

# THE IMPACT OF THE INVERTED –CLASS STRATEGY IN THE ACHIEVEMENT OF FIFTH GRADE STUDENTS IN THE ARABIC GRAMMAR AND THE DEVELOPMENT OF SCIENTIFIC THINKING

Saba Hamed Hussein, Paeman jalaal ahma

College of education Ibn Rushd

University of Baghdad

## ABSTRACT

*This research aims at identifying the effect of the inverted grade strategy on the achievement of fifth grade students in the Arabic grammar and the development of scientific thinking. In order to ascertain the validity of the hypotheses that were developed by the researcher, the researcher chose a sample of fifth grade students and a number of subjects from the Arabic grammar book( 50 ) students per group of the two research groups. The researcher conducted an equalization in a number of variables, and then prepared a computational test applied to the two groups of research. After analyzing the results statistically, Search for the following results The students of the first experimental group exceeded the students of the control group .*

### Key words:

*Inverted –class strategy: it is a method or type of integrated education having distinguished characteristics, most importantly the students ' rely on visual's and optical 's interaction tools outside the lesson . By such method , it could expose relevant information.*

*The scientific thinking : it is a set of mental processes carried out by the fifth-stage students / literary branch in the test and it could be measured via the total degree they attained in the scientific thinning test prepared by the researcher for this purpose .*

*Arabic language Rules: It means the established curriculum to teach the Arabic language rules included in the established book based on the established vocabularies aiming at disciplining the speech and correcting the utterance and writing*

### PROBLEM OF RESEARCH:

Despite the scientific and educational progress in the field of teaching methods of Arabic, definitely in the teaching of grammar Arabic, the complaint still exists; the Arabic grammar is still a substance that being avoided by the students. Actually this led not to have the students use the rules of the Arabic language and consequently result into weakness in the students and they did not take care of it, and it was the reason for their hatred of the Arabic language in its entirety and underestimated by those who work in the field (Qatami,

2013: 725), it is not determined by a study period without others or p Semester without another, as complaining learners of drought as submitted to them in the stages of the entire public education, and notice them frequent grammatical mistakes they make, and their inability to control the proper end of words spoken and written (Abdul Hadi 2000: p. 43)

It is possible to say that the problem of grammatical rules in the Arabic language is not due to deficiencies in the language itself, or lack of talent generation, but the method of teaching followed more than the rules. All the

languages of the world have detailed rules similar to the rules of the Arabic language and some of languages surpassed Arabic language. The difficulty is not in the grammar of the Arabic language, but in the methods used to learn it, and there were different opinions on the causes of weakness, some of them saw in the nature of the article, which is educational position in the secondary stages and transfer them to the university stage where the students required to be provided with different skills to explore knowledge and to confront different problems (Aziz, 2006, p. 25).

Of what has been mentioned above, the importance of this research is as follows:

1. The importance of Arabic as the language of the Holy Quran
2. The importance of the inverse-class strategy in Arabic grammar, as it is a modern strategy that focuses on the role of female students towards learning
3. The importance of the preparatory stage as the beginning of a new stage, means that, students learn new information related to the previous stage
4. The importance of the subject of thinking, which is one of the important educational topics that the educational process seeks to achieve among learners
5. There is no previous study - to the knowledge of the researcher - studied the impact of the strategy of the inverse-class in the rule of the Arabic language and development of scientific thinking among students of the fifth-stage / literary branch

Third: The scope of the research and its hypotheses: This research aims to know (the effect of the strategy of the inverse-class in the Arabic grammar characterized by dryness and complexity and some of their response to the books planned which is characterized by dryness and others saw in the teaching methods. It is necessary to find solutions to those difficulties or reduce them, so we must research in one aspect of this weakness, but the methods used in teaching this article and to alleviate this aspect, which prompted

5 - Definition of terms: 1. Impact - Language: "As long as the drawing of the thing, and the effect, keep the effect in the thing" (Ibn Manzoor, 2003: 6 Hawamdah, 2007: 201). Hence, the problem or difficulty of the current research is to answer the following question: (Does the inverse class strategy have an impact on the

achievement of fifth-stage students in the Arabic grammar and their scientific thinking development.

