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The Effectiveness of an Educational Program Based on Mental Stimulation and Coordinated Thinking Activities in Improving Creative Writing and Speaking Skills among Tenth-Grade Female Students in Jordan

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Abstract

Background/purpose. The study aimed to assess the effectiveness of an educational program based on coordination-thinking activities and mental stimulation in improving speaking and creative writing skills among tenth-grade female students in Jordan. In order to achieve the study's objectives, experimental and semi-experimental designs were employed.

Materials/methods. The Sample of the study consisted of (40) female students divided into two groups: (20) experimental and (20) control groups, which were selected as available samples from the tenth grade at Princess Basma Secondary School for Girls in Eastern Badia District. The speaking skills and creative writing tests were administered for the two groups.

Results. The study finds statistically significant differences in educational programs in favor of the experimental group.

Conclusion. The study recommends using coordinated thinking activities and mental stimulation to teach primary-stage students speaking and creative writing skills.

1. Introduction

The rapid development of education in recent decades has intensified the need for modern teaching methods that move beyond rote learning and memorization. While emphasizing grammar and structure, traditional approaches often fail to equip students with the tools necessary to develop essential skills such as creativity, self-expression, and higher-order thinking (Al-Zughbi, 2019). Speaking and creative writing, in particular, are crucial for students' academic success and effective communication in both social and professional contexts (Abdul Rahman, 2021). However, many students still struggle to develop these skills because they rely on outdated teaching practices that limit opportunities for expression, critical engagement, and creativity. Prior studies underscore the importance of creating supportive educational environments where language is practiced in authentic contexts. For instance, interactive activities such as group discussions, dialogue, and oral presentations have strengthened students' confidence and communicative competence (Badran, 2020; Rai, 2024). These findings suggest a need to reconsider traditional approaches, particularly in Jordanian schools, where female secondary students often have limited opportunities to engage in interactive and creative language use.

In parallel, researchers emphasize that both speaking and creative writing are closely tied to the development of critical and creative thinking. Creative expression requires linguistic accuracy, mental stimulation, and the ability to generate, organize, and connect ideas coherently (Al-Nuaimi, 2017). Studies further show that creative writing enhances cognitive flexibility, originality, and fluency of thought, allowing students to explore ideas and express themselves innovatively (Ashour & Al-Hawamda, 2009; Al-Juhani, 2021). Creative writing, therefore, should not be seen merely as a linguistic exercise but as an interactive process that integrates imagination, critical reasoning, and personal expression (Al-Hourani et al., 2022). Despite the recognized importance of these skills, classroom practice in Jordan remains a challenge. The Ministry of Education has recently revised Arabic language curricula to emphasize creative writing skills, particularly through pre-writing, drafting, and post-writing stages (National Center for Curriculum Development, 2023). However, research indicates that students struggle with creative writing due to insufficient exposure, limited practice from early stages, and an overemphasis on mechanical aspects such as grammar and spelling (Ashour, 2015). Traditional methods stifle students' creativity and limit their ability to produce original, meaningful texts.

These findings highlight a persistent gap: while the importance of speaking and creative writing for fostering creativity and critical thinking is well documented, there is insufficient research on practical strategies to address these challenges in the Jordanian secondary school context, particularly among female students. This study seeks to address that gap by exploring how modern, interactive teaching approaches can enhance students' speaking and creative writing skills, thereby contributing to a deeper understanding of how educational innovation supports language development and cognitive growth.

2. Literature Review

Abu Saud (2023) evaluated the effectiveness of educational activities based on coordinated thinking in improving speaking skills among high school students in Jordan. The study sample consisted of 160 students divided into two groups: the experimental group, comprising 80 students who participated in coordinated thinking activities, and the control group, comprising 80 students who studied using traditional teaching methods. Results showed that students in the experimental group significantly improved their ability to organize thoughts while speaking. Al-Shahbani (2023) examined the effect of mental stimulation activities on speaking skills among high school students in Palestine. The Sample consisted of 180 students (90 in the experimental group) who were exposed to mental stimulation activities and 90 in the control group who studied using traditional methods.

