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Assessing the Impact of Predictive Thinking-Based Learning Activities on Enhancing Creative Writing in Language Learning Classrooms

Ali Al-Barakat, Rommel AlAli, Omayya Al-Hassan, Khaled Al-Saud

Research Article

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Author for correspondence:
Dr. Rommel AlAli
ralali@kfu.edu.sa
King Faisal University, Al-Ahsa, Kingdom of Saudi Arabia

Abstract

Background/purpose. The study tries to discover how predictive thinking can be incorporated into writing activities to assist students in developing their creative skills in writing learning environments. Through this study, teachers will be able to adopt a new teaching method that helps transform the way creative writing is taught in language classrooms.

Materials/methods. The study sample consisted of 240 students randomly assigned to an experimental group, where instruction utilized predictive thinking activities, and a control group, where instruction relied on a conventional method. The set of predictive thinking activities was developed and implemented in a manner that gained validity and reliability.

Results. Assessment through creative writing tests revealed that the use of predictive thinking activities had improved the creative writing capabilities of the experimental groups' subjects. The post-test mean scores of the experimental group for creative writing were statistically significant. Also, gender-wise, highly significant differences in favor of females were seen, and no statistically significant interaction between gender and methods was found.

Conclusion. It is concluded that predictive thinking activities stimulate students' critical and creative thinking and that it is, therefore, worthwhile introducing them within the curriculum and teacher training in this respect.

1. Introduction

To move along with the developments occurring in the fields of knowledge and technology, it is necessary that a drastic transformation also be effected in the educational procedure. Students must be active builders of their own learning instead of being nothing other than recipients of information (Cabaroglu, 2014; Cirocki et al., 2024). This change in the role of the students requires the use of new teaching activities that would encourage the students to think critically and creatively. Among such activities, predictive thinking stands out as a tool for stimulating authentic participation and critical thinking among the students (Al-Barakat et al., 2025; Bataller et al., 2024; Brod, 2021; Kornell, 2014).

Predictive thinking's significance is attributed to the fact that it not only stimulates memory or the pulling of information; it serves as a medium, enabling students to engage with texts and topics. Predictive thinking is exploring multiple possibilities and speculating on the likely trajectory of events based on previous knowledge (Kormos et al., 2024; Lotino & Ocampo, 2024; Potts et al., 2019; Potts & Shanks, 2014). Here, predictive thinking is considered a fruitful way for students' critical thoughtfulness, analytical thinking, and creative skills, which, in turn, results in the development of their creative writing skills (Al-Barakat & Al-Hassan, 2009; Al-Barakat et al., 2023; Seabrooke et al., 2018; Yan et al., 2014). Interacting with texts within the predictive thinking enhances the student's ability to analyse language in a critical sense, hence advancing their ability to express their thoughts innovatively and precisely (Garzon, 2018; Habók & Magyar, 2018; Seabrooke et al., 2018; Yan et al., 2014).

When learning languages, an essential ability that students should develop is creative writing. Despite their importance, these skills have been noticed as having visible weaknesses in all contexts of learning, whereby such weakness is a clear indication of the deficiency in the teaching and learning methodology (Al-Hassan et al., 2025; Al-Halalat et al., 2024; AlAli & Al-Barakat, 2023a). While writing could essentially aid in the development of language proficiency, many teaching methodologies resort to traditional approaches- the stale ones based on memorization and direct instruction. These methodologies are incapable of adequately stimulating students towards writing. Neither do they stir critical thinking or foster the very creative thinking that students should adopt. Therefore, students proceed along stagnant avenues in developing their writing and hence do experience a depletion of creative writing (Habók & Magyar, 2019; Hillmayr et al., 2024).

It is, therefore, highly relevant to explore how the activities based on predictive thinking would affect the enhancement of the students' creative writing skills (Al-Barakat et al., 2025; Al-Hassan et al., 2012; Al-Hassan et al., 2022; Burns et al., 2022). These activities allow students to engage more deeply with the content by predicting events in the text through the application of their previous knowledge. This interfacing with the text also provides students with opportunities to be creative in developing their writing skills as well as improving their ability to express their ideas.