The modern teaching strategies are important and basic means that help to transfer the content of the educational content of knowledge and information and skills, and translated in a way that helps students to interact with the subject and methodological activities. This actually helps both teacher and student to achieve the educational goals easily (Tamimi, 2011: 741)

This is an educational model designed to use modern technologies in a way that allows the teacher to prepare the lesson through video clips, audio files or other media, for the students to see in their homes. Or anywhere else using their computers, smartphones or tablets before attending the lesson, while the lecture time is devoted to discussions, projects and exercises. Video is an essential element of this type of education. The teacher prepares a video of 5 to 10 minutes and shared with the students in a website or social networking. Thus, this concept guarantees to a large extent the ideal exploitation of the time of the teacher during class as the teacher assesses the level of students at the beginning of the lesson and then design activities within the classroom in a way to clarify concepts and to consolidate knowledge and skills. He supervises their activities and provides appropriate support to those who are affected by them. Therefore, levels of understanding and achievement are very high, because the teacher takes into account the individual differences between the learners (Sherman, 2015: 164)

The subject of thinking is considered one of the most important educational subjects and its importance in being one of the main goals that the educational process seeks to achieve among the learners. The scientific thinking and skills are obligatory and must be taken into consideration through the contents of the curriculums and subjects in order to increase the learners' knowledge (Abdel Hadi, 2000: 135). The teaching of scientific thinking and its skills are based on the permanence of education in the sense that students learn how to learn, and thus learn how to acquire knowledge. The sense of pleasure produced by the mind exceeds the pleasure of achieving the preservation of information produced by another person (Al-hila, 2002: 126).

A. Shehata and Al-Najjar: "It is the result of desirable or undesirable change that occurs in the student as a result of the intended learning process" (Shehata & Al-Najjar, 2003: 22)

B - (Ibrahim): "The ability of the person working on the subject to achieve a positive result, but if this outcome has not been achieved, this person may be a direct cause of negative repercussions" (Ibrahim, 2009: 30). The researcher defined the difference between the average score of the achievement tests and the scientific thinking scale for the fifth-stage students in the Arabic Grammar for the experimental group (inverse-class strategy) and the control group studying (the normal method)

2. Strategy: - Language: "The word strategic does not exist in the dictionaries of the Arabic language, but common use, and means in Greek (the art of leading the armies)" (Ibrahim, 2010: 17)

### THE IMPORTANCE OF RESEARCH:

The Arabic language is a means of communication between nations and peoples, and the rules of the Arabic language is part of this language, because it is the art of sentence engineering for its association with the meaning and its significance. The rules of the Arabic language regulate the syntax, (Dulaimi, Taha and Kamel, 2004: 34). The difficulty of grammar is not lie in rules themselves, but also depends on the method of teaching and the ability of the teacher to teach, the successful teacher is able to make the grammar a living material familiar in and the development of scientific thinking among fifth –stage students

Zero hypotheses: To achieve the goal of research, the researcher formulated the following hypotheses:

The first hypothesis: There are no statistically significant differences at (0.05) among the average scores of the students of the experimental group who study the Arabic grammar with the inverse-class strategy and grades of the control group 's students who study the same subject in the traditional method in the achievement test

The second hypothesis: There are no statistically significant differences at (0.05) among the average scores of the students of the experimental group who study the Arabic grammar and grades of the female

students who study the same subject in the traditional way in the pre- and post-scientific test

Fourthly : Limits of research: This research is determined by

1. The fifth-stage female students /literary in secondary schools of directorate of Education in Baghdad. 2. Topics of the Arabic grammar of Fifth –stage to be taught for the academic year (2015-2016). as grammatical factors, and further study of relations in sentences and their relation to what precedes it and beyond it (Ajima , 2015 :35).

Terminology is defined by

B - (Kholada): "A set of applied procedures chosen by the teacher in the light of domains and hypotheses in line with the structure of the educational material and the needs of students to achieve the intended educational goals in a specific time" (Khawaldeh, 2003: 25)

The researcher defined it procedurally as Set of procedural steps followed by the researcher in teaching Arabic grammar for the students of the experimental and control group / fifth –stage students. of the Arabic grammar of Fifth –stage to be taught for the academic year (2015-2016).

5 - Definition of terms: 1. Impact - Language: "As long as the drawing of the thing, and the effect, keep the effect in the thing" (Ibn Manzoor, 2003: 6)

Terminology is defined by

B - (Kholada): "A set of applied procedures chosen by the teacher in the light of domains and hypotheses in line with the structure of the educational material and the needs of students to achieve the intended educational goals in a specific time" (Khawaldeh, 2003: 25)

The researcher defined it procedurally as Set of procedural steps followed by the researcher in teaching Arabic grammar for the students of the experimental and control group / fifth –stage students.

-3 Inverted Class : It is defined by :

(McDainnell, 2013: 7): "The effective use of learning technology is an educational model in which homework is reversed and is based on active learning strategies , integrated learning and student participation.

