

Effect of the RAFT strategy on the achievement of fourth grade students in chemistry

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Abstract:

The research aims to identify the impact of a strategy RAFT in the achievement of fourth -grade students in science material Chemistry For the purpose of verifying the aim of the research, the researcher put the following zero hypothesis : There is no statistically significant difference At the level of significance (0.05) between the mean scores of the students of the experimental group who studied together according to strategy _ RAFT And the average scores of the students of the control group who studied according to the usual method in the collection of chemistry. The researcher chose the experimental design with tight control (an experimental group and a control group) with a post-test for the test For collection , the researcher chose Research sample of students (Al-Nasr Secondary School for Boys) the fourth scientific grade in the department Al-Rifai breeding affiliated to the General Directorate of Dhi Qar Education in a random manner, amounting to (60) demanded, and I was rewarded The two groups are in T variables (Chronological age in months, grades of previous achievement in chemistry for the first course, and the successful intelligence test), then the data was analyzed using the statistical bag program in data processing SPSS ‘and an achievement test consisting of (40) objective items of multiple choice type was prepared . Verifying its apparent validity by presenting it to a group of arbitrators and specialists in the methods of teaching science and chemistry ‘ as well as verifying the validity of the content through the conformity of the test to the content and the agreement of the arbitrators , and the discriminatory power was calculated And the coefficient of difficulty and ease and the effectiveness of wrong alternatives for each of the items of the test prepared using the appropriate equations For each of them , the stability of the test was found using the Kweder- Richardson-20 method, and it reached (0.80).The result of the research showed that there is an effect of the strategy RAFT in the achievement of fourth- grade students in chemistry in favor of the experimental group, and in the light of the research results, the current study reached some conclusions and put a number of Recommendations and suggestions.

key words :RAFT strategy ,achievement

أثر استراتيجية RAFT في تحصيل طلاب الصف الرابع العلمي في مادة الكيمياء
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المستخلص:

يهدف البحث التعرف على أثر استراتيجية RAFT في تحصيل طلاب الصف الرابع العلمي في مادة الكيمياء ولغرض التحقق من هدف البحث وضع الباحث الفرضية الصفرية الآتية: لا يوجد فرق ذو دلالة إحصائية عند مستوى دلالة (0.05) بين متوسط درجات طلاب المجموعة التجريبية الذين درسوا على وفق استراتيجية RAFT ومتوسط درجات طلاب المجموعة الضابطة الذين درسوا على وفق الطريقة الاعتيادية في تحصيل مادة الكيمياء. وقد اختار الباحث التصميم التجريبي ذا الضبط المحكم (مجموعة تجريبية ومجموعة ضابطة) ذات الاختبار البعدي للاختبار للتحويل، واختار الباحث عينة البحث من طلاب (ثانوية النصر للبنين) الصف الرابع العلمي في قسم تربية الرفاعي التابعة للمديرية العامة لتربية ذي قار بطريقة عشوائية، وبلغت (60) طالب، وكوفئت المجموعتان في متغيرات (العمر الزمني بالأشهر، ودرجات التحصيل السابق في مادة الكيمياء للكورس الاول، واختبار الذكاء الناجح)، ثم حلت البيانات بالاستعانة ببرنامج الحقيبة الاحصائية في معالجة البيانات SPSS ، وتم اعداد اختبار تحصيلي مكون (40) فقرة موضوعية من نوع اختيار من متعدد، وقد تم التحقق من صدقها الظاهري من خلال عرضها على مجموعة من المحكمين والمتخصصين في طرائق تدريس العلوم والكيمياء، وكذلك تم التحقق من صدق المحتوى من خال مطابقة الاختبار للمحتوى واتفاق المحكمين، وحسبت القوة التمييزية ومعامل الصعوبة والسهولة وفعالية البدائل الخاطئة لكل فقرة من فقرات الاختبار المعد باستخدام المعادلات المناسبة لكل منها، وتم ايجاد ثبات الاختبار بطريقة كيودر ريتشاردسون - 20 فبلغ (0.80) أظهرت نتيجة البحث الى وجود اثر لاستراتيجية RAFT في تحصيل طلاب الصف الرابع العلمي في مادة الكيمياء لصالح المجموعة التجريبية، وفي ضوء نتائج البحث توصلت الدراسة الحالية إلى بعض الاستنتاجات ووضعت عدد من التوصيات والمقترحات.

