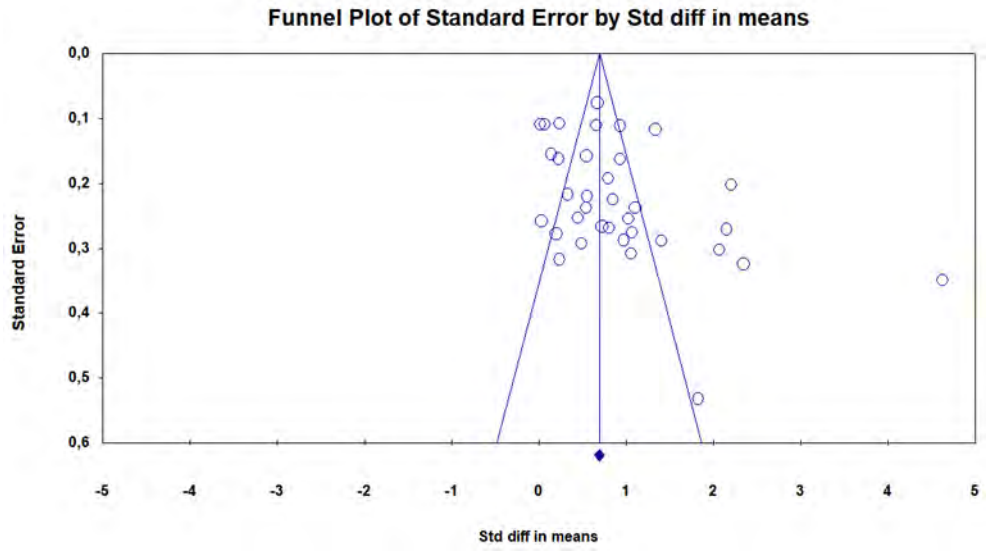

Figure 1 Funnel Plot of Effect Size for Publication Bias

Duval and Tweedie's strip and fill test was conducted to perform a thorough evaluation, despite the funnel plot not showing any clear signs of publication bias. This study, based on the Random Effects Model presented in Table 2, aimed to evaluate the potential impact of publication bias on the effect size estimate. The observed effect size value was identical to the virtual effect size calculated to adjust for publication bias. The lack of any difference is attributed to the research showing symmetry on both sides of the centerline, with the one study that disrupted this symmetry appearing on the right side of the centerline.

Table 2

Results of Duval and Tweedie's Trim and Fill Test

	Excluded Studies	Score Prediction	CI (Confidence Interval)		*Q*
			Lower Limit	Upper Limit	
Observed values		.68	.63	0.74	443.67
Adjusted values	0	.68	.63	0.74	443.67

Findings

Table 3 presents the findings of the meta-analysis on the effects of innovative poetry teaching methods on students' achievement. The results supported Hypothesis H1, which posits that innovative poetry teaching methods significantly impact students' academic achievement. The overall calculated effect size is [g = .92], indicating a large effect size (Ay & Orhan, 2015; Cohen,

1988). This suggests that innovative poetry teaching methods are highly effective in enhancing student achievement. However, the moderator analysis did not support Hypothesis H2, which suggests that school level moderates academic achievement. The analysis showed that the difference in effect sizes between the sample groups was not statistically significant (Qb = .42, p > 0.05). Also, a high effect was observed at the high school level [g = 1.03], with medium effects at the middle school [g = .87] and university levels [g = .86].Hypothesis H3, which suggests that the publication year moderates the effect of innovative poetry teaching methods, was supported (Qb = 27.91, p < 0.05). Specifically, the effect sizes of studies conducted in 2020 and 2016 were very high, with [g = 2.72] and [g = 2.06], respectively. Studies from 2022 also showed a high effect size of [g = 1.82], while studies from 2012, 2014, and 2023 showed moderate effects with [g = .62], [g = .95], and [g = .79], respectively. However, studies conducted in 2010 and 2024 showed no statistically significant effect sizes.