B-(Ibtisam Al-Kahaili: "It is a deliberate learning and learning strategy that uses video and other learning technology to make the students assimilate in class, and. " (Al-Kahli, 2015: 35)

The researcher 's definition: It is a method or style of integrated learning having distinctive features, most notably the adoption of students tools of interactive audio-visual outside the class and by which information related to the material will be viewed.

Arabic Grammar: It is defined by:

(Ajima), 1989 (Aujima): "it is an expression and rule of the syntax of the sentence nominal or actual, proven or infallible, news or structural, as well the world of the student. This difficult work requires a special personality combines the abundance of material and methods of submission, the skill of the teacher determines the students' understanding of the researcher to search in one of Modern strategies that I might alleviate these difficulties (Ashour and literary tastes through the students to stand on the examples and evidence, good methods and correct structures and help them to arrange information and language in their minds as well as they develop in them the accuracy of observation and raise the health of governance (Dulaimi, Taha and Kamel) , 2004: 46). The reason for the diversity of the methods of teaching Arabic grammar is attributed to the diversity of topics and their differences in terms of nature, speed, and teaching. In most cases, the method of teaching is of great importance in the delivery of the scientific material to the students and it depends on the success of the educational process and its failure because the method of the scientific material is a strong and solid relationship, since it can't be separated from each other. In order for the method to function successfully it should be linked to the material. Thus and by this way , it can't isolate from the material as it becomes an independent by all its self (Khalil and Raheem 1966: 125)

As Terminology it is defined by:

Waker: "structured steps to explain how to reach the objective or solution of a Problem" (2000: 2). , natural, educational, experimental and positive" (Saadah, 2003: 40)

B - "Bakri" defined it as that: "The mental process in which the learner depends on methods appropriate to the nature of the phenomenon, such as conscious observation and experimentation to understand the phenomenon and explain and identify the causes" (Bakri, 2009: 28

The researcher defined it procedurally as : a set of mental processes performed by the fifth-stage female

students / literary branch in the test and measured by the total score obtained in the test of scientific thinking that being prepared by the researcher for this purpose.

7. The fifth-stage female students/ literary branch : "It is the second class of the secondary stage classes with its literary branch, where the duration of study is three years and follows Intermediate and pre-university "(Iraqi Ministry of Education / Curriculum, 2012)

## CHAPTER II / THEORETICAL ASPECTS AND PREVIOUS STUDIES I. THEORETICAL ASPECTS

1. Inverted –class learning is one of the modern technological solutions to address the traditional weakness and development of students' thinking skills in inverted learning. 2. Technology is used to take advantage of learning in the learning process so that the teacher can spend more time interacting, conversing and discussing with students rather than lecturing , Where students watch a short video of lectures

B - (Sulaiman et al.) it is the science of rules where the conditions of the Arabic words are known in terms of expression and construction" (Suleiman et al., 2000: 11). The procedural definition of the researcher: means the subject matter to be taught to teach the Arabic grammar contained in the written book, according to the prescribed vocabulary aimed at controlling the speech and correct pronunciation and writing. 5. Development: it is defined by:

A/ (Shehata and Al-Najjar) as: "Raising the level of performance of learners in different educational learning situations, and determined by increasing the average grades they receive after training on a specific program" (Shehata and Al-Najjar, 2003: 157).

(B) /Sayyd : "To develop and improve student performance and enable him to master all skills on a regular basis" (Sayyd, 2005: 187).

The researcher defined it : it is the extent of change and development between the degrees of pre -and post-test for the students 'scientific thinking of the research groups (experimental and control)

6. Scientific thinking: knew by) (Saadah) defined it as: "This type of thinking depends on the scientific method or scientific views such as students the opportunity to get the preliminary content before the time of class

-Give students an incentive to prepare and prepare before the time of dismissal, by conducting short tests or writing short assignments via the Internet

-Provide a mechanism to assess the absorption of students, the tests and short assignments by students are an indication of the weaknesses and strength in their absorption of content,

-Provide immediate feedback to students by teachers in the classroom

-Encourage communication among students by working in small participatory groups (Nabil, 2015: 158.)

2.Scientific thinking: It is one of the objectives of the educational process to teach students (how to think) not how to memorize curriculums by heart without understanding, assimilation or employment in life, and to achieve this goal , it should be a focus on the number of students to acquire the scientific method in thinking or scientific method in the research. Thinking in the sense means thinking teaching ) and focus on methods and rules of language and their acceptance or aversion , to develop the linguistic domain and to refine the it was recorded by the teacher and uploaded on the Internet or was chosen from among the pre-existing videos on the Internet (Metwally, 2015: 134). Others defined it as an educational strategy based on A new method of learning based on the use of modern technological media and the global information network in a way that allows the teacher to prepare lessons through videos, audio files and other media, to be seen by students outside the classroom (at home, for example), through their computers or smart phones before attending the lesson, while allocating lecture time for discussions, exercises, and feedback (Abdel Aziz, 2016: 48)

Features of the inverted-class : The advantages of inverted learning are as follows:

- Better investment of time
  - Building a strong relationship between students and teachers
  - Improve student achievement and develop their absorption
  - Encouraging the optimal use of modern technology in education
- mental activity based on evidence and proof used by man to address the position of problem-solving with methodology organized within mental and motivational societies. It has functions:

1.He understands the phenomena surrounding man in his environment and solves the various problems, both scientifically and biologically.