الكلمات المفتاحية: استراتيجية RAFT ، التحصيل

1. INTRODUCTION

1.1. problem statement

The teaching of science in general has received increasing attention among nations, and scientific projects have emerged to develop the teaching of science, including chemistry, in terms of content and teaching methods. Some phenomena, such as dropout, low achievement, 'absence from school, or the negative attitudes that learners have towards teachers, subjects, and the school system. The dominant characteristic of teaching at the present time is its distinction in a routine style that is dominated by the nature of memorization and memorization, and the educational community followed this approach, which caused the decline in students' achievement. Communication in the interaction between the teacher and the student, despite the emphasis of modern trends in education on the role of the learner as the focus of the education process, the teaching methods used must be changed to make the student an active element, all of this crystallized the research problem of the researcher in the need to use modern strategies in methods and methods Non-traditional teaching aids provided to the teacher in order to achieve the best results in the education process. Teaching can be designed in a systematic manner that leads to adapting the educational-learning process to suit the needs, abilities and tendencies of the students

1.2. research importance:

Modern teaching strategies and methods contribute to the development of students' skills in contemplation and listening 'search as far as possible 'In order to achieve this objective start by The teacher dealt with modern strategies that have a major role in mobilizing the energies of science, research and creativity The student, in addition to building the personality of the student, the learner and the researcher Thinker and critic, as he can access To knowledge and other experiences and expand the horizons of his idea , and that the successful teacher is nothing but successful method , It is based on psychological foundations and educational facts 'which are consistent with the learners' tendencies and appropriate to their temperament .In their stages of growth, resulting in the development and purification of their talents Their morals and highlight their personalities and be dependent on Mind and experience, not transfer and memorization

The importance of strategies and methods Modern teaching stems from being in line with cognitive progress And technology, and the huge amount of information that it calls for To be used to develop students' skills in Research 'thinking, listening and criticism , thus developing mental and cognitive abilities And the productivity skills, so the result is a group Among the positive moral values , attitudes and habits , the use of the RAFT strategy in teaching various sciences, especially in chemistry, contributes to raising the level of achievement, because it is one of the modern strategies that are in line with scientific and technological development.

1.3. Search objective:

The current research aims to identify the impact of the strategy raft in Achievement of fourth grade students in Chemistry.

1.4. Research Hypothesis:

There is no statistically significant difference at the level of Significance(0.05)by the mean scores of students The experimental group who will study According to the RAFT strategy and the average score of the control group who will study according to the method regular.

1.5. search limits: The search limits are limited to:

1.5.1. Students of the fourth scientific grade in Al-Nasr Secondary School for Boys affiliated to the Directorate of Dhi-Qar Governorate

1.5.2. The second semester of the academic year (2021-2022), which includes chapters (third and fourth) of the chemistry textbook for the fourth scientific grade (11th edition- 2021 AD), Ministry of Education / Republic of Iraq

2. MATERIAL AND METHODS

2.1. Research Methodology:

The researcher used the experimental method It is the methodology that is used to address certain factors under Accurate terms order checks how a condition occurs or a specific event and determines the reasons for its occurrence.

2.2. The design of the experimental research:

An experimental design is a comprehensive plan to be developed researcher It is shaped by the collection of appropriate data , if Data that are valid, reliable and analytical data in a way that enables him to answer questions research , and our choice of appropriate design depends on the nature of the research The objectives of the research, its variables and the conditions in which it will be implemented Under it, the researcher has chosen to design the group Randomized control post-test For groups J , the procedures can be summarized Including as shown in Table No. (1):

Table. (1) Experimental design

the group	the independent variable	Post-test
Experimental	RAFT strategy	Achievement test
control	the usual way	

2.3.The research community and the selection of its sample

2.3.1. Research community

It means all individuals, things or elements Those who have one characteristic that can be observed (Al-Badri and Suhaila, 2014: 78)and the research community consisted of students of the fourth scientific grade in middle schools and the day high school of the General Directorate of Dhi Qar Education.

2.3.2. The research sample

The researcher intentionally chose the secondary school (Al-Nasr for Boys) from among the schools of the General Directorate of Dhi Qar Education, because it is close to the researcher's location, and where it is located in The school has two divisions from the fourth grade students, and I chose division (A) by drawing randomly assigned to represent the experimental group Division (B) became the control group , and the number of students in the two groups reached (60) students , with (30) students in the experimental group and (30) students in the control group.

