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## The Role of Number Head Together (NHT) Technique in Evoking Critical Reading for EFL Preparatory School Students

### ABSTRACT

NHT technique is a technique to involve more students in the review of materials covered in a lesson and to check their understanding of a lesson's content. As a cooperative learning technique, Number Head Together technique is designed to involve more students' in reviewing materials covered in a lesson and in checking their understanding of a lesson's content. This study primarily aims on describing the role of Number Head Together in teaching literature and passages at preparatory schools. Number head together is a simple four-step structure. Its main strengths are in building mastery and in reviewing previously learned information. The current study aims to find out the role of using NHT Technique on EFL preparatory students' critical reading. **The population** of the present study is 685 students which encompasses all the students in the preparatory schools in Al-Fallujah city. **The sample** of sixty students have been randomly chosen from the fifth preparatory class in Al-Khanssa school, during the academic year 2023-2024. The two groups are equally divided into, group A represents an experimental group that consists of 30 students who have been taught according to NHT Technique. Group B signifies a control group which also includes 30 students who have been taught according to the conventional method. Both groups have been equalized in such variables as educational level of parents, English scores in preceding year, and the pretest of both groups. Five questions are composed to combine a post-test. **The data** gathered from the post-test findings have been statistically examined using the formula for the T-test of two independent and paired samples. **The results** obtained in the current study show that the critical reading of the experimental group has a more positive role in teaching English than that of the control group. The improvement of students' critical reading in learning English language took place for the favor of using NHT Technique. Based on the findings and conclusions of this study, appropriate recommendations and suggestions for future studies are put forward.

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دور تقنية الرؤوس المرقمة في استحضار القراءة النقدية لطلاب المدارس الإعدادية في اللغة الإنكليزية  
لغة اجنبية

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الخلاصة:

تقنية الرؤوس المرقمة هي تقنية لإشراك المزيد من الطلاب في مراجعة المواد التي تم تغطيتها في درس معين وللتحقق من فهمهم لمحتوى الدرس. كتقنية تعلم تعاونية، تم تصميم تقنية الرؤوس المرقمة لإشراك المزيد من الطلاب في مراجعة المواد والتحقق من فهمهم لمحتوى الدرس. تهدف هذه الدراسة بشكل أساسي إلى وصف دور تقنية الرؤوس المرقمة في تدريس الأدب والقطع في المدارس الإعدادية. تقنية الرؤوس المرقمة هي هيكل بسيط من أربع خطوات. تكمن قوتها الرئيسية في بناء الإتقان ومراجعة المعلومات التي تم تعلمها مسبقًا. تهدف الدراسة الحالية إلى معرفة دور استخدام تقنية الرؤوس المرقمة في قراءة الطلاب النقدية في المرحلة الإعدادية لتعلم اللغة الإنكليزية كلغة أجنبية. يشمل مجتمع الدراسة الحالية ٦٨٥ طالبًا يمثلون جميع الطلاب في المدارس الإعدادية في مدينة الفلوجة. تم اختيار عينة من ستين طالبًا بشكل عشوائي من الصف الخامس الإعدادي في مدرسة الخنساء، خلال العام الدراسي ٢٠٢٣-٢٠٢٤. تم تقسيم المجموعتين بالتساوي، حيث تمثل المجموعة أ مجموعة تجريبية تتكون من ٣٠ طالبًا تم تدريسهم وفقًا لتقنية الرؤوس المرقمة. تمثل المجموعة ب مجموعة ضابطة تضم أيضًا ٣٠ طالبًا تم تدريسهم وفقًا للطريقة التقليدية. تم تكافؤ المجموعتين في متغيرات مثل المستوى التعليمي للوالدين، ودرجات اللغة الإنكليزية في العام السابق، واختبار ما قبل الدراسة لكلا المجموعتين. تم تأليف خمسة أسئلة لتشكيل اختبار بعد الدراسة. تم فحص البيانات التي تم جمعها من نتائج الاختبار بعد الدراسة إحصائيًا باستخدام صيغة T-test لعينتين مستقلتين ومقترنتين. أظهرت النتائج التي تم الحصول عليها في الدراسة الحالية أن القراءة النقدية للمجموعة التجريبية لها دور أكثر إيجابية في تدريس اللغة الإنكليزية من المجموعة الضابطة. وقد حدث تحسن في القراءة النقدية للطلاب في تعلم اللغة الإنكليزية لصالح استخدام تقنية الرؤوس المرقمة. استنادًا إلى النتائج والاستنتاجات التي توصلت إليها هذه الدراسة، تم تقديم توصيات واقتراحات مناسبة للدراسات المستقبلية.