Findings showed that stimulation activities improved students' fluency and ability to express themselves clearly while speaking.

Another study by Harris and Graham (2018) examined the impact of cognitive strategies on the development of creative writing skills among students. 120 students were divided into two groups (60 in the experimental and 60 in the control) for the study, based on a set of cognitive strategies. Results showed statistically significant differences in the quality of creative texts in terms of organizing ideas, language, style, and the ability to review and edit texts, favoring the experimental group. Furthermore, Salamah, Abu Saud, and Al-Najar (2023) investigated positive thinking and its relationship with creative writing skills among gifted primary school students; The Sample consisted of 50 primary school students. The study used the relationship between positive thinking and creative writing skills in a sample of gifted students. Findings indicated a statistically significant correlation between positive thinking and creative writing skills.

The previous studies clarified the problem statement, selected the appropriate methodology, and constructed their tools. The current study differs from previous studies by targeting skills in creative speaking and writing, and it is the first local study to examine the effectiveness of an educational program based on coordination-thinking activities and mental stimulation in improving these skills.

3. Statement of the Problem

In light of the researcher's observations, the problem lies in the weakness of speaking and creative writing skills among female students in Jordanian high schools. The weakness stems from the educational system's reliance on memorization and rote learning, which limits female students' opportunities to practice effective communication and creative expression. Despite the importance of these skills for enhancing academic performance and success in daily life, the existing gap in education calls for innovative teaching strategies to improve female students' capabilities and empower them to express their ideas with confidence and clarity (Afaf, 2020). The study problem was to examine the impact of an educational program based on coordination-thinking activities and mental stimulation on the skills of creative speaking and writing among tenth-grade female students in Jordan.

4. Significance of the Study

The theoretical significance is expected to provide a clear framework, enriching the educational literature on the development of speaking and creative writing skills among upper primary students. In addition, it presents an educational model that researchers, teachers, and curriculum developers can benefit from when developing educational programs. Another significance lies in providing a practical, applicable framework in the classroom. Moreover, the study may motivate field researchers to conduct further research on coordination thinking activities and mental stimulation, clarifying their roles in improving Arabic language skills.

5. Study Objectives

The current study aimed to develop an educational program based on coordinated thinking and mental stimulation activities and to evaluate its effectiveness in improving speaking and creative writing skills among tenth-grade female students in Jordan.

6. Questions

The current study seeks to answer the following questions: -

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1. Are there statistically significant differences at (0.05≤α) in the performance of tenth-grade female students in speaking skills tests based on teaching methods (mental stimulation and coordination thinking activities, traditional method)?

2. Are there statistically significant differences at (0.05≤α) in the performance of tenth-grade female students in creative writing skills tests based on teaching methods (mental stimulation and coordination thinking activities, traditional method)?

7. Methodology

7.1. Study Design

This study adopts a quasi-experimental design to examine the effectiveness of an educational program based on mental stimulation and coordinated thinking activities in improving creative writing and speaking skills among tenth-grade female students in Jordan. The quasi-experimental approach is suitable for educational settings where complete randomization is often challenging, yet the researcher seeks to establish causal relationships between the intervention and observed outcomes. The study will employ a pretest–posttest control group design. Two intact tenth-grade classes from a public secondary school in Jordan will be purposively selected and randomly assigned to either the experimental or the control group. The experimental group will receive instruction through a specially designed educational program that integrates mental stimulation exercises and coordinated thinking activities. In contrast, the control group will continue with the regular curriculum prescribed by the Ministry of Education.

7.2. Sample

The study sample of 40 female students was selected according to available sampling from the tenth grade at Princess Basma Secondary School for Girls. The participants were divided into 20 female students in the experimental group, who studied using mental stimulation activities and coordinated thinking, and 20 female students in the control group, who studied using the traditional teaching method.

7.3. Tools

For data collection, the researchers have prepared the following tool:

The speaking skill test

The speaking skills the study sought to improve among the participants were determined based on the tenth-grade Arabic language book, a general framework, and general outcomes specific to the Arabic language curriculum in Jordan (2013). In addition to previous studies, such as Al-Shahbani (2023), which investigated the impact of mentally stimulating activities on speaking skills, this study also measured speaking skills among tenth-grade female students using an experimental approach. The preliminary test consisted of a set of oral questions posed to the tenth-grade female students, with speaking questions that varied to include open discussion, expression, stimulative questions, image analysis, and verbal puzzles.