2.4.The equivalence of the two research groups

The two research groups were chosen from Homogeneous society, close social circles, As the random distribution ensures that the groups are equal the research, and in order to ensure the integrity of the experiment, the researcher

equalized the two research groups in the variables Which you think may affect the results of the experiment because individual differences, in order to exclude extraneous variables that may affect the dependent variable. The two research groups are statistically equivalent in some variables Which is believed to have affected the safety of the experiment ,and equivalence was made in the variables that are directly related to conducting the experiment. Which:

2.4.1. previous achievement in chemistry (course degree first):

The grades of the first course have been taken for a subject Chemistry from the school grade record for the fourth scientific grade students, using the two-sample t -test Independent to see the significance of the difference between them turns out to be the difference It was not statistically significant at the significance level (0.05) .The calculated t- value was (0.536), which is the smallest from the tabular t- value (2,000) with a degree of freedom (58). Table No. (2) that ,that indicates Assuming that the two groups are equal in achieving degrees The first course in chemistry before conducting the experiment

Table. (2): previous achievement in chemistry

the group	sampl e numb er	SM A	varianc e	standar d deviatio n	degre es of freed om	T value		Signifi cance level (0,05)
						calcula ted	Tabul ar	
Experiment al	30	67.2 7	306.06 4	17.495	58	0.536	2.000	is not statistic ally signific ant
control	30	64.8 0	329.89 0	18.163				

2.4.2. Chronological age in months :

happened researcher Please provide information related to this The variable of school cards for students was calculated Their ages are in months calculated from the date of birth until AD The date of the start of the experiment and using the t -test Two independent samples were taken to find out the significance of the difference between them The difference was not statistically significant at the level of significance (0.05), if the calculated t- value was (0.254) , which is smaller than the tabular t- value(2,000) with degrees of freedom (58) . Table (3) shows that, this indicates that the two groups are equal in the age variable timeline in months

Table. (3): Chronological age in months

the group	sample number	SMA	variance	standard deviation	degrees of freedom	T value		Significance level (0,05)
						calculated	Tabular	
Experimental	30	203.40	107.628	10.978	58	0.254	2.000	is not statistically significant
	30	202.73	98.340	9.917				

2.4.3. For successful intelligence:

The researcher relied on the Sternberg triple test for abilities, which he prepared for the secondary stage, which was previously Arabized (Ibrahim, 2012), and it was applied to middle school students in Iraqi schools, and it was also applied in a study (Al-Tamimi, 2018) , And after confirming its psychometric properties , then the test was applied to the experimental and control research groups before starting the application of the experiment, and after collecting the students' responses, the data was processed statistically based on the t- test for two independent samples, and it was found that the calculated t-value is (-0.251), which is Less than the tabular value of (2,000), which means that the two groups are equivalent in this variable .Table (4) shows that:

Table. (4): successful intelligence

the group	sample number	SMA	variance	standard deviation	degree of freedom	T value		Significance level (0,05)
						calculated	Tabular	
Experimental	30	16.30	20.976	4.580	58	0.251-	2.000	Is not statistically significant
control	30	16.63	32.033	5.660				

2.5. Adjusting some extraneous variables

It is intended to be the results of the search Honest to the degree to which the difference can be attributed the results of the two groups indicate the influence of the independent variable and not to other extraneous factors (Al-Zuhri, 2017: 332)

2.5.1. Experimental extinction: By extinction, we mean the resulting effect about leaving a group of students or from the research sample M interrupted during the stage of performance of the experiment and this affects in the dependent variable (Abdul-Rahman, 2016: 526), as the experiment was not presented for the length of time it was conducted. To leave, interrupt or transfer any student from groups during the experimental period.

2.5.2. Measuring tools :The researcher will use a unified measurement tool to measure the achievement of the students in the two research groups, and the achievement test on the students of the two research groups.

2.5.3. Physical conditions: These are the various factors surrounding the individual and helping him to complete his work in the best way, to reach the objectives ruled within a specific environment, and it may be the opposite of that, as it may be frustrating for him, and these conditions are represented in heat and lighting, ventilation, teaching aids, heating, Overcrowding, narrow teaching spaces, and other conditions, and to control the physical conditions that may affect the variables of the experiment, the researcher chose two adjacent halls with good lighting and a large area, in addition to heating, equipment, and the provision of teaching aids.

2.5.4. Distribution of classes :Classes were distributed equally between the experimental and control research groups, and in agreement with the school administration to organize the class schedule for chemistry for the fourth grade of science so as to ensure equal time allotted for the class for the two groups.