كلمات مفتاحية: الرؤوس المرقمة، القراءة النقدية، طلاب اللغة الإنكليزية لغة أجنبية، تقنية

## 1.1 Statement of the problem

There are numerous issues with teaching English. The majority of teachers rely on the conventional method, which has an impact on how well their students acquire the English language. Further, there are communication problems that prevent students from expressing their thoughts. The use of the English language has increased globally as it rises to prominence in the sphere of education (Kitos, 1996). Understanding and mastering the English language naturally requires vocabulary, grammar, pronunciation, and verbal, nonverbal, and written communication skills. The primary issues and challenges that students have in Iraqi schools are that they find it difficult to memorize the words and acquire a concept since the EFL teachers' methods for teaching English as a foreign language are ineffective.

According to Alsalhi (2020), educators in schools need to be able to use fresh approaches to raise students' academic progress. There are numerous instructional methods that aim to improve students' proficiency in the English language. Due to this, the impacts of Number Head Together technique (Henceforth: NHT) on students' critical reading are being studied.

Critical reading is essential to language learning as Anuar and Sidhu (2017) mention that critical reading is something that needs to be studied, especially in the academic field, because by reading critically, students will find it easier to understand certain subject areas. In addition, critical reading can also encourage students to analyze the features of the reading text and make them understand the meaning of the language text from the writer (Kumagai & Iwasaki, 2013). Anuar and Sidhu (2017) add that critical reading is not only about understanding the text but also about determining the truth of facts and their interpretations. In addition, in the context of the English Education Study Program, critical reading is also important because, with critical reading, students can play an important role in their studies. In short, by reading critically, students are able to establish judgments and conclusions, analyze facts and opinions, and recognize the author's purpose or point of view.

Especially in light of Iraqi schools' low capabilities. Numerous issues exist, including crowded classrooms, challenging curricula, and conventional teaching strategies that decrease student connection and involvement in class. This issue led the researcher to consider how to use the NHT technique to evoke critical reading in a more efficient, enjoyable, and simple way. As a result, the researcher looked into how the NHT technique could help students overcome the difficulties in learning critical reading through such skills as analysis, evaluation, interpretation, explanation, inference, text structure and purpose, and word meaning and phrase. NHT technique can help teachers engage their students in learning, which will help them develop their skills critically and other language abilities like listening, speaking, reading, and writing. However, the essential problem in Iraqi schools is that Iraqi EFL students have serious difficulties in English critical reading, which is considered a gap in EFL studies. To solve this problem, NHT technique has been suggested.

To sum up the preceding lines, one of the most important purposes of teaching literature in general, is to elicit and enhance EFL students' critical reading skills. The current study is to find out the role of the NHT technique in evoking critical reading for EFL-preparatory school students in terms of seven major critical reading skills: analysis, evaluation, interpretation, explanation, inference, text structure and purpose, and word meaning and phrase.

## 1.2 Aims of the Study

The present study aims at:

1. Finding out the role of using of NHT technique in evoking EFL preparatory school students' critical reading.

2. Finding out if there is any statistically significant difference between experimental groups' critical reading at the recognition and production levels.
3. Finding out which critical reading skills interpretation, analysis, inference, evaluation, explanation, Text structure and Purpose, Meaning words & Phrases have been affected more than the other by the NHT technique.

### **1.3 Hypotheses of the Study**

The aims of the study are supposed to be achieved by verifying the following hypotheses:

1. There is no statistically significant difference in the mean scores of the experimental group which is taught by using NHT technique and that of the control group which is taught using the conventional method.
2. There is no statistically significant difference between the mean scores of the experimental group's critical reading at the recognition and production levels at the Post-test.
3. There is no statistically significant difference between the mean scores of the experimental group in critical reading skills interpretation, analysis, inference, evaluation, explanation, Text structure and Purpose, Meaning words & Phrases. at the Post-test.

### **1.4 Limits of the Study**

The present study is limited to Iraqi EFL fifth-grade preparatory school students at AL-Khansaa Preparatory School for girls in Fallujah city. during the academic year 2023-2024. The materials are taken from their textbook 'English for Iraq' book unit two and three.

### **1.5 Value of the Study**

the value of this study could be itemized as follow:

1. Curriculum designers and Education policymakers in designing critical reading activities by adding more specialized teaching reading strategies.
2. The study provides information to the teachers about the role and impact of using the NHT technique to enhance the student's critical Reading.
3. The study may open a wide gate for future researchers to explore the impact of using NHT technique on various aspects of English language learning.