Validity

The test was presented to 9 professionals in the Arabic language from Jordanian universities, educational supervisors, and Arabic language teachers. Examine the test content and provide opinions and feedback on test stability for the study's target. The professional feedback included some modifications regarding the language formulation. The final version of the test consists of (16) dimensions, covering 6 speaking skills: fluency (3 items), vocal intonation (3 items), language accuracy (2 items), body expressions (2 items), supporting arguments (4 items), and organizing ideas (2 items).

The test was evaluated using a five-point scale: Excellent (5), Very Good (4), Good (3), Acceptable (2), and Weak (1). The test's total score is 80 points.

Construction Validity

The test was administered to 25 tenth-grade female students at Princess Basma Secondary School for Girls. The Pearson correlation coefficient was calculated between the item scores and the total score of the skill dimension. Furthermore, the item score and test total are compared. Findings indicated a statistically significant score above the cutoff mark (0.30), suggesting good test construct validity (Al-Kailani & Al-Sharifin, 2016).

Reliability

The test was administered to (25) tenth-grade female students at Princess Basma Secondary School for Girls. Cronbach's Alpha has been calculated twice within 14-day intervals. Moreover, the correlation coefficient was calculated, and the findings showed that the internal consistency reliability coefficients (Cronbach's Alpha) for the skills dimension ranged from 0.76 to 0.91, and the test's total score was 0.96. At the same time, the test-retest reliability coefficients ranged from 0.76 to 0.88 for the skills dimensions and 0.91 for the test's total score. Based on the above results, the test has a good reliability score (Odah, 2010).

7.4. Procedure

To achieve the goals of the study, the researchers have been following steps such as:

The creative writing skills the study aimed to improve among the participants were determined based on the tenth-grade Arabic language book, the general framework, and the general outcomes specific to the Arabic language curriculum in Jordan (2013). In addition to previous studies such as Salamah, Abu Saud, and Al-Najar (2023), which examined positive thinking and its relationship to creative writing skills, a creative writing test was developed to measure writing skills among tenth-grade female students using an experimental approach. The final form of the test consists of several questions, including an essay question that requires writing a twelve-line text, with questions ranging from writing an imaginary dialogue to expressive writing and reconstructing the ending of a poetic text.

Validity

The test was presented to 9 professionals in the Arabic language from Jordanian universities, educational supervisors, and Arabic language teachers. Examine the test content and provide opinions and feedback on test stability for the study's target. The professional feedback included some modifications regarding the language formulation. The final version of the test consists of (9) dimensions coverage (3) writing skills: fluency (3 items), flexibility (3 items), and Authenticity (3 items). The test was evaluated using a five-point scale: Excellent (5), Very Good (4), Good (3), Acceptable (2), and Weak (1).

Construction Validity

The test was administered to 25 tenth-grade female students at Princess Basma Secondary School for Girls. The Pearson correlation coefficient was calculated between the item scores and the total score of the skill dimension. Furthermore, the item score and test total are compared. Findings indicated a statistically significant score above the cutoff mark (0.30), suggesting good test construct validity (Al-Kailani & Al-Sharifin, 2016).

Reliability

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Pre-tests were conducted for the experimental and control groups' speaking and creative writing tests to ensure equivalence between the groups and to adjust for pre-performance effects. The second step was teaching the experimental group through mental stimulation activities and a coordinated thinking program, and the control group was taught using the traditional teaching method for 9 weeks (from 2 February 2025 to April 2025), with two sessions per week. Finally, the exams have been reviewed, tabulated, and entered into the Statistical Package for Social Science software to analyze and answer the study questions.

Equivalence of the Study Groups

The equivalence of the study groups (experimental and control) was tested pre-performance on creative speaking and writing skills using an independent-samples t-test, as shown in Table 1.