2.5.5. The teacher experimenter: The researcher studied the same two groups to ensure the safety of the experiment in order to limit the differences in the information and methods of other teachers and their personal characteristics, and this gives more accuracy and objectivity to the experiment.

2.6.Preparing the research requirements: The search requires doing the following:

2.6.1. Determining the scientific material: The scientific material taught to the research sample during the first semester of the academic year (2021-2022)was identified in the first four chapters of the chemistry textbook for the fourth scientific grade.

2.6.2. Formulating behavioral objectives and setting their levels :The educational process, like any humanitarian work, must clearly define its objectives, and after informing the researcher of the general and specific educational objectives of chemistry for the fourth scientific grade, and based on the sources and the opinion of a number of chemistry teachers, a number of behavioral objectives for the four chapters of chemistry were formulated. And classified according to Bloom's levels in the cognitive field, then the behavioral objectives were presented to a group of arbitrators and specialists in the field of teaching methods, education, psychology, measurement and evaluation, and subject teachers to ensure the formulation of behavioral objectives and the level

that they measure, and the percentage of validity of these objectives was (85%), and in the light of their opinions Some of the objectives were modified , and the final behavioral objectives were (178) behavioral objectives, distributed according to Bloom's levels.

2.6.3. Preparing lesson plans :The school planning process is a preconception of the educational situation that the teacher prepares to help learners master a set of predetermined objectives, and it includes daily planning, quarterly planning, and annual planning. Daily lesson planning is a mental process that the teacher writes and includes several elements in order to achieve specific and short-term objectives (Al-Hariri, 2010: 133-138), and the researcher, in cooperation with the chemistry teacher for the fourth scientific grade in the school, prepared the annual and quarterly plan for the subject, and in light of the educational content of the first four chapters of chemistry for the fourth scientific grade and the behavioral objectives associated with it, it was prepared (30) a daily teaching plan for the experimental group that studied according to the RAFT strategy, and (30) a teaching plan for the control group that studied according to the usual method . Samples of the teaching plans were presented to a group of arbitrators and experts with specialization for the purpose of evaluating them to express their opinions and suggestions, and on This basis has been subject to appropriate modifications.

2.6.4. Select the search tool :The current study required building one tool for the purpose Measurement of achievement and know how it is The researcher knows his data in order to be able to find a solution The problem of research and verification of its hypotheses that it imposed (Duwaidry , 2002: 305)

Here are the steps followed by the researcher to build an achievement test

1- Determining the objective of the test: The objective of the researcher in constructing the test is to measure students' achievement in chemistry for the fourth scientific grade for the academic year (20 21 - 20 22) using the (RAFT) strategy for the experimental group and compare it with the students' achievement for the control group and indicate its impact.

2- Determining the number of test items :It was agreed on (40) test items for the semesters covered by the research, is suitable for testing from During the consultation with the arbitrators, specialists and Table No. (5) shows the test map.

Table (5): The test map of the behavioral objectives in the achievement test

T	seasons	number of	Relative importance	behavioral objectives					
				to remember	to understand	application	analysis	installation	the total

	page s		35%	25%	18%	12%	10%	100 %
1 the third	31	41%	6	4	3	2	2	17
2 the fourth	30	59%	8	6	4	3	2	23
the total	51	100%	14	10	7	5	4	40

2.7. Drafting and correcting the achievement test items:

For the preparation of the achievement test, the researcher relied on one Types of objective tests (multiple choice It has four alternatives) in constructing the test items With objective questions those are the response It has a short and specific answers, meaning that there is an answer One correct for each question as I know objectivity Because it is objectively corrected, it is not dependent I have a self-corrected grade in estimation and I am dependent P to the model answer as a criterion for correction (Al-Najjar, 2010: 82)

Therefore, the researcher formulated (40) paragraphs Objective-type (multiple choice) included Each paragraph has four alternatives, one of which is correct and the remainder Wrong and by answering it is awarded to the student A point (one) for the correct answer and a point (zero) for the wrong answer.