The significance of this study stems from its provision of an innovative teaching tool that can easily be adapted to the current curriculum. The predictive thinking activities have not found their way into many language learning environments and aim at stimulating students' critical and creative thinking abilities to improve their high-level writing. These activities enhance students' divergent thinking, helping them express and rearrange ideas creatively, thus improving creative writing. Through this study, teachers will be able to adopt a new teaching method that helps transform the way creative writing is taught in language classrooms. Based on the previous discussion, the study poses the following research questions:

1. Are there statistically significant differences at the ($p \leq 0.05$) level in the mean scores of creative writing skills among third-grade students due to the teaching activities (predictive thinking-based activities vs. traditional methods)?

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2. Are there statistically significant differences at the ($p \leq 0.05$) level in the mean scores of creative writing skills among third-grade students due to the student's gender (male vs. female)?

3. Are there statistically significant differences at the ($p \leq 0.05$) level in the mean scores of creative writing skills among third-grade students due to the interaction between gender and the teaching method?

2. Literature Review

Predictive thinking is a complex cognitive process in which students use their prior experience and knowledge about their environmental surroundings (Al-Barakat & Bataineh, 2011; AlAli et al., 2024). In thinking through predictions, students use the experience they have to find an innovative solution(s) or a new idea(s) associated with a problem or topic of interest to them. Predictive thinking also involves the students' ability to predict the future considering certain indicators or assumptions, thus leading them to conclusions or -somehow- expected endings based on these data (AlAli & Al-Barakat, 2023b; Brod, 2021; Kornell, 2014; Potts et al., 2019).

Employing predictive thinking in teaching triggers students' ability to make deep thoughts about every theme they are talking about, thus enabling them to enflame their thoughts innovatively. In the context of language learning, using prediction while reading a passage encourages the students to employ their linguistic abilities in a critical and aesthetic way, and write more clearly ideas, as predictive thinking assists students to elaborate, organize and present their ideas in a clear, coherent, and logical manner (Pishghadam & Mehr, 2011; Rizal, 2012).

Predictive thinking is considered a central aspect in language learning environments where the use of language is a means to engage with various ideas and concepts. The use of predictive-thinking activities can help enhance students' ability to put down many future possibilities by drawing upon their prior knowledge to analyze and interpret texts and content from deeper perspectives (AlAli & Al-Barakat, 2025; Bataineh et al., 2017; Burns et al., 2022; Assimonye & Ibe, 2019; Nasir et al., 2021). Through activities based on predictive thinking, the students are urged to interact with the text in ways that allow their imagination to flow and promote multi-dimensional thinking. In this setting, the students will not act as passive receivers of knowledge but will actively learn, using their language skills unconventionally. Consequently, this will enhance their writing skills and motivate them to consider creative writing as an interactive and complex process (Assimonye & Ibe, 2019; Bataineh & Mayyas, 2017; Nasir et al., 2021; Rini & Cahyanto, 2020).

Creative writing is not only arranging words but also the ability to express familiar ideas in new and impactful manners. Students engaging in this process reshape ideas in a unique manner by mixing scientific thinking and creativity, thereby presenting alternate renditions of ideas that both fascinate the reader and stimulate thought (Rini & Cahyanto, 2020; Santosa et al., 2019; Wang, 2019), this vision enables students to develop innovative thinking, certainly a vital element of developing strong creative writing abilities. According to Kormos et al. (2024) and Lotino et al. (2024), creative students often use writing to introduce their own ideas in a way that impacts both emotions and thoughts.

The development of creative writing skills is fundamental to primary education, thereby affording many opportunities for both learners and teachers to explore and develop these skills. More precisely, creative writing builds up reasoning and analytical skills that enable learners to grasp and manipulate language rules differently (Bataineh et al., 2017; Garzon, 2018; Habók & Magyar, 2018; Habók & Magyar, 2019; Hillmayr et al., 2024; Assimonye & Ibe, 2019; Nasir et al., 2021), as it provides spaces for students to go through their ideas thoroughly before reaching a definitive written form, thereby further amplifying their creative expression. This is where creative thinking plays a vital role in helping students predict the alternatives the text may go through, decide and develop their ideas,

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and thus increase their application in writing (Cabaroglu, 2014; Cirocki et al., 2024; Fraihat et al., 2022; Rini & Cahyanto, 2020; Santosa et al., 2019).