2.Scientific thinking adds to things new meanings as the individual reveals secrets in the universe he did not know and properties of things he was unaware of.

3.Scientific thinking is accurate and disciplined and flexible. It is far from being arrogant and intolerant

4.It is characterized by objectivity as far away as possible from everything related to itself (Najdi, 1999: 69))

The role of the teacher in the development of scientific thinking of students: In order for the teacher to succeed in developing the capacity of his students to think scientifically should

.1. Stop providing facts and answers in a timely manner  
2.provide them with preliminary experiences that raise questions, and thus create some problems, and invites them to think about the problem of the subject of the lesson and guide them to identify them

3.provides the opportunity for students to discover the problem, and identify and try to solve them based on observations and experimentation and human in their scientific investigations, who interpret and predict natural phenomena, regardless of their different scientific methods in research and investigation, but their intellectual behavior is characterized by the highest degree of objectivity and logical sequence organized based on evidence and proof. The scientific thinking is not a specialized thought over a definite subject but it can be directed to address all issues that confront us (Alfwan and Muntaha , 2012: 44)

Steps of scientific thinking: There are several steps to scientific thinking, namely

1.Sense of the problem: The presence of motivation in the person is the feeling of existing a problem that drives him to search for a solution to the problem and represents the beginning of scientific thinking

2.Identify the problem: The problem is identified by specific and clear words to facilitate the solution

3.Selection of the most appropriate assumptions: Assumptions are temporary solutions that may be correct and may be wrong in light of their testing. It is selected the best ne to solve the problem

4. Selection of hypotheses by experiment or by other means

5. Issuing the ruling on the validity of the object or its fault (Essawi, 2008: 38)

Functions of scientific thinking: Scientific thinking is an organized

Rusafa, which consists of six directorates for the academic year 2015-2016, which meet the requirements of the experiment. The researcher chose Al-Zuhur Al-Iraq school that is related to directorate of education in Baghdad / Rusafa / the second. After identifying the

school, the researcher chose two sections randomly (sample research) /fifth-stage / literary branch.

A - B). The current research sample consisted of (50) female students, and section (A) was chosen to represent the first experimental group that is taught with the reverse-class strategy in the Arabic grammar. The number of female students is 25 students, whereas the section (B) represents the control group, which teaches Arabic grammar in the traditional way, and the number of female students is (25) students, and the researcher did not exclude any student from them, as that explained in the table (1)

Distribution of female students of the research sample

	Number of female students before exclusion	Number of excluded students	Number of students after exclusion
Experimental	27	2	25
Control	26	1	25
Total	53	3	

draw the results by themselves (Abdel Fattah, 2001: 15-16)

2<sup>nd</sup> : Previous studies: There is no previous study for such strategy based on the knowledge of the researcher.

Research methodology and procedures

First: Research Methodology: The researcher followed the empirical approach to its suitability and nature of the current research. This approach is characterized by its ability to control the factors influencing the phenomenon

to be studied, and the two researchers are able to know the effect of the independent variable.

Second: Experimental Design: The researchers chose experimental design with partial control for both experimental and control groups. Following the pre - and post –test , it is suitable for the nature of the research, as shown in Figure 1

Group Test Variable Independent Variable Test Type

Group	pre-test	Independent variable	Followed variable	Type of test
Experimental	/	Inverted – class	Scientific thinking	Post-test
Control		strategy		

Figure (1)

Third: The Research Community and Its sample : The current study y consists of the fifth-stage students in the secondary schools only, the governorate of Baghdad / Karkh and

6.Effect of experimental procedures: The researchers were keen to control a number of variables to ensure the operation of the experiment, integrity, and accuracy of its results, and as follows:

A - Confidentiality of the research: The researchers agreed with the school administration not to inform the students of the nature of the task carried out by the researchers, by telling them that these two researchers are teachers from the same school to ensure the normal course of the experiment and to reach accurate results.

B - Educational means: The educational means of the groups (experimental and control) are Board , colored pens, maps and images.