2.8. Validity of the achievement test:

validity of the items of the achievement test was verified Through the following

2.8.1. apparent honesty: What is meant by apparent or superficial honesty is judgment The specialist determines the degree to which the test measures the measured trait It is the agreement between the arbitrators where the test is Apparently honest if its title indicates behavior which it measures and the apparent honesty is calculated from By looking at its form and the content of its paragraphs (Al-Najjar, 2010: 289). The current study presented test items Achievement is based on a group of arbitrators in modalities Science teaching Chemistry to see their opinions and observations To measure the validity of those purposes in their final form According to agreement (85%) and in light of that, validity was achieved virtual

2.8.2. Content Validity : It means that the test questions cover all aspects of the behavior measured by the test. This is done after examining the content of the test and analyzing its questions to see how well they represent that behavior (Obaidat et al., 2009, 159), and verify the validity of the content by preparing a table of test map specifications. The first exploratory application of the achievement test: For

the purpose of determining the time needed by the student to answer the test items and to ensure the clarity of the test items and its instructions, the researcher applied the achievement test to a first exploratory sample consisting of (20) students in the fourth scientific grade) Al-Hasaneen High School) affiliated to the Directorate General Education Dhi Qar.

2.9. The second survey application for the achievement test:

To ensure the validity of the psychometric characteristics for the test, it was applied to a second exploratory sample Consisting of (40) students in Al-Kazem High School. The test was conducted on Sunday 4/21/2022, and after correcting the answers, the researcher arranged degrees in descending order from the highest to the lowest, and it was (39) to lowest score was 10) Then I took the highest to 27 % and the lowest to 27%.

2.10. Statistical test items analysis:

Performing the statistical analysis of the paragraphs Checksums are one of the procedural aspects of building The good test, as this measure implies an improvement The quality of the test items and raising their performance efficiency Its level of difficulty, ease, and ability to measure Discrimination ‘the amount of delivery to the accuracy of access to Results, by detecting deficiency in its paragraphs In terms of strength, weakness and formulation ‘and then Re-phrasing, or excluding it if it was not Valid (Al-Janabi, 2017: 88)

2.10.1. Paragraph Difficulty Index : It is defined as the percentage of students who answered the question The paragraph is a wrong answer or is the result of the division of the student Those who answered the paragraph wrongly answered the number Total to the individuals who tried to answer those Paragraph The difficulty coefficient for the paragraph ranges between zero (0) and the correct one (1). , and has The number of correct answers was calculated for each Paragraph Difficulty equation was applied if it was found that coefficient The difficulty of the objective test items ranged between (0.50-0.65.)

2.10.2. Paragraph Discrimination Coefficient :It is the percentage of correct answers in Senior group - percentage of correct answers in the lower group this means that it is the difference phrase between the ease coefficient in the lower group and the ease coefficient in the upper group; after calculating the power of excellence for each paragraph of the test It was found to range between (0.37 - 0.74).

2.10.3. Efficiency of false alternatives : After the researcher applied the equation of the effectiveness of the wrong alternatives ‘he found that the effectiveness of the wrong alternatives ranged between (-0.04 – -0.33)

2.10.4. Test stability :Consistency is consistency and accuracy in measurement, and it means consistency in the set of test scores that actually measured what should be measured, and in order to extract the stability of the test items consisting of objective items and pans ‘the researcher used the (Alpha-

Cronbach) coefficient for stability, and the stability coefficient extracted in this way reached (0 ,84), which is a good stability coefficient.

2.11. Test application:

Based on the analysis of the test vocabulary, and evaluation Its effectiveness for the application in light of the characteristics that have been characterized With its paragraphs, the results were noted with a degree of acceptance In terms of difficulty, discrimination and effectiveness of alternatives erroneous, and after verifying the charity and its steadfastness, it became The test in its final form is applicable to A The experimental sample, where the test included A (40) paragraph, and thus the A is the highest grade the student obtains It is (40) degrees, and the lowest score is (zero), and it has been completed Preparing a student's answer sheet separate from the test Achievement , and preparing the model answer for the paragraphs J 's achievement test.

2.12. Correction of the test :

After the students of the two groups finished their research from Answer the test items, collect papers, being Correction according to special criteria to correct it A grade (1) is given to the student for the correct answer and (0) for the wrong answer Test from the highest score (39) to the lowest score was (7).

2.13. Procedures for applying the experiment:

The researcher began applying the experiment in Al- Nasr for Boys, specifically on Sunday 4/24/2022. From the second semester of the academic year 2021-2022

2.14. Statistical means:

The researcher used Microsoft Excel and (Spss 24) to process the data and calculated the coefficient of difficulty and ease. For each paragraph, the coefficient of excellence, and the effectiveness equation of alternatives Error, stability, and test results by extracting (t-test).