Besides enhancing critical thinking, creative writing represents one of the best motivational tools for students; by arousing their interest and enthusiasm toward activities in the classroom and, hence, increasing their general motivation for learning, side by side with collaborative writing tasks which promote motivation through teamwork and create a dynamic, interactive learning environment (Al-Barakat et al., 2022; AlAli & Al-Barakat, 2024a; Rini & Cahyanto, 2020; Santosa et al., 2019). Through this learning experience, writing skills can be improved, and the students gain clear and coherent expression of their ideas, thus establishing a foundation for great writing skills.

Ongoing support from teachers is required in creative writing activities (AlAli & Al-Barakat, 2024; Santosa et al., 2024). Teachers play an important role in assisting their students' creative writing, whether in or outside the classroom. Typically, in primary education, such activities are implemented in a guided manner whereby teachers design lessons to assist students in producing original and imaginative pieces of writing, the enhancement of the effectiveness of the lessons could also be achieved by teachers' personal understanding of the creative writing process and by their application of techniques such as predictive thinking, which supports innovation and refinement of their own practices (Santosa et al., 2019; Wang, 2019).

The act of creative expression allows students to influence and communicate their inner worlds, making for a lucid and powerful presentation of ideas. In this sense, it allows creative writing to become a means for building whole new worlds of ideas that may bear a considerable impact on society and culture. According to researchers (Kormos et al., 2024; Lotino et al., 2024), creative writing is not only an avenue of self-expression but also of understanding and reconstructing the world by exposing others to things in a new light that rejects established norms. Certain research (AlAli & Al-Barakat, 2024b; Lucas & Spencer, 2017) raised the issue of a blend of broad imaginative engagement and critical thinking in creative writing as contemplated by the authors where students look at modifying an idea and represent it in new, lively forms that fire the imagination and provoke thought. This all-encompassing approach to creative writing drives students out of traditional educational boundaries and leads them to explore their ideas more deeply and interact with the world creatively.

Prediction plays an important role in several learning settings, as demonstrated by researchers such as Kornell (2014) and Richland et al. (2009). These studies show that learning through considering a future event is an effective teaching method as it engages students with the material being learned. In this case, the students must guess the answers prior to gaining access to certain educational material, which triggers a number of errors. Although these errors do not seem initially constructive, research has shown that they may help enhance the learning process; when students make an error, they evaluate their information against the correct answers presented later, which helps in retrieving that information and consolidating it in long-term memory.

On the other hand, Bord's (2021) study placed great emphasis on predictive thinking and its important role in motivating students to critically engage with texts. The study showed that inviting predictions evokes surprises in students when the unexpected answer is at play, thereby keeping their attention on the correct answer once it is given. These emotions then work to reinforce retention in their long-term memory, which in turn speeds up learning. Thus, these findings lead to the consideration that predictive thinking improves retrieval of information and helps students analyze and create in the process, thus sharpening their critical thinking skills.

The concept of predictive thinking has been elaborated by AlAli & Al-Barakat (2024a) to suggest that predictive ability is concerned with projecting solutions about future events that are not entirely evident now but are considered probable based on facts supported by present premises. It aims to

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connect present knowledge with anticipated future events, aiding constructive interaction with future situations. Yu (2022) equally attested that becoming better at predictive thinking contributes significantly to foreseeing the future and encouraging the ability to take an initiative. The findings indicate that predictive thinking is not just about predicting a future event; it involves understanding the complex contexts and longer-term changes that may impact individuals and communities. The development of such abilities has been identified by several authors (Al-Barakat & Al-Hassan, 2009; Kormos et al., 2024; Lotino & Ocampo, 2024; Potts et al., 2019; Potts & Shanks, 2014; Zawadzka & Hanczakowski, 2018) as highly dependent upon a cultivated and active exploratory spirit, which, together with personal creativity, may serve as the foundation for critical thinking. Through this adventurous paradigm, one is able to strategically think and act toward becoming proactive in acutely rapidly-changing world environments.