C - Duration of the experiment: The duration of the experiment was equal to the students of the research groups (experimental and control), which began on Monday 5/10/2015 and ended on Wednesday 6/1/2016.

Preparation of lessons or model plans: The researchers prepared typical lessons for the subjects to be taught during the duration of the experiment in light of the content of the book and behavioral goals formulated according to the strategy of the reverse –class of the experimental group, and according to the traditional method of the control group.

Seventh: Research Tools: The current research required two tools to measure the two dependent variables, test of achievement and test of scientific

Fourth: The equivalence of the two research groups: The two researchers were rewarded between the two research groups in terms of: (the age of the students calculated in months - the parents' education - marks of the students of the previous year - degrees of pre-test of scientific thinking

Fifth: Controlling Exotic Variables: As far as possible, the researchers were able to control the external variables and reduce the error that can occur during the duration of the experiment.

1. Experimental and Accident Accidents: - The two researchers did not experience any accompanying conditions or accidents that impede the conduct of the experiment.

2. Experimental declining (Experiment Outages): The two experiments were not subjected to such conditions, except in some cases of individual absence, which were experienced by the two groups in equal manner and did not affect the course of the experiment.

3. Maturation processes: Because the two groups of research were subject to similar conditions, convergent environments, and a single time period, this factor had no effect.

4. Measurement Tools: The two researchers adopted post-test they prepared f and test of scientific thinking they also prepared to achieve the purposes of research on the two groups of research.

5. Gender: This variable is adjusted because the sample of the research is female only

presented with the test to the experts. Thus , the researcher could prove Content and validity of paragraphs .

4 - Formulation of the test instructions: The special instructions for the test and how to answer it in a clear and understandable and appropriate way for the level of female students.

5. Correction criteria: One (one) grade is assigned for each substantive paragraph of the test and Zero for the wrong or abandoned answer.

6 - Application of the post-test on the sample survey: For the purpose of knowing the duration of the answer to the test, and clarity of paragraphs, and uncover the mysterious, applied by the researchers on a sample of students of the fifth –stage / literary branch , their number has been (25) female students of fifth –stage in the secondary school of (Basala for girls). After the researcher confirmed the study of the students covered in the experiment, it became clear that the paragraphs were clear and not ambiguous among students and the average time to answer is (42) minutes\*

7. Statistical analysis of the test scores: The researchers ranked their grades down from the highest to the lowest grade and were chosen for the top 27% and the lowest 27% for the statistical indicators of the paragraphs' difficulty . This ratio was chosen because it represents two groups with the maximum possible size and variation. The following are the steps to calculate these indicators:

First, the two researchers chose objective items test of multiple choice type pursuant to the positive aspects of these tests, and the best types of tests, covering the largest possible amount of study material, as well as high degree of honesty and consistency. Evaluation of the objectives of educational materials (Al-Saagh , 2000: 31), the number of paragraphs of the test is (35) paragraphs and the researcher has followed a number of steps in preparation of it and as follows

1. Preparation of the optional map (table of specifications): The researchers prepared a table of specifications for the purpose of the test paragraphs distribution on the various parts of the subject, and on all the behavioral objectives that being distributed at six levels of Boom's classification in the field of knowledge.

2. The formulation of the test paragraphs: the researchers chose the substantive tests, as the researcher formulated

(35) thematic paragraph of the multiple test type and four alternatives to measure levels of Bloom's classification.

3. The validity of the test: In light of the experts' opinions, the researchers amended a number of paragraphs in terms of wording and language. Therefore, the two researchers prepared the test in the light of the specifications table - a test map - designed for this purpose and language grammar got help from some other educational positions after reviewing the standards of scientific thinking in different areas and to share some of the previous studies, the test of scientific thinking composes of (20) paragraphs (multiple choice test).

2. Test instructions: The two researchers have put special instructions for students to answer the test paragraphs.

3. Correction criteria: The researchers assigned one grade to the paragraph to be answered correctly, and zero to the paragraph to be answered incorrectly or left, and the researcher developed a key to correct.

4. Validation of the test: The researchers verified the validity of the test by presenting its paragraphs to a group of experts and specialists in the field of education and methods of teaching, measurement and evaluation, to determine the validity of the test's paragraphs. In light of their views, it has been replaced some paragraphs to make adjustments to each other and keep the other paragraphs; the test consists of (20) paragraphs.

5. Application of the test on the survey sample: The two researchers applied the scientific thinking test on a sample of fifth-stage students from the same research society, consisting of 30 students from the fifth-stage of Al Basala School for girls with the administration of the school on the test date.