### **1.6 Definitions of Basic Terms**

#### **1.6.1 Role**

Role is a function or part that is performed as a process, particularly in a specified operation. It refers to the effect under a controlled situation of an experimental factor (Good, 1959).

**Role** is how someone or something is involved in an activity or situation, and how much influence they have on it (Keeney, 1996).

**The operational definition:** it refers to the amount of influence occurred through applying a process or technique in learning / teaching literature spot.

### 1.6.2 Number Head Together (NHT) Technique

According to Kagan (2000) "NHT technique is a simple four-step structure. Its main strengths are in building mastery and in reviewing previously learned information".

According to Rahayu (2014) that states by Ahsan, NHT technique is a model of learning that consider as most to the student's activity in searching, processing, and reporting the information from different sources.

**The operational definition:** NHT technique is one of cooperative learning method. Cooperative learning activities provide an ideal vehicle for teachers to structure the environment for successful peer interactions and to provide students with the coaching and support they need to develop their social and emotional skills and understanding.

### 1.6.3 Critical reading

Critical reading, according to Karadeniz (2014), is "a person's assessment, questioning, and explanation of a text he/she meets, and arriving at a conclusion based on these abilities and his/her prior knowledge." Critical reading abilities must be evaluated in any context in addition to the context of academics. It is a talent that has a profound impact on an individual's whole life.

**The operational definition:** critical reading involves reading with the purpose of critically examining the text and its ideas. It is a more active and complex engagement with a text. Critical reading entails analyzing, interpreting, and sometimes evaluating the text, as well as considering the author's intention, the text's structure and purpose, and the meanings of individual words and phrases. It also involves understanding the context in which a text was written and uncovering implicit messages and bias.

## 1.7 Plan of the Study

The steps below are going to be followed:

1. Selecting a sample of EFL students from fifth -grade preparatory schools.
2. Divide the selected sample into two equal groups, the experimental group and the control group.
3. Applying a written pre-test to the two groups for the sake of equalization in students' critical reading in English subject matter and to equalize the groups concerning mother's education, father's education and students' achievement in previous schooling year 2022-2023.
4. Teaching the experimental group of students with NHT technique and the control group with the traditional way for eight weeks.
5. Both experimental and control groups will be subjected to posttests to determine the independent variable's role in students' critical reading.
6. Constructing an achievement posttest.
7. Subjecting the two groups of students to the achievement post-test.

8. Analyzing the collected data to get results by using suitable statistical tools.
9. Interpreting the obtained results to come up with conclusions, recommendations, and suggestions for further research.

## **2.0 Introductory Note**

This chapter is essentially divided into two parts. The first part includes the literature review of NHT Technique while, the second part presents some related previous studies.

## **2.1 Theoretical Background**

The literature review of the current study is basically divided into two sections; the first section is concerned with NHT Technique while the concentration of the second section is on Critical Reading in teaching English as foreign language.

### **2.1.1 Number Head Together (NHT)**

#### **2.1.1.1 The Definitions of Numbered Head Together**

This Technique was developed by Kagan in (1989). It is developed from cooperative learning technique which comes from constructivism theory. This technique is one of component in cooperative learning that use number as media which can increase students' interest in learning speaking. This technique also makes students cooperate better and cultivate their habit of sharing information and ideas.

Kagan (2009) states that there are some steps in teaching using NHT technique. They are:

- (1) students are grouped of four and give a number from one to four.
- 2) Pose the materials (issues, question, or story problem to solve) that will be discussed.
- 3) Students in each group write their ideas and discuss with their group to choose the right answer and make sure everyone in their group understands and can give an answer or solution.
- 4) Ask the question and call out the number randomly. For example, number one.
- 5) All of students who have number one raise their hands.
- 6) The student answers for his or her team.
- 7) The other students can give additional information, or some suggestion related to the students' answer.
- 8) The teacher continues to the next question.

#### **2.1.1.2 Concept of Numbered Head Together**

NHT technique developed by Kagan (1994). This technique can be used for all lessons and all levels of students. NHT technique is a cooperative learning technique that holds each student accountable for learning the material. Students are placed in groups and each person is given a number (from one to the maximum number in each group). The teacher poses a question and students

“put their heads together” to figure out the answer. The teacher calls a specific number to respond as spokesperson for the group.