Many researchers (AlAli & Al-Barakat, 2024c; Al-Halalat et al., 2024; Bani Irshid et al., 2023; Fraihat et al., 2022; Khasawneh et al., 2022; Khasawneh et al., 2023; Kornell et al., 2009) suggested that predicting not only acts as a memory enhancement strategy but also fosters higher-order thinking skills- analysis, comparison, and critical thinking among students to engage in predictive reasoning allowing them to draw upon their prior knowledge in attempting to predict outcomes or answers, thereby allowing the student to compare scenarios and predict possible continuations mentally. Such activities elevate academic performance and allow them to think independently, thereby developing their problem-solving skills and ability to cope with complicated educational situations. Still, notwithstanding the research that has examined the influence of predictive thinking in aspects pertaining to overall academic achievement, there remains a lesser exploration of the strategic influence of predictive thinking on creative writing within an L2 learning ambiance.

In spite of studies investigating the influence of predicative thinking on general academic achievement, we need studies that will specifically address how predictive thinking facilitates creative writing skill development. Discovering how predictive thinking can be incorporated into writing activities will greatly assist students in developing skills of creative written expression and innovative and effective ways to use language.

3. Methodology

3.1. Study Design and Sample

This study adopted a quasi-experimental design, where pre-and post-tests were administered to both experimental and control groups. The sample consisted of 240 male and female students from the third grade of primary school, distributed across eight private schools in Amman, Jordan. The schools were purposefully selected due to the cooperation of the school management in implementing the study. The schools were randomly divided into two groups. In this study, 120 students formed the experimental group that utilized predictive thinking-based activities in the learning of creative writing, while an equal number of students, the control group, were taught traditionally. The characteristics of the sample selected were confirmed so that all of them were in the same age bracket (9 to 10 years) and came from varied social and academic backgrounds. Furthermore, throughout the experiment, gender balance was maintained so that no bias would infiltrate the results of the study.

The participants are students from different schools in the region assigned randomly into two groups, so as to balance personality traits and pre-existing academic performance between the two groups. External variables were controlled such as teacher training and learning environment conditions. The writer investigated the creative writing skills of students by means of a pre-test that established the prior group differences before the experiment, after which the changes in performance were measured either through predictive thinking activities or traditional teaching methods.

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3.2. Predictive Thinking-Based Learning Activities

The language topics were selected according to the Jordanian third-grade teaching curriculum. The topics were analyzed in view of the expected learning outcomes and prescribed content. These language topics were then reconstructed in light of recommendations from literature and previous studies on how predictive thinking skills could be developed in a learning environment. A wide variety of language activities were designed to develop students' predictive thinking skills. These activities aimed to engage students innovatively with the content, thereby promoting the use of their language skills beyond the conventional comprehension of texts. The activities included:

1. Predictive Questioning Activities: These activities urge students to give answers that involve predictive thinking. By doing so, they develop their ability to envision future-related events based on current data in the textual evidence.

2. Predictive Dialogue Activities: When interacting, students can engage in unrestricted and ongoing dialogues, which means that through the convergence of viewpoints and group thought, they make predictions.

3. Image Inference Activities: Predictive-thinking activities lend themselves to leveraging imagery and illustrations so that students can make inferences by adapting reading texts to the context of imagery, using their imagination to predict what might happen next.

4. Rewriting Events: In this activity, students can rewrite an event or story from an alternative perspective or create alternative events based on their understanding of the content. Such activities motivate students to think about how a story could develop and how characters influence the course of events, thereby honing their critical and creative thinking skills.

5. Predictive Analysis Activities: The activities further the capacity of thinking analytically about the future and developing critical thinking skills.

3.3. Study Instrument (Creative Writing Test)

This was a test in creative writing designed for third-grade students. It was an essay-type test that examined various aspects of creative-writing skills, including form and content. It consisted of a series of seven questions meant to evaluate the student's capacity for creative expression through educational scenarios that required innovative application of writing skills. The questions focused on overall text structure, accuracy of language, logical sequence of ideas, and above all, the ability to express ideas in an original manner, indicative of students' profound creative thinking.

3.4. Validity of the Instrument

Test validation and objective confirmation were performed by Arabic language experts, educators, and education psychologists. The evaluation process investigated the validity and adequacy of the tool in different areas, such as clarity of questions, appropriateness for the students' level, and suitability of determining intended writing skills. Then, according to the review results, the questions underwent certain changes to ensure the tool's validity and reliability in measuring the intended skills, such as addition, deletion, or whole wording adjustment. Besides, the validation confirmed that the instrument covered a wide range of writing skills and did not adhere to just a few that might not accurately reflect students' expected overall abilities.

