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THE EFFECT OF USING A EXPERIMENTAL EDUCATION STRATEGY ON THE ACHIEVEMENT AND DEVELOPMENT OF THINKING SKILLS STUDENTS

Abstract: The current study aimed to investigate the impact of the distinguished education strategy on academic achievement and the development of thinking skills among fourth-grade literary students. To achieve the objective of the study, the researcher prepared a distinguished education strategy for selected topics from the Kurdish language book to be taught to fourth-grade literary students for the academic year 2020/2021. The research sample consisted of (60) female students from the fourth-grade literary students in an independent administration Soran, randomly distributed into two groups, one experimental by (30) female students and the other by (30) female. The study was conducted in the first half of the month November 2021. It was agreed with the school administration and teachers to allocate two classes per week for each of the two groups. In addition, the researcher prepared an objective achievement test consisting of (25) items, characterized by honesty, consistency, comprehensiveness and testing of thinking skills and has been applied to the two tests. As a pre-test and reused as a post-test, the equivalence of the two groups was ensured. After its completion, the achievement post-test and the post-test were applied to thinking skills. The results showed a statistically significant difference at the level of (0.05) between the arithmetic averages of the application marks for the experimental and control study groups on the post-achievement test attributed to the teaching method. Furthermore, the results showed a statistically significant difference at the level of (0.05) between the arithmetic averages of the marks of the requests of the experimental and control study groups on the post-thinking skills test for the benefit of the experimental group.

Keywords: outstanding learning; thinking skills.

INTRODUCTION

The beginning of the twenty-first century witnessed rapid developments, reflected in the education system's role, philosophy, policy, curricula and methods (Gayle, Tewarie et al., 2011). Among the most prominent of these developments are the amazing progress in all fields of language and technology and the emergence of the information age and globalization (Soma, Termeer et al., 2016). This forced workers in education to renew and develop the educational system to keep pace with modern developments, coexist with them and invest in them. Language is a social phenomenon produced by human evolution and by which God distinguished man from the rest of beings (Amadasun, 2021). Language has accompanied man in evolution and urbanization and helped him by providing effective tools for progress and development (Hiremath, Balachandra et al., 2013). Those interested in language teaching believe that understanding language can only be achieved if language teaching is reflected as a subject and method (Kabilan, 2007).

Moreover, the development of the curricula is largely focused on teaching methods, which translate the objectives of language teaching as they consolidate the content in the hearts of students, and that teaching methods are the real means of communication directed to learning, whether these methods are directed to knowledge, performance, or direction (Savignon 2008). Teaching methods are an essential pillar complementary to the three pillars in the teaching process, as they adopt a limited strategy to accomplish an educational situation within a particular subject, and the strategy here means the path leading to the goal where learners can perceive, understand and apply the content of the lesson material (Motola, Devine et al., 2013). Teachers who use differentiated learning strategically plan teaching that prepares them to reach the needs of students in the classroom to achieve the targeted standards (Schleicher, 2012). The importance of the study: Language is a human social phenomenon, a complex compound that touches a different branch of the human known, and the daily use of language is not a predominance of repetition of previously heard speech, as much as it is a renewed use of what the individual enjoys from linguistic writing and creative ability, and creative linguistic thinking is the production of an indefinite number of permanently defined sentences as it is at the same time the ability to understand them. Despite the importance of language in general and its teaching in the light of differentiated education, and the importance of thinking skills in middle school in particular, as speaking thinking is one of the most important colours of language activity for adults and children alike, they use thinking and writing more than speaking in academic life, and despite the importance of thinking skills, the researcher touched through her personal and field experience in the field of teaching, where the teacher works in the middle school the weakness of the students in Reflection, due to several factors (Bender, 2008). Hence the idea of using differentiated education as one of the new and diverse methods in teaching branches of literature and language texts and revealing their impact on student achievement and developing thinking in language concepts and linguistic applications and on this. The current research aims to: Knows the effect of using differentiated learning on academic and cognitive achievement among students of the fourth grade of literature in the Kurdish language. In addition, it

knows the effect of using differentiated education in developing thinking among fourth-grade literary students in the Kurdish language.