Hypothesis H4, which suggests that poetry skills moderate academic achievement, was supported. The moderator analysis revealed positive differences in effect sizes for different language skills in innovative practices (Qb = 8.02, p < 0.05). The effect size for general academic achievement was high, with [g = 1.27], while moderate effects were observed for comprehension skills [g = 1.06] and writing skills [g = .60]. However, the effect size for reading skills was not statistically significant. Moderator analysis conducted in terms of the method variable supported Hypothesis H5, which suggests that innovative methods in teaching poetry are a key factor in determining the effect on academic achievement (Qb = 58.81, p < 0.05). In particular, the effect size for constructivist approaches was very high, with [g = 4.62], and artificial intelligence-based methods were found to be highly effective with [g = 2.20]. However, the effect sizes for audiovisual media, drawing texts, and laboratory-aided methods did not show significant differences. Additionally, other methods such as Flipbook e-modules [g = 1.40], active learning [g = 1.82], concrete poetry [g = 1.16], and online education [g = .80] were found to be effective in teaching poetry compared to traditional methods. Finally, Hypothesis H6, which suggests that the culture variable moderates academic achievement, was not supported. In vertical-collectivist cultures, the effect size of innovative poetry teaching methods was moderate, with [g = .83], while in horizontal-individualistic cultures, the effect size was higher, with [g = 1.18]. However, no statistically significant difference was found between these two cultural groups regarding the effect of innovative teaching methods on poetry achievement (Qb = 1.81, p > 0.05).The findings reveal that

innovative poetry teaching methods generally have a positive and high-level effect on students' academic success. Additionally, the publication year, the skill examined, and the method used were found to serve as moderator variables.

Table 3

Findings on the Effects of Applying Innovative Approaches in Poetry Teaching on Students' Achievement: Meta-Analysis Results

Variable	k	N	Effect size *(g)*	CI (Confidence Interval)		*Q*	*Qb*
				Lower Limit	Upper Limit		
Variable	**k**	**N**	**Effect size *(g)***	**CI (Confidence Interval)**		***Q***	***Qb***
				Lower Limit	**Upper Limit**		
Innovative Poetry Teaching Methods	35	5208	.92*	.703	1.136	443.675*	
Moderator [School Level]							.42
Secondary	11	2016	.87*	1.251	4.504		
High school	12	2430	1.03*	1.429	5.086		
University	12	762	.86*	1.265	4.306		
Moderator [Year of publication of the research]							27.91*
2010	1	60	.03	-1,23	1,30		
2012	5	597	.62*	.07	1,18		
2013	1	744	.67	-.49	1,84		
2014	3	211	.95*	.19	1,71		
2016	1	67	2,06*	.76	3,37		
2017	1	60	.73	-.55	2,00		
2018	2	214	.62	-.26	1,50		
2019	1	82	1,11	-.14	2,35		
2020	2	174	2,72*	1.79	3,65		
2021	1	70	1,02	-.24	2,29		
2022	2	219	1,82*	.94	2,71		
2023	13	2618	.79*	.45	1,13		
2024	2	92	.22	-.70	1,13		
Moderator [Skill]							8.02*
Reading	3	317	.61	-.12	1.34		
Writing	14	2567	.60*	.26	.94		
Comprehension	5	425	1.06*	.47	1.64		
General Achievement	13	1899	1.27*	.92	1.63		
Moderator [Method]							58.81*
Moderator [Method]							**58.81***
Concretepoetry–Traditional	2	128	1.16*	.77	1.55		
Active learning–Traditional	1	20	1.82*	.78	2.87		
AI-based–Traditional	1	159	2.20*	1.81	2.60		
Audiovisual Media- Traditional	1	154	.22	-.09	.54		
Autonomous class-Traditional class.	1	116	.79*	.42	1.17		
Constructivist-Traditional	1	120	4.62*	3.94	5.31		
Contextualized - Traditional	2	120	.67*	.20	1.25		
Drawing texts-Traditional texts	4	744	.85	.53	.82		
Flipbook e-modules - Traditional	1	344	1.40*	.63	1.08		
Flipped classroom-Traditional class.	3	360	.16*	.84	1.97		
Individualized teaching- Traditional	2	747	.43*	.02	.31		
Laboratory-aided–Traditional	1	690	.03	.29	.59		
Mobile learning- Traditional	1	260	.60*	-.48	.54		
Modern textbook - Common textbook	6	270	.05*	.53	1.52		
Online instruction- Traditional	3	148	.80*	.45	1.66		