3.5. Pilot Test of the Instrument

Pilot testing was conducted among 23 students who were excluded from the sample of the study, prior to administration of the main study tool, to verify the appropriateness of the questions and the wording in them for third-grade students and to assess students' understanding and retake time for question-response. Thus, in the pilot test, the average time for students answering the questions was

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approximately 1 hour, which was calculated to be more than enough for the topic and content of the test in question. Each individual student's timing was recorded while they answered these questions, and that helped inform the final decision about time allocation for the children during the main study.

For the purpose of scoring the pre- and post-test, three experienced evaluators in language assessment were assigned to mark the answers. Each evaluator did so independently, without any communication with the others. They marked the scripts by previously established grading criteria, emphasizing the correctness in evaluating the various aspects of writing including text organization, clarity of ideas, language accuracy, and standards of creative expression. The grading results were entered into a record, and the mean score for each evaluator was computed to check for their agreement in the evaluation of answers. This procedure strengthened the reliability of the grading results and, therefore, the tool that is perceived to validate the students' levels of creative writing.

3.6. Reliability of the Instrument

In the present study, two approaches were taken to ascertain the reliability of the test. In the first approach, inter-rater reliability was established. Holsti's formula was applied to assess the degree of agreement between ratings given by three raters (Rater 1; Rater 2, and Rater 3). Results showed that the agreement levels for pairs of raters ranged from Rater 1-Rater 2 (89-95), Rater 2-Rater 3 (88-94), and Rater 1-Rater 3 (86-93). These coefficients denote fairly high levels of agreement among raters, thereby adding to the credence and reliability of the tool for measuring creative writing skills.

To ensure the test's reliability, an additional method, the Test-Retest, was adopted: 23 third-grade students not belonging to the study sample were used. After two weeks, the test was readministered to check for consistency and stability of the students' results and responses. Following the comparison of the two test scores, the Pearson correlation coefficient was calculated, equating to an impressive 96%. This high correlation shows a high degree of stability of the test, thus again validating its potential use in the main study.

3.7. Data Collection and Analysis

This section is concerned with procedures for collecting and analyzing data concerning the impact of predictive thinking-based learning activities on the creative writing skills of third-grade students. For the sake of reliability, data collection, and analysis followed a number of methodological steps.

Firstly, teachers of languages underwent an intensive training program for the application of predictive-thinking-based learning activities. A 20-hour training program was organized, including workshops and practical application methods in preparation for the teachers to implement predictive-thinking-based teaching activities. The program covered not only the theoretical foundations behind the predictive-thinking activities but also their practical application in various learning contexts. Furthermore, other methodological considerations included motivating students to engage in predictive thinking through participatory dialogues and group discussions that serve to motivate and enhance their creative writing skills.

Second, the experimental group underwent 8 continuous weeks of treatment under predictive thinking-based learning activities. For these sessions, weekly teaching was organized, consisting of four sessions per week for 45 minutes each. The activities were planned to stimulate predictive thinking in the students, leading them to articulate creative ideas and analyze topics more profoundly. These tasks led students in predicting possible events during given situations, stating their opinions in both writing and speaking.

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This phase saw the collection of data via pre-test and post-test for both the experimental and control groups. The pre-test was administered to measure students' creative writing skills prior to the intervention; equivalence check results between the two groups are given in Table (1):

Table 1. The t-test results in testing the equality of the two experiment and control groups on the pre-test

Test	Group	No.	Mean*	St.Dev.	T Value	Sig.**
Creative Writing Test	Experimental	120	12.23	0.79	7.045	0.069
	Control	120	11.89	0.84		

** The average is calculated from 40 degrees*

** Significance level ($p \leq 0.05$)*

As seen in Table (1), the two groups did not present statistically significant differences at the level of ($p \leq 0.05$) in the pre-test. This means that both groups were equivalent with regard to creative writing skills before the beginning of the intervention.