3. THEORETICAL BACKGROUND

3.1.Active learning:

The beginning of the twenty-first century is the clear emergence of active learning as one of the contemporary educational and psychological trends that have a significant positive impact on the education process inside and outside the classroom. By school and university students, active learning is a type of learning that is based on the activity of the learner himself, which is the center of the process. educational and responsible for learning through his preoccupation with what he learns, and active learning is based on building attitudes A meaningful experience that the learner passes through, and it requires those who work in small groups, so they get involved in its operations. and their activities, and they arrive together to solve problems or to complete the tasks that are required of them, and

this learning includes Rebuilding knowledge through the process of social negotiation with others (Al-Saghir, 2009: 76).

3.1.1. Active learning objectives:

- 1- Student acquisition for knowledge and skills and desired directions_
- 2-Measuring students' ability to construct new ideas and organizationally
- 3-Encouraging students to acquire thinking skills_
- 4-Developing learners' motivation and motivating them to learn (Gibran, 2002 :10)

3.1.2. Principles of active learning:

- 1-learning encourages interaction between the learner and the learner
- 2-It encourages activity
- 3-Provides quick feedback
- 4-Provides ample time for M.'s enjoyment
- 5-It encourages cooperation between learners (Budair, 2008).

3.1.3. Characteristics of active learning:

- 1-Active learning represents the main focus of the teaching and learning process
- 2-It is compatible with the individual's capabilities, his views, and his various trends
- 3-in itself a reinforce and stimulus for the learner 's motivation towards learning
- 4-The learner interacts through him with others and cooperates with them
- 5-The educational environment is rich in the experiences that the learner needs (Saeeda et al., 2006: 413)

3.1.4. Characteristics of active learning_

- 1-It prepares learners for live, effective learning situations_ .
- 2-Motivates the pleasures of those who have the abundance of production and its diversity.
- 3-It develops the desire to think and research.
- 4-Develops the desire to learn until mastery.
- 5-Helps me to acquire skills (Ali, 2011: 239)

3.1.5. The role of the learner in active learning

- 1-Designing educational situations that are interesting and challenging.
- 2-Time Management.
- 3-Subtract the exponent.
- 4-Provide feedback in a timely manner.
- 5-Smart management of the educational situation in terms of directing the learners towards objective.

3.1.6. The role of the teacher in active learning

- 1-Participate in the discussions
- 2-Self-reading.

3-Problem Solving.

4-search.

5-imposing loans. (Abu Riash, 2009: 35)

3.2.RAFT strategy

RAFT strategy She is one Strategies for learning activity , which is concerned with higher- level thinking skills and aims to integrate reading and writing in an enjoyable way, in which students take what they have learned during reading and produce a new output that shows the depth of their understanding and creativity (Al-Maliki, 2020 AD: 86), and the RAFT strategy is a set of teaching procedures What the teacher does to help his students understand their role, which contributes to effective communication to convey their ideas and messages to the audience using a variety of forms that address their point of view (Abdel-Aal and Reham,2016:43).

The RAFT strategy or rafting is one Active learning applications that require me to be the learner is an active participant in the educational process and stress P.L. The teacher's positivity and his activity in it, which came in response to P.L The traditional trend that perpetuates the learner's negativity and reverence His role should be to simply receive the information and give it RAFT strategy has a distinct role for the learner through it So that make him lead some positions because of what they have A role in enhancing self-confidence and its ability to lead a axis Discussion, asking questions and thinking about their answers It has a role in developing discussion and debate skills Defending opinion and learning about the ideas of others . This strategy focuses on teaching students how to use the language of communication and convey ideas through a written text. It also provides opportunities for students to prove their understanding of a specific topic through a written experience that helps them think about a specific topic and communicate their ideas. In a creative and interesting way, it also encourages them to organize their thoughts to maintain attention because they focus on writing activity (Lindawaty , & Sada, 2014 :63).

This strategy is used in most teaching Subjects and study materials or cases that It is intended to reach creations and convictions or Installing certain values or developing the ability to manage the discussion And formulating questions and building evidence and arguments or elaboration on a specific topic and to protect the ideas of others about it, As well as developing reading, writing and eliciting skills Behind the lines and discussion of the author or content The subject (Swidan and Haider, 2018: 138) , and from the foregoing, it is clear that this strategy is flexible and consists of four stages: the role, the audience, the subject, and the presentation, and it works to help students acquire the skill of scientific writing in a creative way.

3.2.1. RAFT Strategy Elements

1- Role(R): in the final product, what role will the learner play (writer, editor, actor, painter, politician(....