Table 1. The Equivalence of the Study Groups (Experimental and Control)

Dependent variable	Group	Mean	SD	t	df	Sig
Fluency	Control	7.30	1.92	-1.068	38	.292
	Experimental	7.90	1.61			
Vocal intonation	Control	7.80	2.39	-.461	38	.648
	Experimental	8.10	1.65			
Language accuracy	Control	4.30	1.49	.894	38	.377
	Experimental	3.90	1.33			
Body language	Control	4.85	1.56	-.502	38	.619
	Experimental	5.10	1.58			
Indication	Control	8.60	1.60	.170	38	.866
	Experimental	8.50	2.09			
Ideas Organizing	Control	4.65	1.42	-.312	38	.757
	Experimental	4.80	1.60			
Total score	Control	37.50	4.63	-.467	38	.643
(speaking)	Experimental	38.30	6.10			
Fluency	Control	6.50	1.57	-.652	38	.518
	Experimental	6.85	1.81			
Flexibility	Control	6.25	1.86	.717	38	.478
	Experimental	5.85	1.66			
Authenticity	Control	5.35	1.92	-.255	38	.800

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	Experimental	5.50	1.79			
Total score	Control	18.10	4.12	-.081	38	.936
(writing)	Experimental	18.20	3.69			

Table 1 shows no statistically significant difference in the mean scores of the two groups for creative writing and speaking skills, indicating statistical equivalence between the groups.

7.5. Data Analysis

SPSS version 25 was used to analyze the results of the study. Means and standard deviations for the control and experimental groups at pre-test and post-test, along with adjusted means, standard deviations, and standard errors, have been calculated using One-way ANCOVA.

8. Results

Question 1: Are there statistically significant differences at (0.05≤α) in the performance of tenth-grade female students in speaking skills tests based on teaching methods (mental stimulation and coordination thinking activities, traditional method)?

To answer the question, means and standard deviation for pre-test and post-test of speaking skills based on one teaching strategy method (Mental stimulation activities and coordinated thinking, and the traditional way as presented in Table 2:

Table 2. Means and Standard Deviation for Pre-Test and Post-Test of Speaking Skills Based on One Teaching Strategy Method.

Speaking skills	maximum degree	Group	Pre-test		Post-test	
			Mean	SD	Mean	SD
Fluency	15	Control	7.30	1.92	8.20	1.00
		Experimental	7.90	1.61	10.00	2.24
		Total	7.60	1.78	9.10	1.94
Vocal intonation	15	Control	7.80	2.39	8.45	1.90
		Experimental	8.10	1.65	10.30	2.17
		Total	7.95	2.03	9.37	2.22
Language accuracy	10	Control	4.30	1.49	4.75	1.06
		Experimental	3.90	1.33	6.95	1.31
		Total	4.10	1.41	5.85	1.62
Body language	10	Control	4.85	1.56	5.15	1.69
		Experimental	5.10	1.58	7.15	.87
		Total	4.97	1.56	6.15	1.67
Indication	20	Control	8.60	1.60	10.45	1.31
		Experimental	8.50	2.09	14.30	1.94

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		Total	8.55	1.83	12.37	2.54
Ideas Organizing	20	Control	4.65	1.42	5.45	2.13
		Experimental	4.80	1.60	7.00	1.48
		Total	4.72	1.50	6.22	1.98

Table 2 showed apparent differences in the mean scores of the experimental and control groups' post-performance speaking skills, according to the teaching method variable, in favor of the experimental group. The highest score for the experimental group was 14.30 in indication skill, while the lowest was 7.0 in idea organization skill. In the control group, the highest score was 10.45 for indication skill, whereas the lowest was 4.75 for language accuracy.