After the roughly eight weeks of teaching done through these predictive thinking activities, the post-test was administered in an attempt to determine whether student writing skills had improved. Comparing means and standard deviations allowed for the analysis of student responses to see whether there were any significant changes in terms of creative writing and speaking.

For data analysis, the means and standard deviations of the performance of students in the experimental and control groups were calculated. Data analysis was then conducted using the paired two-way analysis of variance (ANOVA) for the performance of the experimental and control groups on the post-test.

4. Results

4.1. Results of the First Question

The first research question targeted the comparison of statistically significant differences ($p \leq 0.05$) in mean scores of creative writing skills for third-grade students due to the teaching activities (predictive-thinking-based activities vs. traditional). To this end, the means and standard deviations of both group performances on the post-test for creative writing expression were calculated based on gender and group. This is illustrated in Table 2.

Table 2. The means and standard deviations for the performance of both groups on the post-test for creative writing expression, differentiated by gender and group

Group	Gender	No.	Mean*	St. Dev.
Experimental	Female	64	37.93	0.79
	Male	56	36.78	0.80
	Total	120	37.90	0.82
Control	Female	64	23.05	0.56
	Male	56	22.30	0.99
	Total	120	22.65	0.87

** The average is calculated from 40 degrees*

In Table 2, it can be observed that the application of predictive thinking in activities to the experimental group produced significant improvement in the development of creative writing skills compared to traditional methods applied to the control group. The experimental group, both males and females, scored much higher on the post-test (37.90) compared to the control group (22.65). Additionally, the standard deviations were lower in the experimental group, indicating greater

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consistency in performance among students. This suggests that predictive activities effectively contributed to enhancing creative thinking and written expression, making them effective learning activities that outperform traditional methods in developing students' writing skills.

A paired-sample t-test was used to determine the statistical significance of the differences in the mean scores between the two groups. Table 3 presents these results.

Table 3. The paired two-way analysis of variance (ANOVA) of the performance of the experimental and control groups on the post-test

Source	Sum of Squares	d.f.	Mean Squares	F	Sig.
Covariate	9648.165	1	9648.165	964.165	0.000
Group	1988.876	1	1988.876	198.876	0.000
Error	1140.983	235	9.968		
Total	9648.165	239			

** Significance level ($p \leq 0.05$)*

The results of the two-way analysis of variance (ANOVA) in Table 3 clearly show that there are statistically significant differences between the experimental and control groups in the post-test for creative writing expression. The calculated F-value for the group was 198.876, reflecting a significant variance between the two groups. This large F-value indicates that the difference in means is not just a coincidence but a true difference with statistical significance. With the computed significance level (0.000) being less than 0.05, we can confirm that the results are statistically significant. This significance indicates that there is a meaningful difference between the two groups, and thus, the alternative hypothesis stating that there are differences in performance between the two groups is correct.

The performance differences favored the experimental group, which learned creative writing expression through predictive thinking-based activities. This highlights the importance of teaching activities that rely on predictive thinking in improving students' creative expression skills. Through activities that stimulate predictive thinking, students in the experimental group were able to develop their creativity and writing skills more effectively compared to the control group, which did not undergo the same activities. The large F-value (198.876) and significance level (0.000) clearly reflect the impact of these activities on motivating students and significantly enhancing their writing skills.

4.2. Results of the Second Question

The second research question aimed to determine whether there were statistically significant differences at the ($p \leq 0.05$) level in the mean scores of creative writing skills among third-grade students attributed to the gender variable (Male, Female). A paired-sample ANOVA was used to achieve this objective. Table 4 presents these results.

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Table 4. Results of the paired two-way analysis of variance (ANOVA) for the gender variable in the creative writing expression test

Source	Sum of Squares	d.f.	Mean Squares	F	Sig.
Covariate	9648.165	1	9648.165	964.165	0.000
Group	1488.95	1	148.958	135.11	0.004
Error	1140.983	235	9.968		
Total	131878.034	239			

** Significance level ($p \leq 0.05$)*

The results in Table 4 indicate that there are statistically significant differences between males and females in creative writing skills after applying the teaching method, with the calculated F-value for gender being 135.11. This value is large and reflects considerable variance in the performance of males and females on the post-test, demonstrating that gender has a significant effect on performance in creative writing skills. The calculated significance level (0.004) is less than the traditional significance level of 0.05, indicating that the differences between genders are not due to chance but are real, statistically significant differences.