METHODOLOGY

The experimental design of the current study includes the system of two groups; the first is the experimental group, and the second is the control group, considering the pre-measurement and the post-measurement of the performance of the students of the two groups concerning the dependent variable in the current study. Because it is more suitable for study procedures, as shown in Table (1).

Table 1: The experimental design

Groups	Independent variants	Dependent variable
Experimental	Differentiated Education Strategy	Achievement and Reflection
Control	Traditional way	achievement and Reflection

Population and sample of the study: In light of the experimental design, the study group was randomly selected from among the middle school schools in the administration of Soran New Educational in 2021-2022 AD, and a government school was chosen: Shammam Preparatory School for Girls. The total sample size was (60) female students by thirty for each of the two study groups shown in the experimental design. The first is taught according to the differentiated education strategy, and the second is taught traditionally. After the researcher excluded the failed students from the two groups and their number (8) students because they studied the same material and the survival of their data is a defect in the results, as shown in Table (2).

Table 2: The number of students in the two research groups

Class	groups	Number of students before exclusion	Number of excluded students	Number of students after exclusion
A	Experimental	35	5	30
B	Control	33	3	30
Total		68	8	60

Stability of the Thinking Skills Test: To calculate the stability of the test, it was applied to a sample size of 60 students. We can explain the stability coefficient of the test, and the following Table shows the stability:

Table 3: Scale stability coefficient

Thinking test	Retest method
Stability coefficient	0.96

By analyzing the statistical value in the previous Table, the stability coefficient of the test is high, which indicates that the test has high stability and stability.

Table 4: Pre-application in both the experimental group and the control group to test the thinking skills as a whole

Audition	Tribal Application	No.	Mean	Sd.	Degree of freedom	Calculated value (T)	Sig.
Thinking as whole	Experimental	30	11.20	2.86	58	0.21	No. sig.
	Control	30	11.03	3.03			

It is clear from the previous Table that there are no statistically significant differences between the average scores of the experimental group students and the control group students in the pre-application of the test as a whole because the probability value of the test (T), whose value is (0.828), is greater than the significance level (0.05), which indicates that there are no statistically significant differences, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (11.20), is close to the arithmetic mean of the control group, whose value is equal to (11.03).

Table 5: Pre-application in both the experimental group and the control group of the achievement test

audition	Tribal Application	No.	mean	Sd.	Degree of freedom	Calculated value(T)	Sig.
Collection	Experimental	30	49.93	10.14	58	0.25	No. Sig.
	Control	30	50.63	11.36			

It is clear from the previous Table that there are no statistically significant differences between the average scores of the experimental group students and the control group students in the pre-application in the test achievement because the probability value of the test (T), whose value is (0.802), is greater than the significance level (0.05), which indicates that there are no statistically significant differences, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (49.93), is close to the arithmetic mean of the control group, whose value is equal to (50.63).

RESULTS AND DISCUSSION OF THE STUDY

There are statistically significant differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the post-application in the cognitive achievement test because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (90.34), is greater than the arithmetic mean of the control group, whose value is equal to (51.44).

Table 6: Dimensional application in both the experimental group and the control group of the cognitive achievement test

Audition	Tribal Application	No.	mean	Sd.	Degree of freedom	Calculated value(T)	Sig.
Cognitive attainment	Experimental	30	90.34	9.22	58	15.57	0.01
	Control	30	51.44	10.10			

There were statistically significant differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the post-application in each of the skills of the thinking skills test because the probability value of the test (T) is less than the level of significance (0.01) and this

indicates that there are statistically significant differences in favour of the experimental group students. Therefore, the following are the results of each skill of the writing skills test separately.