According to Lie (2002) NHT technique is a series of delivery of material using groups as a forum to unite students' perceptions of questions posed or asked by teachers who will then be accounted for by students according to the teacher's request number from each group. NHT technique is a type of cooperative learning that gives all students the opportunity to share ideas and consider the right answers. NHT technique is technique designed to make students work together to achieve a goal. This technique can increase students' activity and academic.

#### **2.1.1.7 The Advantages and Disadvantages of NHT technique**

According to Trianto, (2010), the advantages of NHT technique are:

1. The students are able to learn from each other. They must also work together to ensure there is one product to their learning. They must check that everyone can understand and answer the question.
2. Students are accountable to each other for sharing ideas. The student may also be required to share their partner's ideas to another pair or whole group. Every student must be able to give the group response to the question.
3. Each student within the group has an equal opportunity to share. It is possible that one student may try to dominate. The teacher can check this does not happen.
4. High degrees of interaction at any one moment all of the students will be actively engaged in purposeful speaking and listening.
5. This kind learning can be used in any kinds of level, but of course it has to be adjusted with the material given.

According to Trianto (2010), the disadvantages of NHT technique are:

1. The smart student will tend to dominate so that it can make the weak students have interior and passive attitude.
2. The discussion process can go smoothly if there are students just simply copy the work of smart students without having an adequate understanding.
3. If there are homogenous group so it will be unfair for the group contained of weak students.
4. Likelihood that number is called, called again by the teacher, means that not all members of the group called by the teacher.

#### **2.1.1.8 Steps of Number Heads Together Technique**

Herdian, (2009) lists six measures for putting a NHT technique plan;

- 1. Planning:** The teachers are writing a lesson plan to create a learning script and workbook for the students high, preparatory, and low-achieving students. The number 1 through 4 is allocated to students in each group.

**2. State a question:** The teacher advises the students to put their heads together after that question, think about the best answer, and make sure that everyone in their team knows the answer.

**3. Timing for thinking:** The teacher gives 30 seconds to students in their group to discuss the answer.

**4. Choosing the right answer:** The teacher randomly selects a number from 1-4 and says, "All numbers of students 1, 2, 3, or 4 who know the answer, raise your hand." The teacher then asks one student with a raised hand and asks him or her to respond. Next teacher says, "How many students 1, 2, 3, or 4 think the answer is right? lift up your hand. 'Optional: the teacher can request additional hand-held students to expand the answer given to the previous students'.

**5. Feedback:** The teacher provides feedback on the answer, e.g., checking that the answer is correct, elaborating on philosophical approaches to behaviorism, cognitivism, and humanism.

### 2.1.2 Reading

According to Muhammad Habib Shakir (2004), reading is the information from the text, either in the form of text or from a picture or diagram, or a combination of it all. Reading is also a skill to know, see and understand the contents of what they read. That is, after reading something, the reader already knows the information obtained from what he has read. One important point of reading is to understand the communication between writer and reader. Reading is very important and helpful to us, not just in English class, but other subjects, such as mathematics, Indonesian, biology, economics and others also we need literacy skills to add to our knowledge of the material that we learned. Because reading, we can access a lot of information. Considering in the importance of reading to our lives as human being.

#### 2.1.2.1 Types of Reading

This section will introduce the main types of reading which are:

**1-Intensive Reading:** In this form of reading, the reader reads a small printed such as an act of literature text. To do this, take the time, stopping and wondering about what the reader is reading. With this form of analyzing, the reader makes notes or spotlight vital factors for future reference. Students commonly examine short-to-medium length passages with the aim of focusing on unique text-based factors such as comprehension, vocabulary (Harmer, 2007).

**2-Extensive Reading:** students read for pleasure, or simply for interest. The student does not have to worry about detail. Extensive analyzing can be accomplished personally to enable scholars to find out that reading as an essence and a private interplay with the text. It is very necessary for the development of the students' recognition- and for their enhancement as readers overall. (Bamford and Day, 2004).

## 2.1.2.4 Critical Reading

### 2.1.2.4.1 Definitions of Critical Reading

Critical reading is a skill towards what we read. Din (2020) identifies critical reading as reading by commenting on what has been read, in other words, critical reading is reading while understanding a reading that is outside the words in the reading. also argues that critical reading is also not just looking at facts in reading or remembering a reading but critical reading is a holding goal within the readers themselves, using their own knowledge of reading skills to export the reading more broadly and effectively.

Another definition states that critical reading is conveying reading from the reader's prior knowledge in understanding the content of the reading and this schema theory applies traditional concepts as the main skills, namely skills in intelligence and attitude (Lyman & Collins, 1990).