Outcome-based- Traditional	2	290	1.12*	.02	.31	
Process writing approach-Traditional	1	178	.54*	.29	.59	
Writing using pictures-Traditional	2	360	1.02*	-.48	.54	
Moderator [Culture]						1.81
Moderator [Culture]						**1.81**
Vertical-Collectivist	26	3572	.83*	.57	1.09	
Horizontal-Individualistic	9	1636	1.18*	.74	1.63	

*p<.05

Discussion, Conclusion and Implications

In this meta-analysis study examining the effect of innovative poetry teaching methods on academic achievement, the experimental results obtained from various databases revealed meaningful findings with a broad perspective. The research shows that innovative teaching methods have a high impact on students' academic achievement. This shows that teaching strategies in education are evolving beyond traditional approaches, offering students a more creative, original, and interactive learning experience. Innovative methods support students' cognitive, emotional, and linguistic development, while also enhancing their academic achievement. The use of such methods increases students' motivation to learn and makes the learning process more meaningful (Chen & Lin, 2016). Additionally, by overcoming the limitations of traditional teaching methods, these strategies create an environment where students can actively participate, develop their intellectual skills, and strengthen their personal expression abilities (Sigvardsson, 2017; Van Rooyen & d'Abdon, 2020). In this context, innovative poetry teaching methods emerge as pedagogically enriching strategies that positively affect students' success.

However, the hypothesis examining the moderator effect of school level on academic achievement was not supported in this study. The results of the moderator analysis showed that the effect sizes did not create a statistically significant difference between school levels. Although higher effect sizes were observed at the high school level, this difference was not statistically significant. The varying age groups and diverse developmental needs of students at each school level may cause them to respond differently to innovative methods (Beatty & Ball, 2010). However, these differences were not reflected in the effect size, suggesting that the teaching methods used were robust enough to produce similar effects across all levels. Additionally, students at the high school level possess more advanced language skills, which may explain why certain poetry methods led to higher effects (Jafarikamangar & Ahmadipoor Anari, 2021). The findings that the effects of

innovative poetry teaching methods may vary depending on the year of publication emphasize the importance of pedagogical innovations and technological developments in educationover time. It was observed that the effect sizes of studies conducted after 2016 were generally higher, revealing that teaching methods can become more effective as pedagogical approaches evolve and technologies are integrated into education. The exceptionally high effect sizes of studies conducted in 2020 are closely associated with advances in educational technologies and the integration of digital tools into teaching. The use of digital technologies has made students' learning experiences more interactive and participatory (Fitzpatrick & Fitzpatrick, 2010). During this period, the increased use of digital tools in education has allowed students to engage more deeply with abstract and creative subjects like poetry, exploring materials more widely (Jusslin & Höglund, 2021). Digital platforms and interactive applications, in particular, help students develop their poetic thinking and creative writing skills. Moreover, the rapid adoption of online learning methods and educational technologies in 2020 has enabled innovative teaching strategies to reach more students, providing a more flexible learning experience. During this time, teachers began using various tools to increase student interaction in the digital environment, capturing students' attention and interest, and making abstract topics like poetry more understandable and engaging (Jafarikamangar & Ahmadipoor Anari, 2021). At the same time, studies from the 2020s have noted that developing technologies, such as artificial intelligence and data analytics, are playing an important role in education, offering the potential to personalize the teaching process based on students' individual needs (Jusslin & Höglund, 2021).The effect of various poetry skills, such as reading, writing, and comprehension, on academic success was an important finding in the moderator analyses. Linguistic skills emerged as a key factor that directly affects students' overall academic performance. Poetry improves students' linguistic expression by utilizing the richness and aesthetics of language, enabling them to communicate meaningfully in both written and oral forms (Threlfall, 2013). The positive effect of innovative poetry teaching methods on writing and comprehension skills significantly contributes to linguistic development. Poetry helps students develop vocabulary, grammar, meaning analysis, and creative thinking skills – skills that are not only crucial in literature courses but also improve academic performance in other courses. Writing skills, in particular, offer a poetic approach to developing essential abilities, such as organizing texts, expressing thoughts clearly, and understanding language correctly (Beatty & Ball, 2010). The abstract and symbolic nature of poetic language also strengthens students' abstract thinking