To find out the statistical significance of post-test apparent differences in the dimension of speaking skills based on one teaching method variable, a one-way MANOVA has been calculated as illustrated in Table 3:

Table 3. Results of ONE-WAY MANOVA

Variation Source	Hotelling's Trace	Skills	Sum of squares	df	Mean square	F	Sig	η^2
Pre-Fluency		Fluency	3.912	1	3.912	1.398	.246	.042
Pre-Vocal intonation		Vocal intonation	5.951	1	5.951	1.720	.199	.051
Pre-Language accuracy		Language accuracy	6.766	1	6.766	5.126	.030	.138
Pre-Body language		Body language	.003	1	.003	.001	.970	.000
Pre-Indication		Indication	7.846	1	7.846	2.988	.094	.085
Pre-Ideas organization		Ideas organization	.287	1	.287	.114	.738	.004
Teaching method	F = 13.53	Fluency	35.627	1	35.627	12.728	.001	.285
	Sig = 0.00	Vocal intonation	25.442	1	25.442	7.353	.011	.187
		Language accuracy	51.163	1	51.163	38.766	.000	.548
		Body language	31.965	1	31.965	17.286	.000	.351
		Indication	124.310	1	124.310	47.338	.000	.597
		Ideas organization	23.065	1	23.065	9.153	.005	.222
Error		Fluency	89.572	32	2.799			

Variation Source	Hotelling's Trace	Skills	Sum of squares	df	Mean square	F	Sig	η^2
		Vocal intonation	110.724	32	3.460			
		Language accuracy	42.234	32	1.320			
		Body language	59.173	32	1.849			
		Indication	84.033	32	2.626			
		Ideas organization	80.641	32	2.520			
Corrected		Fluency	147.600	39				
		Vocal intonation	193.375	39				
		Language accuracy	103.100	39				
		Body language	109.100	39				
		Indication	253.375	39				
		Ideas organization	152.975	39				

Table 3 indicates statistically significant differences in the mean score in speaking skills of the experimental and control groups in favor of the experimental group; in order to compare the mean performance of the experimental and control group on the speaking skills dimension, the adjusted means, standard deviations, and standard errors were calculated based on the teaching method before and after controlling the pre-variances. As shown in the following table 4:

Table 4. Adjusted Means, Standard Deviations, and Standard Errors Based on the Teaching Method Before and After Controlling for the Pre-Variances.

Speaking skills	Group	Before - correct		After – correct	
		Mean	SD	Mean	Sd. error
Fluency	Control	8.20	1.00	8.11	.38
	Experimental	10.00	2.24	10.08	.38
Vocal intonation	Control	8.45	1.90	8.54	.42
	Experimental	10.30	2.17	10.20	.42
Language accuracy	Control	4.75	1.06	4.67	.26
	Experimental	6.95	1.31	7.02	.26
Body language	Control	5.15	1.69	5.21	.31

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	Experimental	7.15	.87	7.08	.31
Indication	Control	10.45	1.31	10.53	.37
	Experimental	14.30	1.94	14.21	.37
Ideas organization	Control	5.45	2.13	5.43	.36
	Experimental	7.00	1.48	7.01	.36

Table 4 presents differences in the performance of the experimental and control groups on the speaking skills dimension, favoring the experimental group. Consequently, it has a statistically significant effect on Arabic-speaking skills among tenth-grade female students.

Question 2: Are there statistically significant differences at 0.05≤α in the performance of tenth-grade female students in creative writing skills tests based on teaching methods (mental stimulation and coordination thinking activities, traditional method)?

To answer the question, means and standard deviation for pre-test and post-test of writing skills based on one teaching strategy method (Mental stimulation activities and coordinated thinking, and the traditional way as presented in table 5:

Table 5. Means and Standard Deviation for Pre-Test and Post-Test of Writing Skills Based on One Teaching Strategy Method.

Speaking skills	maximum degree	Group	Pre-test		Post-test	
			Mean	SD	Mean	SD
Fluency	15	Control	6.50	1.57	7.85	1.18
		Experimental	6.85	1.81	9.85	1.30
		Total	6.67	1.68	8.85	1.59
Flexibility	15	Control	6.25	1.86	8.15	1.81
		Experimental	5.85	1.66	10.00	1.37
		Total	6.05	1.75	9.07	1.84
Authenticity	15	Control	5.35	1.92	7.30	1.41
		Experimental	5.50	1.79	10.40	1.27
		Total	5.42	1.83	8.85	2.05