Based on these results, it can be concluded that the gender variable (Male, Female) has a significant effect on students' performance in the creative writing expression test. Since the F-value for gender was high and the significance level was below 0.05, this supports the hypothesis that gender contributes to determining students' writing performance level and confirms the existence of differences between males and females in this area after applying the teaching method.

4.3. Results of the Third Question

The third research question aimed to determine whether there were statistically significant differences at the ($p \leq 0.05$) level in the mean scores of creative writing skills among third-grade students attributed to the interaction between the teaching method and gender. A paired-sample ANOVA was used to achieve this objective. Table 5 presents these results.

Table 5. Results of the paired two-way analysis of variance (ANOVA) for the interaction between gender and method in the creative writing expression test

Source	Sum of Squares	d.f.	Mean Squares	F	Sig.
Covariate	9648.165	1	9648.165	964.165	0.000
Group	11.678	1	148.958	1.457	0.643
Error	1140.983	235	9.968		
Total	131878.034	239			

** Significance level ($p \leq 0.05$)*

The results in Table 5 present the results of the paired two-way analysis of variance (ANOVA) for the performance of the experimental and control groups according to the interaction between gender (Male, Female) and teaching method (experimental, control). The calculated F-value for the interaction between gender and teaching method was 1.457, which is relatively low compared to the usual threshold for identifying meaningful differences. Additionally, the calculated significance level

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for the interaction between gender and teaching method was 0.643, which is much higher than the traditional significance level (0.05).

Based on these results, it can be concluded that the interaction between gender and teaching method has no statistically significant effect on students' performance in the creative writing expression test. Since the significance level (0.643) exceeds the accepted threshold (0.05), this indicates that the differences in the performance of males and females in the creative writing expression test cannot be attributed to the interaction between gender and teaching method. Therefore, it can be said that there is no meaningful interaction between gender and method in improving students' creative writing skills.

This indicates that the experimental group, both males and females, outperformed the control group, both males and females. In this context, this does not imply that learning through predictive thinking-based activities is more suitable for females than for males. There was an improvement for both genders in the experimental group, which shows that there is no interaction effect between the method and gender, thus indicating that activities using predictive thinking are appropriate for both genders.

5. Discussion

The study results showed a strong impact on enhancing writing skills through implementing prediction-based teaching activities for third-grade students since the experimental group showed a significant performance in terms of writing skills compared to the control group. This result indicates that the prediction-based activities were highly successful in creating significant enhancement in writing skills. These activities allowed students to freely think and generate new and out-of-the-box ideas and encouraged them to think critically and creatively, free from constraints and fear of being criticized, thus creating a comfortable education environment.

The above result was consonant with research of (Al-Barakat et al., 2023; Al-Hassan et al., 2025; Nasir et al., 2021; Rini & Cahyanto, 2020; Vicol et al., 2024; Zedelius et al., 2019) which indicated that prediction-based activities are effective methods to foster originality which is related to forming new and unconventional ideas, and fluency that supports diversity in generating many ideas related to the same topic, as both originality and fluency are critical for creative writing, where writing is not only conversing with traditional texts or ideas, but also about thinking unconventionally. Results show that the experimental group had statistically improved in these two respective domains, irrespective of gender, which, therefore, while the control group did not. This, therefore, confirms that prediction-based activities are effective in promoting students' creative writing skills.

Besides, the study indicated that there were statistically significant differences in creative writing skills between male and female students, in favour of females, this may be attributed to the females' psychological and social characteristics which increase their capability to express thoughts and feelings better than males, and these characteristics, consequently, contribute positively to their creativity in writing, revealed by their good performance on the creative writing test

Aburezeq (2020) and Atallah & Ababneh (2019) highlighted that females are generally better writers than males. They engage more in activities that require imaginative and reflective thinking, which in turn enhances their creative idea generation ability.

However, although there were clear variations in male and female performance in writing, the study did not show any interaction effect between gender and teaching activities, which means that gender did not significantly influence how students benefitted from activities based on prediction. Such a case may be because these activities were designed to enable every student to freely and creatively interact apart from imposed restrictions related to gender. This result confirms that the activities were highly inclusive in enhancing writing skills.