skills, which positively affect overall academic success. Moreover, teaching poetry contributes to both students' emotional and intellectual growth, in addition to enhancing their linguistic skills (Xerri, 2012). Supporting writing and reading skills through poetry, in particular, strengthens students' self-expression and helps develop their emotional intelligence. Poetic narratives allow students to better understand their inner worlds and articulate emotional experiences. These skills not only increase academic success but also reinforce students' self-confidence and self-esteem (Gregory, 2013). The moderator analysis conducted in terms of the method variable confirmed the relevant hypothesis, showing that the effects of innovative teaching methods on academic achievement vary. The very high effect sizes observed for constructivist approaches and artificial intelligence-based methods highlight the important role these innovative teaching methods play in education. Constructivist approaches, in particular, offer students the opportunity to actively participate and learn more deeply (Jack, 2015). These methods directly increase academic achievement by providing students with problem-solving skills. This finding suggests that a learning environment in which students take a more active role in the learning process leads to improved academic achievement (Fleming-May & Green, 2016). The very high effect sizes of AI-based teaching methods particularly emphasize the potential of digital technologies in education (Jusslin & Höglund, 2021). Artificial intelligence enables personalized learning experiences by analyzing students' individual learning needs. This personalization allows students to progress at their own pace, improving learning efficiency (Anderson & Rainie, 2018). AI-based applications are especially effective in monitoring student performance and providing tailored feedback, offering additional support in areas where students struggle, which encourages them to address these weaknesses and increases academic success (Xerri, 2016). Furthermore, AI technologies that customize learning materials and content to individual students ensure that each learner develops in accordance with their own potential. Also, the lack of statistically significant differences in the effects of methods such as audiovisual media, drawing texts, and laboratory-aided approaches suggests that these methods have a lower impact compared to other innovative teaching strategies. While these methods provide visual and physical interaction in learning processes, texts and drawings primarily support certain cognitive skills. Audiovisual media, though beneficial in increasing sensory interaction, may not be equally effective for all students. For example, students with strong linguistic and analytical skills may not benefit as much from such tools. Additionally, these methods may encourage more passive learning, making them less effective compared to

approaches that require active participation and problem-solving (Threlfall, 2013). Another possible explanation for the lower effect sizes of drawing texts and laboratory-supported methods is that these methods may be more suitable for certain disciplines or skill sets (Beatty & Ball, 2010). Drawing texts, while effective in developing visual intelligence and creative thinking, may not directly foster linguistic skills. This highlights the need for teaching methods to be more carefully adapted to meet the cognitive and linguistic development needs of students.

When examining the moderator effect of the culture variable, it was found that the relevant hypothesis was not supported. However, the fact that innovative poetry teaching methods had a medium effect size in vertical-collectivist cultures and a higher effect size in horizontal-individualistic cultures suggests that cultural context plays a role in education. Studies examining the effect of cultural differences on the effectiveness of teaching methods have also reported similar findings (Gannon & Poon, 1997; Goldman et al., 2014; Cibils & Marlatt, 2019). Based on this, it can be concluded that teaching methods should be tailored to align with cultural characteristics.

When examining the results of the research, it is evident from the meta-analysis that innovative poetry teaching methods have a positive and significant effect on students' academic success. The findings reveal that these methods are an effective teaching approach. Furthermore, it is observed that different variables play a moderator role in enhancing this effect. Although the effects were higher at the high school level, no significant difference was found across the school levels in general. The year of publication emerged as a determining factor for the method's effectiveness, with studies conducted after 2016 showing stronger effects. In terms of poetry skills, it was found that innovative methods had a strong effect on general academic success and comprehension skills, and a moderate effect on writing skills. However, no significant effect was observed regarding reading skills. When examining the method variable used in the studies, it was found that constructivist approaches and artificial intelligence-based methods were more effective, while methods such as Flipbook e-modules, active learning, concrete poetry, and online education produced better results compared to traditional approaches. Also, some audiovisual methods did not show a significant difference. From a cultural perspective, in vertical-collectivist cultures, the effect size of innovative poetry teaching methods was moderate, whereas in horizontal-individualist cultures, the effect size was high. However, no statistically significant difference was found between these two cultures regarding the effect of innovative teaching methods on poetry