Table 5 indicates apparent differences in the mean scores of the experimental and control groups' post-performance writing skills, based on the teaching method variable, in favor of the experimental group. The highest score for the experimental group was 10.40 in authenticity indication skill, while the lowest was 9.85 in flexibility skill. Related to the control group, the highest score was 8.15 in flexibility skills, and the lowest was 47.30 in Authenticity. To find out the statistical significance of post-test apparent differences in the dimension of writing skills based on one teaching method variable, a one-way MANOVA has been calculated as illustrated in Table 6:

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Table 6. Results of ONE-WAY MANOVA

Variation Source	Hotelling's Trace	Skills	Sum of squares	df	Mean square	F	Sig	η^2
Pre-Fluency		Fluency	3.482	1	3.482	2.461	.126	.066
Pre- Flexibility		Flexibility	5.471	1	5.471	2.135	.153	.057
Pre- Authenticity		Authenticity	.157	1	.157	.086	.771	.002
Teaching method	F=30.462 Sig = 0-00	Fluency	37.830	1	37.830	26.733	.000	.433
		Flexibility	28.979	1	28.979	11.310	.002	.244
		Authenticity	99.221	1	99.221	54.635	.000	.610
Error		Fluency	49.530	35	1.415			
		Flexibility	89.679	35	2.562			
		Authenticity	63.563	35	1.816			
Correct		Fluency	99.100	39				
		Flexibility	132.775	39				
		Authenticity	165.100	39				

Table 6 indicates statistically significant differences in the mean score in writing skills of the experimental and control groups in favor of the experimental group; in order to compare the mean performance of the experimental and control groups on the writing skills dimension, the adjusted means, standard deviations, and standard errors were calculated based on the teaching method before and after controlling for the pre-variances. As presented in the following table 7:

Table 7. Adjusted Means, Standard Deviations, and Standard Errors Based on the Teaching Method Before and After Controlling for the Pre-Variances.

Speaking skills	Group	Before - correct		After – correct	
		Mean	SD	Mean	Sd. error
Fluency	Control	7.85	1.18	7.85	.26
	Experimental	9.85	1.30	9.84	.26
Flexibility	Control	8.15	1.81	8.20	.36
	Experimental	10.00	1.37	9.94	.36
Authenticity	Control	7.30	1.41	7.23	.30
	Experimental	10.40	1.27	10.46	.30

Table 7 presents differences in the performance of the experimental and control groups on the dimension of creative writing skills, favoring the experimental group. Consequently, it has a statistically significant effect on improving creative writing skills in the Arabic language among tenth-grade female students.

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9. Discussion

This study examined the effectiveness of an educational program based on mental stimulation. It coordinated thinking activities to enhance creative writing and speaking skills among tenth-grade female students in Jordan. This study's findings provide compelling evidence of the transformative power of a mental-stimulation and coordinated-thinking, activity-based educational program on tenth-grade female students' ability to speak and write creatively in Jordan. The results strongly indicate that students' oral and written communication skills can be considerably enhanced by using novel strategies that promote participation and intellectual challenge, compared with traditional teaching. The study indicates that mental stimulation activities support learners in thinking critically, creatively, and collaboratively as they move beyond mechanical memorization into more robust forms of understanding and expressing their ideas. Analyzing, organizing, and reframing ideas through engaging tasks enabled learners to speak more coherently, persuasively, and imaginatively. These learners also had a chance to use body language, intonation, and fluency, demonstrating not only functional communication but also assurance and presence in their verbal interactions. It represents a substantial advancement over teaching that fostered limited expressive options, restricted to rote memorization of information rather than creativity and communication.

Likewise, the program's coordinated thinking phase supported students' ability to structure their ideas in an orderly manner, a skill critical to creative writing. Instead of producing disconnected or repetitive writing pieces, students who trained with this program demonstrated originality, fluency, and flexibility. They were increasingly able to develop ideas, select appropriate words and expressions, and order their stories in a creative, logical way. It suggests that when students are trained to connect and synthesize ideas systematically, they learn the precision of language and correctness, and, more importantly, expand the domain of imaginative and aesthetic expression. The findings demonstrate that mental stimulation exercises activate the cognitive process that creativity utilizes, while coordinated thinking gives the structure to channel those ideas into effective communication. The findings are important because they align with broader educational aims in Jordan and, I expect, elsewhere. The Jordanian educational system has been criticized for emphasizing rote learning rather than creative thinking and practical skills. A combination of mental stimulation and coordinated thinking (as exemplified by this study) proposes a model that specifically addresses the shortcomings of the educational system. It prepares students with language skills and enables them to rely on one another for socially supported language learning, leading them to become more confident and comfortable, and adept at negotiating real-world situations that may demand innovative and adaptable responses.