- 2- Audience (A): for those who present, display or direct the final product (class students, School council, parents, local community)
- 3- Format (F): What is the shape or format of the final product that will display and reflect the learner's understanding and deep interaction with the text (content), such as (magazine, video, song, game, written assignment, report, message, play, artwork...)
- 4- Topic (T (: What will the final product focus on? The answer to an urgent question, an issue that is consistent with the text or its time period, a personal interest related to the audience and the role it plays or represents (persuading others, marketing an idea, developing instructions)

3.2.2. Steps to implement the strategy:

The first step: Divide the students into groups It ranged from five to six groups.

The second step: The researcher explains to the students that Everything that is considered a product (the author, for example) is taken into consideration Consider all of the following aspects before starting the process Production (article, for example) :

Role(R), audience) A (, and format) F), the subject) T), then tell them that they are They will write in light of these elements and preferably display the items are placed on a chalkboard or blackboard in front of the students.

The third step: The researcher presents or presents in front of the students A complete model of RAFT, and discusses them in all key terms (elements), and this important in the beginning.

Fourth step: the researcher presents Create a new form (blank), then invite students to do so Think deeply) brainstorming), additional ideas Innovative new and j record list of all suggestions not included _ (Role), (Audience), (Form), (Subject), and discuss all its elements, then write in Strategic plan light.

Fifth step: Students answer the test Inside the classroom in the assigned lesson, after it has been allocated Time to review what was mentioned in the previous session.

Sixth step: The researcher continued the work of the groups and provides each group with guidance or guidance Expansion according to the need of each group, then the papers are collected Test and correct.

3.2.3. Advantages of the RAFT Strategy:

- 1- Encourages students to organize ideas, and increase ideas Expression and creativity because it focuses on deep thinking
- 2- Helps to translate students' thoughts and feelings in a literary style, especially for those who suffer from difficulties in that translation.
- 3- It helps the learner to think about the topic Strictly for the purpose of reaching innovative modern ideas By thinking and moving between roles (Um Bo Saidi, Hoda, 2016: 149).

4- It allows students to freely choose a variety of activities Giving multiple points of view

5- Help students make connections between knowledge Previous and new knowledge, and between related concepts To develop their performance skills (Groenk & Puckett, 2006: P52)

3.2.4. RAFT Strategy objectives

1-Encourages students to strive continuously Towards a deep understanding of the learned material.

2-Diversity in learning activities to suit learning styles different from the student.

3-encourages the learner to relate learning to a set of different positions

4-Linking ideas, concepts, and information with M.A student in advance.

5- Accustom the student to dealing with problems and the importance of science in resolving and addressing them (Syed, and Abbas, 2012: 96)

3.3.Previous studies:

3.3.1. .Abdulkadhim Study (2019):

The aim of the research is to know the impact of the RAFT strategy in acquiring grammatical concepts and the development of creative thinking among female students in the fifth literary grade. The study sample consisted of) 63 (female student, They were randomly distributed into two groups, an experimental group that was taught by the RAFT strategy and consisted of (31) freshman A control group studied in the usual way consisted of (32) female student, rewarded the researcher among my groups Searching in the ATV variable (the chronological age calculated in months , the final grades of the Arabic language for the first course Testing the level of intelligence, testing the linguistic ability, and the academic achievement of fathers and mothers) and prepared the researcher A test of grammatical concepts with (24) paragraphs of the type of objective questions of the type (multiple choice) . The researcher prepared a test for creative thinking Component (16) items have been verified who believed it and extracted its stability, and the researcher used the appropriate statistical methods to complete her research and from the treatment Statistically, the experimental group outperformed the control group in the grammatical concepts and creative thinking tests

3.3.2. Mahabad Study (2021):

The study aimed to identify the impact of the strategy RAFT in Female Student Achievement The fourth literary class in the subject of the Kurdish language grammar and their tendencies towards the subject, to achieve the aim of the research. The researcher intentionally chose the students of the fourth literary grade to be the field for an experimental application. The number of individuals in the sample (69) female students was distributed randomly into two groups, an experimental group that was studied using a strategy RAFT consisted of (35)

students, and a control group that studied according to the method The regular study consisted of (34) students. The researcher rewarded the students of the two groups of research in variables. (age time period calculated in months , the intelligence test, the language ability test , and the pre - inclination scale), the experiment lasted a full semester , the researcher prepared an achievement test consisting of (30) items of the type Multiple choice and complementation were validated and stability was extracted using Pearson's correlation coefficient and BG coefficient (80), and the researcher also prepared a tendency scale consisting of (30) items that prove its validity and reliability , and when the results are analyzed statistically using the (T - test) It turns out that there is no difference Statistically significant and in favor of the experimental group that was studied using the strategy RAFT The control group that was taught in the traditional way