Table 7: Dimensional application in both the experimental group and the control group test cognitive achievement in each of the writing skills

Test	Groups	No.	Mean	Sd	Degree of freedom	T-value	Sig.
Essay Writing Skill	Experimental	30	20.43	2.28	58	8.40	0.01
	Control	30	12.93	3.47			
Story Writing Skill	Experimental	30	23.37	1.75	58	12.54	0.01
	Control	30	13.28	3.02			
Memoir Writing Skill	Experimental	30	22.31	10.16	58	12.50	0.01
	Control	30	12.49	11.36			
Latter Writing Skill	Experimental	30	24.19	3.51	58	17.95	0.01
	Control	30	12.73	2.54			

1. Essay Writing Skill: There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the degrees of the control group students in the dimensional application of the skill of writing the article because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (20.43), is greater than the arithmetic mean of the control group, whose value is equal to (12.93)

2. Skill Writing Story: here are statistical differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application in the skill of writing the story because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (23.37), is greater than the arithmetic mean of the control group, whose value is equal to (13.28).

3. Skill Writing Memos: There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application in the skill of writing the story because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (22.31), is greater than the arithmetic average of the control group, whose value is equal to (12.49).

4. Letter Writing Skill: There are statistically significant differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application in the skill of writing the message because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (24.19), is greater than the arithmetic mean of the control group, whose value is equal to (12.73).

Table 8: Post-application in both the experimental group and the control group test the thinking skills tirelessly

Audition	Tribal Application	No.	mean	Sd.	Degree of freedom	Calculated value (T)	Sig.
Thinking as a whole	Experimental	30	20.94	1.86	58	15.12	0.01
	Control	30	11.21	2.86			

There are statistically significant differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the post-application in the achievement test because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (20.94), is greater than the arithmetic mean of the control group, whose value is equal to (11.21).

Table 9: Dimensional application in both the experimental group and the control group to test each of the thinking skills

Test	Groups	No.	Mean	Sd	Degree of freedom	T-value	Sig.
Skill thinking facts	Experimental	30	3.93	0.25	58	13.51	0.01
	Control	30	2.53	0.50			
Emotional thinking skill	Experimental	30	3.73	0.44	58	10.51	0.01
	Control	30	2.30	0.59			
Negative thinking skill	Experimental	30	3.66	0.4	58	9.33	0.01
	Control	30	2.20	0.1			
Positive thinking skill	Experimental	30	3.66	0.4	58	10.41	0.01
	Control	30	2.06	0.69			
Creative thinking skill	Experimental	30	2.90	0.48	58	17.31	0.01
	Control	30	1.10	0.30			
Decision making skill	Experimental	30	3.06	0.52	58	12.60	0.01
	Control	30	1.26	0.58			

There are statistically significant differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application of each skill of the thinking skills test because the probability value of the test (T) is less than the level of significance (0.01) and this indicates that there are statistically significant differences in favour of the experimental group students. Therefore, the following are the results of each thinking skill test skill separately.

1. **The skill of thinking about facts:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application in the skill of thinking about the facts neutrally and objectively because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (3.93), is greater than the arithmetic mean of the control group, whose value is equal to (2.53).

2. **Emotional thinking skill:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the scores of the control group students in the dimensional application of the skill of emotional thinking because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (3.73), is greater than the arithmetic mean of the control group, whose value is equal to (2.30).

3. **Negative Thinking Skill:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students. The degrees of the control group students in the dimensional application in the thinking skill is negative because the probability value of the test (T) is less than the significance level (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (3.66), is greater than the arithmetic mean of the control group, whose value is equal to (2.20).

4. **Positive thinking skill:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the degrees of the control group students in the dimensional application of the positive thinking skill because the probability value of the test (T) is less than the significance level (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (3.66), is greater than the arithmetic mean of the control group, whose value is equal to (2.06).

5. **Creative Thinking Skill:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the degrees of the control group students in the dimensional application of the skill of creative thinking because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in

favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (2.90), is greater than the arithmetic mean of the control group, whose value is equal to (1.10).

6. **Decision-Making Skill:** There are statistical differences at the level of (0.01) between the average scores of the experimental group students and the degrees of the control group students in the dimensional application of the decision-making skill because the probability value of the test (T) is less than the level of significance (0.01), which indicates that there are statistically significant differences in favour of the experimental group, as the results of the previous Table showed that the arithmetic mean of the experimental group, whose value is equal to (3.06), is greater than the arithmetic mean of the control group, whose value is equal to (1.26).