success. Overall, the findings indicate that these methods are generally effective tools for enhancing students' academic success, with variables such as publication year, teaching method, and targeted skills playing a moderating role in determining the size of the effect. Based on the results of this meta-analysis, the following recommendations can be made for practitioners and researchers: Practitioners should aim to enhance students' academic success by integrating innovative poetry teaching methods into the curriculum. Emphasis should be placed on effective methods, especially constructivist and artificial intelligence-based approaches. Organizing activities that target improvements in students' writing and comprehension skills can lead to stronger effects on these areas. Given that innovative methods are more effective at the high school level, prioritizing these applications in high schools would be beneficial. Effective methods such as online education, Flipbook e-modules, and active learning should be expanded and more widely implemented in classrooms. A balance should be achieved between individualist and collectivist approaches in classrooms with different cultural contexts. Furthermore, strategies should be developed to increase the effectiveness of innovative methods in improving reading skills. Educators can create a more effective learning environment by combining traditional methods with modern techniques in poetry teaching.

Researchers should focus on studies that examine the effects of innovative poetry teaching methods across different school levels. Future research should include follow-up studies to evaluate the long-term effects of these methods. More comprehensive analyses should be conducted on innovative practices aimed at developing various language skills. Additionally, different methods should be tested, particularly those aimed at enhancing the effects on reading skills. Further studies are needed to examine how innovative teaching practices function in different cultural contexts. To use artificial intelligence-based methods more effectively in poetry teaching, in-depth research is important. Moreover, the challenges encountered in integrating new technologies into poetry teaching should be addressed, with solutions developed to overcome them. Finally, studies should be conducted to examine the role of moderator variables, such as publication year, on the effects of innovative methods in greater detail. The study is limited to selecting studies based on specific criteria. Only studies having experimental or quasi-experimental pretest/posttest or posttest control group design were included in the meta-analysis. Additionally, adequate data for each group (e.g., n values, means, standard deviations, or t, F, or $\chi 2$ values) were required to calculate effect sizes. Exclusion criteria included the absence of

quantitative data, inadequate data reporting that prevented effect size calculation, a lack of focus on student academic achievement, no focus on innovative poetry instruction, and treating each skill as a separate study when multiple skills were targeted in experimental groups. These limitations may impact the overall validity of the study and result in an analysis limited to specific types of research and areas of focus.

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Note. References marked with an asterisk "" indicate studies included in the meta-analysis.*

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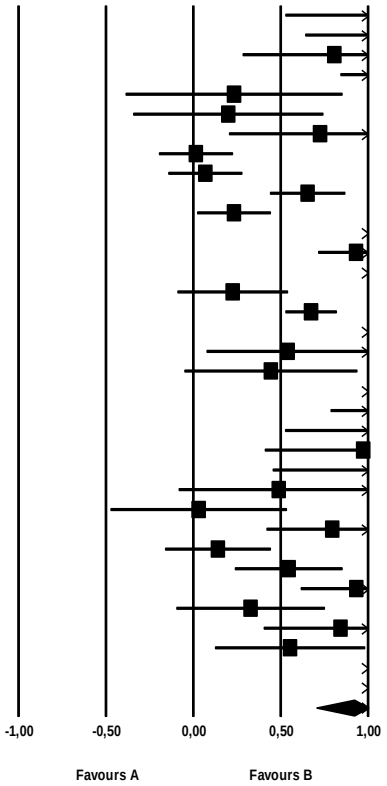
Appendix