B - The power of discrimination: After calculating the strength of discrimination of each paragraph of the substantive paragraphs of the test, the two researchers found it acceptable, as the grades are limited between (0.33) and (0.67)

C - Effectiveness of the wrong alternatives: The researcher conducted necessary statistical operations so it appeared that the wrong alternatives have attracted a number of students in the lower group that is greater than the students of the upper group and therefore decided to retain them all without deletion or modification.

D - Stability of the test: After the two researchers conducted statistical analysis proved that the test is constant, and the coefficient of stability is good if it is (0.68) and more.

Second: The Scientific Thinking Test: Since the two researchers did not obtain a ready-made test to measure scientific thinking in line with the nature of the fifth-stage and academic subject, test was prepared to serve the research objectives. The researcher followed the following path:

1. Formulation of the test paragraphs: The two researchers used the formulation of the scientific thinking test items on the fifth-stage Arabic groups with the date of the test a week before the date. To measure the scientific thinking, the test has been applied on the students of the two research groups on Thursday (14/1/2016) and corrected answers of students in the test of scientific thinking information according to the same criteria.

Ninth: Statistical Methods The researchers used the following statistical methods: T-test, K square ( $Ka^2$ ), coefficient of difficulty of paragraphs, coefficient of discrimination of the paragraph, effectiveness of the wrong alternatives, and the coefficient of Alpha Kronbach. Chapter Four: Presentation of the research results, conclusions, recommendations and suggestions First, the results of the research: The two researchers in this chapter presented the results of the research they reached in the light of the zero hypothesis as follows:

1-The first hypothesis: There are no statistically significant differences at the level of (0,05) between the average score of the students of the experimental group who study the Arabic grammar according to the inverted-class strategy and the students of the control group who study the same subject in the traditional way in the achievement test. The results showed that the average of scores of the experimental group is (30,64), the standard deviation is (7,472), the average control group is (23,76) and the standard deviation is (4,778). To find the significance of the statistical differences between the two the answer sheet for each student when the answer was completed. It turned out that the answer time is (43) minutes.

6. Statistical analysis of the scientific test paragraphs: The researchers applied the test on a sample similar to the sample of the fifth-stage female students in Haneen



School for Girls. After correcting answers of the students, the researcher has ranked their grades down from the highest to the lowest grade. The following are the steps to calculate these indicators: A/ Discrimination: After calculating strength of each test paragraph, the two researchers found it

- The power of discrimination: After calculating the strength of discrimination of each paragraph of the substantive paragraphs of the test, the two researchers found it acceptable, as the grades are limited between (0.33) and (0.67)

C - Effectiveness of the wrong alternatives: The researcher conducted necessary statistical operations so it appeared that the wrong alternatives have attracted a number of students in the lower group that is greater than the students of the upper group and therefore decided to retain them all without deletion or modification.

D - Stability of the test: After the two researchers conducted statistical analysis proved that the test is constant, and the coefficient of stability is good if it is (0.68) and more.

Second: The Scientific Thinking Test: Since the two researchers did not obtain a ready-made test to measure scientific thinking in line with the nature of the fifth – stage and academic subject, test was prepared to serve the research objectives. The researcher followed the following path:

1. Formulation of the test paragraphs: The two researchers used the formulation of the scientific thinking test items on the fifth-stage Arabic groups with the date of the test a week before the date. To measure the scientific thinking ,the test has been applied on the students of the two research groups on Thursday (14/1/2016) and corrected answers of students in the test of scientific thinking information according to the same criteria.

Ninth: Statistical Methods The researchers used the following statistical methods: T-test, K square (Ka 2), coefficient of difficulty of paragraphs, coefficient of discrimination of the paragraph, effectiveness of the wrong alternatives, and the coefficient of Alpha Kronbach.

#### **CHAPTER FOUR: PRESENTATION OF THE RESEARCH RESULTS, CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS**

First, the results of the research: The two researchers in this chapter presented the results of the research they reached in the light of the zero hypothesis as follows:

1-The first hypothesis: There are no statistically significant differences at the level of (0,05) between the average score of the students of the experimental group who study the Arabic grammar according to the inverted –class strategy and the students of the control group who study the same subject in the traditional way in the achievement test. The results showed that the average of scores of the experimental group is (30,64) , the standard deviation is (7,472) ,the average control group is(23,76) and the standard deviation is (4,778). To find the significance of the statistical differences between the two the answer sheet for each student when the answer was completed. It turned out that the answer time is (43) minutes.