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The above result is in line with research by Atallah & Ababneh (2019), which indicated that prediction activities helped enhance students' writing skills across different educational levels, without any relationship between gender and the teaching methods used. Hence, the predictive thinking activities have the potential to develop creative writing skills regardless of gender differences.

It can be concluded that prediction-based teaching activities are effective tools that can be employed to enhance creative writing skills among students, predictive activities are effective in enhancing writing skills of male and female students, and female advantage in creative writing can be associated with their psychological and social traits.

6. Conclusion

The study concluded that prediction-based educational activities are very effective activities for enhancing creative writing skills of third-grade students. The research findings demonstrated that those students involved in activities showed a marked improvement in performance compared to students that were taught traditionally. This emphasizes the need for innovative teaching methods that support critical and creative thinking, thereby enhancing students' abilities to express themselves more innovatively and accurately. In addition, there were significant differences between male and female students, with females improving significantly more than males in creative writing skills. This result also indicates that gender differences should be taken into account when teaching activities are conducted. However, there was no significant interaction between gender and teaching method, suggesting that prediction activities were beneficial for all students instead of just males or females.

7. Suggestion

The study suggests that there should be a greater emphasis on including prediction-oriented activities across the curriculum. It is vital that teachers are trained in the effective use of these activities in a classroom setting, creating an emphasis on the enhancement of students' creative and critical thinking skills. Furthermore, this environment should enable independent expression and social interaction among students, enhancing their independent thinking skills.

The study recommends broadening the application of predictive activities to all levels of education, from primary to higher education, to ascertain their respective impacts on the enhancement of creative writing for a larger number of students. Training sessions for teachers should focus on how to incorporate prediction activities in teaching writing skills so as to yield better educational results. Furthermore, predictive activities should be included in development plans for curricula to suit the needs of twenty-first-century students.

In terms of limitations related to the study, the reliance on a small sample in one educational environment may compromise the degree to which the findings can be generalized to other student groups or diverse educational settings. In addition, there were other psychological and social factors, such as motivation or individual differences among the students, which were not accounted for but could have had an effect on the outcomes of the educational activities.

As for future research directions, studies may consider including other educational levels like secondary or higher education, to investigate how prediction-based activities work at these higher levels in developing creative writing skills. Psychological and social variables, such as motivation of students and the type of environment provided in a classroom, may have an effect on how these activities would work. Furthermore, investigating the connections between prediction-based activities and promoting critical and creative thinking in some other educational disciplines, such as sciences or arts, would provide information on how to utilize the activities across various disciplines.

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Declarations

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About the Contributor(s)

Ali Ahmad Al-Barakat, PhD, is Professor of Early childhood Education at the University of Sharjah, United Arab Emirates. He is also an associate Editor in many educational journals. His main research interests include childhood education, curriculum development, instructional design, and teacher education
Email: aalbarakat@sharjah.ac.ae
ORCID: https://orcid.org/0000-0002-2709-4962

Rommel Mahmoud AlAli, PhD, is an Associate Professor of Educational Measurement and Evaluation at the National Research Center for Giftedness and Creativity, King Faisal University, Al-Ahsa 31982, Saudi Arabia. His primary research interests include measurement and evaluation, teaching and learning, curriculum development, human resource development, teacher education, and the design of learning environments.
Email: ralali@kfu.edu.sa
ORCID: https://orcid.org/0000-0001-7375-4856

Omayya M. Al-Hassan, PhD, is Professor of Early Childhood Education in the Department of Early Childhood, Queen Rania Faculty for Childhood, The Hashemite University, P.O. Box 330127, Zarqa 13133, Jordan. Her main research interests include early childhood education, children's learning and teaching, instructional design, and teacher education.
Email: o.m.alhassan@hu.edu.jo
ORCID: https://orcid.org/0000-0001-5104-2129

Khaled M. Al-Saud, PhD, is a Professor of Art Education at the College of Education, King Faisal University, Al-Ahsa 31982, Saudi Arabia. His main research interests include art education, teaching and learning, instructional design, and teacher education.
Email: Kmsoud@kfu.edu.sa
ORCID: https://orcid.org/0000-0002-8120-4106