Summary of Study Characteristics in Analysis Findings

Meta Analysis

Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Hutagalung, T., Adisaputera, A., & Sari, D.E. (2011)	1,024	0,254	0,065	0,526	1,522	4,028	0,000
Sutrimah, Winarni, R., Wardani, N.E., & Ngadiso. (2019)	1,105	0,238	0,056	0,639	1,571	4,650	0,000
Aituganova, S., Sarekenova, K., Aubakir, Z., et al. (2023)	0,807	0,269	0,072	0,281	1,334	3,007	0,003
Hutagalung, T., Adisaputera, A., & Akbar, S. (2022)	1,405	0,288	0,083	0,840	1,971	4,875	0,000
Love, T. S., Lee, D., & Napoli, M. (2024a)	0,233	0,317	0,101	-0,389	0,855	0,735	0,462
Love, T. S., Lee, D., & Napoli, M. (2024b)	0,200	0,278	0,077	-0,345	0,745	0,719	0,472
Mahmud (2017)	0,725	0,267	0,071	0,203	1,248	2,721	0,007
Lin, X., & Sun, X. (2023a)	0,015	0,109	0,012	-0,198	0,228	0,138	0,890
Lin, X., & Sun, X. (2023b)	0,069	0,109	0,012	-0,144	0,282	0,633	0,527
Lin, X., & Sun, X. (2023c)	0,654	0,111	0,012	0,438	0,871	5,919	0,000
Lin, X., & Sun, X. (2023d)	0,233	0,108	0,012	0,021	0,445	2,155	0,031
Lin, X., & Sun, X. (2023e)	1,336	0,117	0,014	1,107	1,565	11,427	0,000
Lin, X., & Sun, X. (2023f)	0,932	0,111	0,012	0,713	1,150	8,371	0,000
Ugwuozor, F. O. (2020)	4,621	0,350	0,122	3,936	5,307	13,214	0,000
Rukayah, R., Tolla, A., & Ramly, R. (2018)	0,226	0,162	0,026	-0,092	0,543	1,394	0,163
Jones, S., Myhill, D., & Bailey, T. (2013)	0,674	0,076	0,006	0,526	0,823	8,894	0,000
Alsowat, H. (2016)	2,065	0,303	0,092	1,472	2,658	6,825	0,000
Bayat, N. (2014)	0,540	0,238	0,056	0,074	1,006	2,273	0,023
Kilag, O. K. T et all, (2023a)	0,444	0,253	0,064	-0,052	0,940	1,754	0,079
Kilag, O. K. T et all, (2023b)	2,345	0,325	0,105	1,708	2,981	7,221	0,000
Woldemariam, H. Z. (2014)	1,828	0,532	0,283	0,784	2,871	3,432	0,001
Satinem, J. (2018)	1,065	0,276	0,076	0,524	1,606	3,861	0,000
Sebastian, M. F. D. (2020)	0,973	0,288	0,083	0,408	1,537	3,377	0,001
Özen, B., & Mohammadzadeh, B. (2012a)	1,058	0,308	0,095	0,454	1,662	3,432	0,001
Özen, B., & Mohammadzadeh, B. (2012b)	0,489	0,293	0,086	-0,085	1,063	1,670	0,095
Önkap, N. A. (2010)	0,031	0,258	0,067	-0,475	0,537	0,119	0,905
Vk, P., & Saveed, S. Y. (2014)	0,795	0,193	0,037	0,417	1,173	4,123	0,000
Vela, J. (2012a)	0,141	0,155	0,024	-0,163	0,445	0,909	0,363
Vela, J. (2012b)	0,546	0,158	0,025	0,237	0,855	3,464	0,001
Vela, J. (2012c)	0,933	0,163	0,027	0,614	1,253	5,726	0,000
Xie, H., & Deng, S. (2023a)	0,328	0,217	0,047	-0,098	0,754	1,510	0,131
Xie, H., & Deng, S. (2023b)	0,843	0,225	0,051	0,402	1,284	3,744	0,000
Xie, H., & Deng, S. (2023c)	0,554	0,220	0,048	0,123	0,984	2,519	0,012
Xie, H., & Deng, S. (2023d)	2,148	0,271	0,073	1,617	2,679	7,930	0,000
Kangasharju, A., Ilomäki, L., Lakkala, M., & Toom, A. (2022)	2,202	0,202	0,041	1,806	2,598	10,894	0,000
	0,920	0,111	0,012	0,703	1,136	8,317	0,000



Meta Analysis