The development of the experimental group indicates that students respond positively to programs that respect their individuality and encourage them to take risks by sharing ideas openly rather than being confined to a rigidly structured world of memorization. This study aligns with previous studies that have articulated constructs of interactive learning, group dialogue, and cognitive strategies for developing communication and creativity. However, this study takes it a step further by fusing stimulating the mind with thinking together into one cohesive educational framework, considering cognitive and organizational aspects of learning. This combination potentiated creativity while assuring planning was organized, logical, and meaningful.

Ultimately, the research reinforces that engaging, student-centered practices can transform language education. By developing both the imaginative and structural aspects of expression, this program engenders students' confidence, creativity, and communicative competence. It is a strong argument for moving away from conventional methods toward a path that engages the learner's mind, challenges their creativity, and ultimately allows students to express their authentic and meaningful selves. These findings also have important implications for curriculum developers, educators, and educational officials, providing direction for producing a generation of communicatively competent students capable of creative thinking. These findings are consistent with previous research. Al-Kailani and Al-Sharifin (2016) reported that educational interventions emphasizing active thinking strategies produce high effect sizes, supporting the robustness of the current results. Similarly, Abu Saud (2023) found that coordinated thinking activities significantly enhanced students' organizational abilities, clarity of expression, and speaking confidence, findings that parallel those observed in this study. In addition, Harris and Graham (2018) highlighted that using cognitive strategies facilitated the production of higher-quality creative texts, aligning with the current study's evidence that mental stimulation strategies foster originality, fluency, and creativity in writing. However, while the present findings largely align with existing literature, they extend prior work by providing empirical evidence from the Jordanian educational context, specifically among tenth-grade female students. Unlike earlier studies that often generalized across broader populations, this research demonstrates the targeted effectiveness of mental stimulation and coordinated thinking strategies in improving Arabic language learning outcomes in secondary school settings. Thus, the study contributes to the broader academic dialogue by showing how culturally relevant and gender-specific interventions can enhance linguistic and creative competencies in Arab educational contexts.

10. Conclusion

This research showed that an educational program designed to promote mental stimulation and structured thinking improved the creative writing and speaking scores of tenth-grade female students in Jordan. It demonstrated a statistically significant difference in scores among students taught through this program compared to those taught through standard methods, with several improvements in fluency, organization, originality, and expressive abilities. These findings also confirmed that when mental stimulation enhances structured thinking, it allows students to stop engaging in basic language memorization and instead pursue something purposeful, active, and creative, even in written expression; communication was meaningful. It reinforces the need to employ innovative strategies aligned with students' developmental and pedagogical learning needs. While higher-order thinking was fostered, collaboration was also stimulated, and combining these elements encouraged student creativity and confidence in their ability to express themselves. The results support earlier research stating that interactive thought and activity can foster increased language competence and creativity.

11. Limitations and Suggestions for Future Studies

The current study, despite the benefits, is not without limitations. The most apparent limitation is the sample size and the restriction to one school in the Eastern Badia District, which means the findings cannot be easily generalized to other schools, grade levels, or male students. Since available sampling was used, which may introduce selection bias and lessen the representativeness of the participants, this contributes to the limitation. The study was also completed over a relatively short period—only 9 weeks—which may limit the ability to thoroughly evaluate the program's long-term effects. Relying solely on tests created by the researchers, even if they are validated, may yield limited assessment measures and introduce researcher bias. More specifically, only female tenth-grade students were researched, and any gender or developmental differences were ignored. Future research should also address these issues by using more participants, random sampling, and a more diverse sample across multiple schools and locations to increase external validity. It would also be helpful to complete longitudinal studies to examine if the program's effects are sustained over time. Through a controlled research design, quantitative methods will help with the external validity of pathways between variables. However, qualitative methods, such as classroom observations and student interviews, would add important insights into the process and learning experiences that led to increased creative skills.