6. Statistical analysis of the scientific test paragraphs: The researchers applied the test on a sample similar to the sample of the fifth-stage female students in Haneen School for Girls. After correcting answers of the students, the researcher has ranked their grades down from the highest to the lowest grade. The following are the steps to calculate these indicators: A/ Discrimination: After calculating strength of each test paragraph, the two researchers found it acceptable. The scores were limited to 0.19-0.79 and these values are good. B - Test difficulty: The results showed that the coefficient of difficulty of the paragraphs ranged between (0.37 - 0.73) and so the tests are good if they vary in the level of difficulty between (20,0 - 80, 0). C/ The effectiveness of the wrong alternatives: After calculating the effectiveness of the wrong alternatives, it was found that they ranged from (-0.018 \_ 0,111), indicating that the wrong alternatives attracted a number of students of the lower group, and thus decided to retain the alternatives paragraphs. D. Test stability: After re-testing, the tests proved to be good, with a stability factor of 0.67.

Eighth: Application of the test: - The researcher has applied test of achievement on the students of the two groups (control and experimental) on Sunday (10/1/2016). The researcher informed the students of the two

In light of this result, the second Zero hypothesis has been formulated as follows: "There is no statistically significant difference at the level of (0.05) between the average achievement of students of experimental group studying Arabic grammar with the inverted-class strategy, and the students of the control group who studied the same subject in the traditional method in the understandable and appropriate way for the level of female students.

5. Correction criteria: One (one) grade is assigned for each substantive paragraph of the test and Zero for the wrong or abandoned answer.

6 - Application of the post-test on the sample survey: For the purpose of knowing the duration of the answer to the test, and clarity of paragraphs, and uncover the mysterious, applied by the researchers on a sample of students of the fifth –stage / literary branch , their number has been (25) female students of fifth –stage in the secondary school of (Basala for girls). After the researcher confirmed the study of the students covered in the experiment, it became clear that the paragraphs were clear and not ambiguous among students and the average time to answer is (42) minutes\*

7. Statistical analysis of the test scores: The researchers ranked their grades down from the highest to the lowest grade and were chosen for the top 27% and the lowest 27% for the statistical indicators of the paragraphs' difficulty . This ratio was chosen because it represents two groups with the maximum possible size and variation. The following are the steps to calculate these indicators:

thinking. The following is an explanation of the procedure for preparing the research tools:

First, the two researchers chose objective items test of multiple choice type pursuant to the positive aspects of these tests, and the best types of tests, covering the largest possible amount of study material, as well as high degree of honesty and consistency. Evaluation of the objectives of educational materials (Al-Saagh , 2000: 31), the number of paragraphs of the test is (35) paragraphs and the researcher has followed a number of steps in preparation of it and as follows

1. Preparation of the optional map (table of specifications): The researchers prepared a table of specifications for the purpose of the test paragraphs distribution on the various parts of the subject, and on all the behavioral objectives that being distributed at six

levels of Bloom's classification in the field of knowledge.

2. The formulation of the test paragraphs: the researchers chose the substantive tests, as the researcher formulated (35) thematic paragraph of the multiple test type and four alternatives to measure levels of Bloom 's classification.

3. The validity of the test: In light of the experts' opinions, the researchers amended a number of paragraphs in terms of wording and language. Therefore, the two researchers prepared the test in the light of the specifications table - a test map - designed for this purpose and

language grammar got help from some other educational positions after reviewing the standards of scientific thinking in different areas and to share some of the previous studies, the test of scientific thinking composes of (20) paragraphs (multiple choice test).

2. Test instructions: The two researchers have put special instructions for students to answer the test paragraphs.

3. Correction criteria: The researchers assigned one grade to the paragraph to be answered correctly, and zero to the paragraph to be answered is incorrectly or left, and the researcher developed a key to correct.

4. Validation of the test: The researchers verified the validity of the test by presenting its paragraphs to a group of experts and specialists in the field of education and methods of teaching, measurement and evaluation, to determine the validity of the test's paragraphs . In light of their views , it has been replaced some paragraphs to make adjustments to each other and keep the other paragraphs; the test consists of (20) paragraphs.

5. Application of the test on the survey sample: The two researchers applied the scientific thinking test on a sample of fifth-stage students from the same research society, consisting of 30 students from the fifth –stage of Al Basala School for girls with the administration of the school on the test date. The researcher reached the average time to answer the test paragraphs by calculating the average response time, by recording time on

A-Difficulty of testing: After calculating the difficulty factor for each of the objective test paragraphs, it was found that all of them are acceptable and applicable, as the difficulty of the paragraphs ranged between (0.31) and (0.65)(

**2<sup>nd</sup> CONCLUSIONS**

- 1..The inverted-class strategy has helped to strengthen relations between the school and the students during the lesson through the participation of female students in language activities under the supervision of the school.
- 2.. The strategy of the inverted- class strategy promoted the spirit of cooperation between students, as well as investing their activities in the classroom towards the material.