7. **Interpretation of the achievement test result:** In light of the results presented, the researcher believes that the reason for the superiority of the students of the experimental group who study literature and texts using the strategy of "differentiated education" over the students of the control group who study literature and texts in the traditional way of achievement is due to the following reasons: Adopting the "differentiated education" strategy made students the focus of the educational process (Krishan and Al-rsa'i, 2023). It allowed them to express their opinions without hesitation or fear, reflecting their achievement positively (Park, 2017). The use of these strategies in teaching created positive attitudes towards following and respecting the opinion of others, which encouraged students to participate in the analysis of literary texts, in addition to the desire to accelerate the speed of memorization and thus increase achievement (Schmoker, 2018).

2- **Interpretation of the result of the thinking test:** In light of the results that have been presented, the researcher sees the reason for the superiority of the experimental group students who study with the strategy of "differentiated education" (Kang and Kang, 2022) over the control group students who study traditionally due to the following reasons: The strategy of "differentiated education" draws students' attention to the lesson through questions that develop the higher mental processes of conclusion, analysis and summarization and ultimately lead to the contemplation of deep meanings and assimilation and then influenced by literary images (Gordon, 2006). Teaching with the "differentiated education" strategy created a sense of satisfaction among students during the lesson, which affected their achievement and thinking (Singh, 2014). This strategy created collective competition among the students, and they liked it, which increased the level.

CONCLUSIONS.

The strategy of differentiated education has proven effective within limits conducted by the current research to increase students' achievement with the fourth-grade literary balance with the usual teaching method. Applying the differentiated education strategy helped arouse the motivation of students who must participate in the lesson activities, which generated their desire towards the subjects of the Kurdish language. The teaching using the differentiated education strategy is consistent with the objectives of teaching the Kurdish language flexibly, wherein organizing the content of learning and giving the learner students a positive role in the educational process, they

observe, understand, deduce and practice different thinking processes. Hence, their role is no longer limited to receiving and listening.

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ВПЛИВ ВИКОРИСТАННЯ ЕКСПЕРИМЕНТАЛЬНОЇ СТРАТЕГІЇ НАВЧАННЯ НА ДОСЯГНЕННЯ ТА РОЗВИТОК НАВИЧОК МИСЛЕННЯ УЧНІВ

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Анотація. Сучасне дослідження було спрямоване на вивчення впливу експериментальної освітньої стратегії на академічну успішність і розвиток навиків мислення учнів четвертого класу літературного навчання. Для досягнення мети дослідження було розроблено освітню стратегію за вибраними темами з навчального посібника з курдської мови, яка викладалася учням літературних класів у 2020/2021 навчальному році. Вибірка досліджених складала 60 учнів четвертого класу у Сорані, які були випадковим чином розподілені на дві групи: одну експериментальну, що складається з 30 хлопчиків, а інша - із 30 дівчат. Дослідження проводилося в першій половині місяця листопада 2021 року. З адміністрацією школи та вчителями було погоджено виділення двох зайнять на тиждень для кожної з двох груп. Крім того, дослідник розробив тест для оцінки досягнень, що складається з 25 питань, які характеризуються чесністю, послідовністю, всесторонністю та перевіркою навиків мислення, і був застосований до двох груп. У ході проведення попереднього і повторного тесту було забезпечено еквівалентність двох груп. Після його завершення було оцінено навички критичного мислення під час пост-тестування. Результати показали статистично значущу різницю на рівні (0,05) між середніми арифметичними оцінками застосування для експериментальної та контрольної груп навчання за результатами тесту, пов'язаного з методикою навчання. Крім того, результати показали статистично значущу різницю на рівні (0,05) між середніми арифметичними оцінками запитів експериментальної та контрольної досліджуваних груп за тестом навичок постмислення на користь експериментальної групи.

Ключові слова: відмінне навчання; навички мислення.

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