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Declarations

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References

Abdul Rahman, S. (2021). Oral and Written Expression Skills in Light of Educational Developments. *Educational Journal, 33*(2), 45–63.

Abu Saud, R. (2023). The effectiveness of educational activities based on coordinated thinking improves speaking skills among Jordan's high school students. *Jordanian Journal of Educational Sciences, 19*(1), 88–102.

Al-Hawari, A. (2020). The reasons for students' weakness in Arabic language skills in light of the results of the national test for the year 2019 and ways to address them, *Journal of Arts, Humanities, and Social Sciences,* (61), 226–226.

Al-Hourani, R. M., Atoum, K. A., & Al-Khawalda, M. F. (2022). The effect of an educational program based on the Mayer and Salovey model on improving creative writing skills among seventh-grade female students and their attitudes towards it. *Series of Humanities and Social Sciences, Mu'tah University, 37*, 93–163.

Al-Juhani, A. R. (2021). A proposed teaching model based on semantic fields theory to develop creative writing skills among Arabic language learners. *Educational Journal Faculty of Education - Sohag University, 89*, 491–530.

Al-Kailani, A. A & Al-Sharifin, N. (2016). *An Introduction to Research in Educational and Social Sciences (Fifth Edition)*. Dar Al-Masira for Publishing and Distribution.

Al-Khasawneh, R. (2008). *Foundations of teaching creative writing*. Jadara for the World of Books and Modern Books.

Al-Nuaimi, A. (2017). The effect of brainstorming strategies on the development of creative writing skills among secondary school students in Jordan. *Journal of Educational and Psychological Studies, 34,* 115-140.

Al-Rifa'i, T. (2018). *Principles of Creative Writing for Short Stories and Novels*. Dar Al-Salasil Publications.

Al-Shahbani, A. (2023). The impact of mental motivational activities on speaking skills among high school students in Palestine. *Palestinian Journal of Educational Sciences, 10*(4), 55–70.

Al-Shahrani, A. (2020). *Mental motivation Journal and the development of cognitive abilities: A practical guide*, Training Studies Center.

Al-Zughbi, A. M. (2019). *Developing creative thinking skills in school education*. Dar Al-Fikr.

Ashour, R., & Al-Hawamda, M. (2009). The effect of a mind-mapping strategy on the development of creative writing skills among basic education students in Jordan. Journal of Studies: *Educational Sciences, 36*(1), 95–112.

Ashour, R. (2015). The effect of problem-solving strategies on improving creative reading and writing skills among seventh-grade female students in Jordan. *Journal of Al-Quds Open University for Research and Educational and Psychological Studies, 3*(11), 153–186.

Badran, A. (2020). The Effectiveness of Interactive Activities in Improving Speaking Skills Among Students. *Educational Thought Journal, 1*(1), 75–90.

Bartlett, G. (2001). *Systemic thinking: A simple thinking technique for gaining systemic focus*. Presented at the International Conference on Thinking “Breakthroughs 2001.”

Harris, K. R., & Graham, S. (2018). Self-regulated strategy development revisited: Teaching writing strategies to struggling writers. *Theory Into Practice, 57*(1), 56–65.

National Center for Curriculum Development. (2023). *Arabic is my Language:* Student Book, Tenth Grade, Second Semester.

Odah, A. (2010). *Measurement and Evaluation in the Educational Process*. Dar Al-Amal.

Rai, H. (2024). The role of cooperative learning in developing speaking skills among secondary school students. *Gipan, 6*(1), 71–79.

Salamah, A., Abu Saud, M., & Al-Najar, M. (2023). Positive thinking and its relationship with creative writing skills among talented primary school students. *Journal of Educational Studies, 38*, 721–740.

Ta'imeh, R. (2009*). Teaching Arabic Language Skills*. Dar Alfekr Alarabi.

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