**3RD : RECOMMENDATIONS**

- 1.Teachers should be directed to the importance of modern trends in teaching
- 2.Conducting training courses for teachers in order to prepare them scientifically to use modern teaching strategies adopted by the inverted –classroom strategy

Proposals

1. A study to find out the effect of recent strategies on academic achievement in another article of Arabic language.
2. A study to find out the effect of the inverted –class strategy in the development of tendencies and trends in the material of the Arabic language, and other stages of study
- .3. A study to find out the effect of the inverted-class strategy in the development of creative thinking in a material of the Arabic language.

scientific thinking development . In light of the results, it rejects the Zero hypothesis and accepts the alternative hypothesis, as shown in Table (10)

Results of T - test of the grades of female students of the research 's two groups in the test of scientific thinking:

Group	Si mp le siz e	Ave rag e	Stan dard devi atio n	Fre edo m deg ree	Two valu es Calc ulate d	Sc he dul ed	Level of indicati on 0.05
Experi menta l	25	30. 64	7.47 2	48	7.08 1	2.0 21	For benefit of experim ental group
Contr ol	25	23. 76	4.77 8				

Second: Interpretation of the results of the research: In view of the above, the results showed the superiority of the students of the experimental group on the students of the control group in the Arabic grammar for the fifth-stage female students/ literary branch

1.The strategy of the inverted- class increased the motivation of students towards learning, because it is far from boredom in the use of modern techniques in

learning outside the classroom groups, the researcher has used T-test for two independent samples . It is noted of what has been mentioned above , the T value is 7,081, which is greater than the tabular T value amounted (2,021) at the level of significance (0.05) and degree of freedom (48). Since the calculated T value is greater than the table T value, it rejects Zero hypothesis. The alternative hypothesis, as shown in Table 9:

-value of the female students of the two groups of research in the post-test

Group	Simple size	Average	Standard deviation	Freedom degree	Two values Calculate d	Schedule d	Level of indication on 0.05
Experimental	25	66.2	9.4000	48	2.947	2.021	Statistically non-indicated
Control	25	58.72	16.499				

The second hypothesis: after applying the test of scientific thinking on the students of the two groups of research and extracted the average of each group, the average score of the experimental group was (66.2), degree of standard deviation was (9.4000), while the average score of the control group was (58.72) (T-test), it showed that the calculated T value (2.947) was greater than the T-table value of (2021) and the degree of freedom (48).

each other, and to develop a spirit of cooperation and teamwork

2.The use of the inverted- classroom strategy in teaching increases the students' activities and their motivation towards proper thinking, follow-up and activity in the lesson in order to achieve success and academic excellence.

## REFERENCES

- Ibrahim, Lina (2009), Methods of Teaching Science, I 1, Arab Society.
- Abanmi, Fahd Abdulaziz (2016), Inverted-class Strategies, Journal of Reading and Knowledge, Egypt
- Bakri, Rashid Nuri (2009), Development of Thinking through Curriculum, I 4, Al Rasheed Bookshop Publishers, Riyadh
6. It is modern teaching strategies because it puts students in front of a problem that needs to be resolved.
7. The inverted-class strategy encourages female students to respect
- 10.Hassan, Nabil El Sayed, (2015), The Effectiveness of the Reverse –class in Visual, Umm Al Qura University, Issue (61).
- .11. Suaad Jawdat, (2003), The Use of Computers and the Internet in the Field of Education, Palestine.
- 12.Mr. Hassan Ahmed (2005), Computerized Learning Development, The Future Series of Arabic Books, No. 39, Center for Unity Studies, Beirut, Lebanon.
- Shehata, Hussein, and Najjar Zainab (2003), Dictionary of Educational and Psychological Terms, Faculty of Education, Dar Al-Masry Al-Libaneya, Ain Shams University, Cairo
- Metwally, Abdullah, (2015), Arabic Language Skills, I 1, Aram for Publishing and Distribution, Dubai, United Arab Emirates
- Dulaimi, Taha, Kamel, Mahmoud, Practical Methods in Teaching Arabic Language, Baghdad, 2004
- Al-Issa, Mohamed Mustafa (2009), Games and Thinking in Mathematics, 1, Dar Al-Masirah
- Al-Shumali, Muhammad Hassan, Teaching Strategies, I3, Education Publications, Saudi Arabia, 2000.
- Ministry of education, 2012, directiarte –general of curriculums , Baghdad , Iraq
- Watkar (2000): intelligence and education in R. Stemberg (ED) hand Book of Intelligence Cambridge: Cambridge University Press