4. STUDY RESULTS

In order to verify the aim of the research, the validity of the null hypothesis was tested, which states (there is no statistically significant difference at the level of significance (0.05 (between the mean scores of the students of the experimental group who studied chemistry according to the RAFT strategy. And the average scores of the students of the control group who studied the same subject according to the usual method in the achievement test of chemistry for the fourth scientific grade. The researcher prepared the achievement test and applied it to the experimental and control research groups. Calculating the arithmetic mean of the scores of the experimental and control group students ,the standard deviation, and the variance, then the t -test was applied t-test for two independent samples as shown in Table(6)

Table (6): t- test for the two research groups in the chemistry achievement test

the group	the number	SMA	Standard deviation	variance	degrees of freedom	T value	
						calculated	Tabular
Experimental	30	32.50	6.383	40.741	85	2.937	2.000
control	30	27.63	6.451	41.620			

noted in the table () that the arithmetic mean of the scores of the students of the experimental group is (32.50) with a standard deviation of (6,383) and the variance is (40,741), and the arithmetic mean of the scores of the students of the control group is (27.63) with a standard deviation of (6,451) and the variance is (41,620), and the calculated t- value was (2,937), which is greater than the tabular t- value, which amounts to(2,000) at a degree of freedom (58), and thus it is clear

that the experimental group excelled over the control group in the achievement test, so the null hypothesis is rejected and the alternative hypothesis is accepted, which states: There is a statistically significant difference at the level of Significance (0.05) between the mean scores of the experimental group students studying chemistry according to the RAFT strategy And between the mean scores of the students of the control group who study the same material in the usual way in achievement and in favor of the experimental group, the researcher also used the square equation (eta) in extracting the effect size (η^2) for the independent variable in the RAFT strategy In the dependent variable (achievement of chemistry) and as shown in Table (7):

Table (7): The effect size of the independent variable on the variable of chemistry achievement

the independent variable	dependent variable	effect size value η^2	The magnitude of the effect
RAFT	Chemistry collection	0.129	middle

It is clear from the above table () that the value of the effect size amounted to (0.129), which is a suitable value for the interpretation of the effect size with an average value for the teaching variable RAFT in the achievement of students in chemistry and in favor of the experimental group.

5. DISCUSSION:

The results showed that there is a statistically significant difference Among the students of the experimental group who studied according to a strategy RAFT The students of the control group Those who studied according to the usual test method post -achievement in favor of the experimental group and this Denotes that the strategy _ RAFT It had a positive effect on collection, which may be due to the following reasons:

- 1- That strategy _ RAFT makes students the focus of the educational process, and the basis for generation Ideas, which gave them the freedom to express their ideas, and this was reflected in an increase Their achievement in chemistry, and this is consistent with what It brought about active learning in the fact that its strategies focus on the student and his experiences.
- 2- The RAFT strategy _ of modern strategies _ Which emphasizes the representation of concepts and their treatment in building knowledge in whole and in part by the students with the guidance of the teacher, which represents a kind of interaction B n the students and the teacher so that you retain the concepts in its cognitive structure, meaningful relationships are linked topic of the lesson

3- RAFT strategy contributed to creating a classroom environment through freedom of expression and asking questions. It also leads to encouraging student participation and eliminating shyness and introversion to enhance participation behavior, which enhances the integration of students 'personality and increases their achievement.

4- The strategy 'through the group system, contributed to students' cooperation in solving problems, and thus it helps to exchange ideas using evidence and evidence 'which contributes to reorganizing and expanding the knowledge structure and increasing students' horizons about the acquired information and concepts

6. CONCLUSION:

The researcher concluded that using new strategies based on active learning has a positive role in stimulating thinking among students, and the result is that it eliminates the boredom resulting from the usual teaching methods based on lectures and presentations, as the researcher indicates also points out the following Recommendations:

1- Adopt a strategy _RAFT As a modern cognitive teaching strategy in line with the tremendous technological development of our time can Benefit from them in the teaching of chemistry.

2- Proven RAFT strategy in this research, it has the ability to raise the level of academic achievement in chemistry, so we recommend using it in other scientific subjects.

3- The mother of the teacher cared about the application and multiplication processes Using illustrative examples of the social environment for students and near reality to be solidified the information is in his mind for as long as possible and makes him interact with it

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