### 2.1.2.4.2 Subskills of Critical Reading

Reading, especially critical reading, is often seen as a difficult and challenging skill to learn, especially for ESL students (Anuar & sidhu, 2017). Therefore, many studies discuss the skills that students must master in critical reading as stated by Din (2020) including:

#### 1. Interpretation

The basic definition of interpretation, according to the Webster dictionary is the “action of explaining the meaning of something; the way something is explained or understood.” In terms of language, the definition of interpretation should be broader: rendering a spoken or signed message into another spoken or signed language, preserving the register, and meaning of the source language content. It is the spoken or signed language communication between users of different languages (Technitrad, 2017).

#### 2. Analysis

Blackburn, (1996) defines analysis as the process of breaking a concept down into more simple parts, so that its logical structure is displayed. It may help to be reminded that many philosophers who might allow themselves to be described as “analysts” have been strongly influenced by the work of Russell, Moore, and Wittgenstein. For while all three have been engaged in “clarification of meaning” they have done so in different and distinctive ways; and the resulting divergences in conceptions of philosophical method have not yet been reconciled.

#### 3. Inference

According to Claire, (2023) Inference means the process of arriving at a certain conclusion using reasoning or evidence, which makes them more than just assumptions. Making inferences is a valuable skill for children to learn, as it will help them to pick apart texts and uncover meanings, themes and character

motivations. Inference can be thought of as any step-in logic that allows someone to reach a conclusion based on evidence or reasoning.

#### **4. Evaluation**

(Mertens & Wilson, 2013) refers to the systematic process of assessing what you do and how you do it to arrive at a judgement about the 'worth, merit or value' of something. Essentially, evaluation involves taking a series of planned steps in order to better understand a program or service. There are many types of evaluation designed for different situations and with different objectives.

#### **5. Explanation**

According to Duhem, (1962) explanation is the task of metaphysics, not science. Science does not comprehend reality, but only gives order to appearance. However, the subsequent rise of analytic philosophy and, in particular logical positivism made Duhem's acceptance of classical metaphysics unpopular. The conviction grew that, far from being explanatory, metaphysics was meaningless insofar as it issued claims that had no implications for experience.

#### **6. Text structure and Purpose**

DeGuzman, (2023) defines text structure is the way in which a writer organizes language and information within text to serve a specific purpose. Depending on the goal of the writer, text can be structured in various ways to best communicate information to a reader clearly and effectively. The structure of a text's beginning, middle, and end is directly influenced by the intention and purpose of the writer. The concept of purpose is a fundamental aspect of human existence.

#### **7. Meaning words & Phrases**

According to (Kempson, 1984) reading is getting meaning from printed form. In fact, describing the concept of meaning is not as simple as what most people think. There are many variables that involve in the process of deciding the meaning of a word or sentence, and even in paragraph and longer text. The notion of meaning has been discussed in terms of reading difficulty in the previous section.

##### **2.1.2.4.3 Importance of Critical Reading**

Critical reading has become even more essential than previously. Critical literacy is a concept that "attempts to describe writings, films, speeches, and images that give precedence to the views of 'winners' in historical or other literature," according to the Oxford Dictionary of Literary Terms. The word "winner" refers to the person or components who have been elevated to the forefront of history and who have been supported and favored. In his statement, De Voogd states that the goal of critical literacy is to preserve the ideals of

justice and freedom for everyone actively. As part of their efforts, educators use current transformation mechanisms to accomplish this objective while also encouraging free thoughts to gain different views.

critical reading requires telling the difference between facts and views. (De Voogd, 2007).

#### **2.1.2.4.4 Principles of Critical Reading**

Reading a paragraph entail determining the paragraph's central theme and its relationship to other paragraphs. Structural reading may be used to identify the text's key paragraphs. After comprehending the paragraph's major concepts, skilled readers can make relevant connections to their circumstances and activities. A reading program should be developed and practiced for various reading goals, ranging from reading for information to reading and then analyzing texts (Elder & Paul, 2004).

Reading strategies such as previewing, setting goals, predicting, asking questions, drawing connections to prior knowledge and experience and paying close attention to text structure as well as making inferences about words from context, critiquing, and attempting to reflect on the text, among others, are essential for effective reading. (Wallace, 2003).

#### **2.1.2.4.5 Purposes of Critical Reading**

According to Wallace, (2003) the purposes of critical reading as an educational project can be seen as linguistic, conceptual/critical and cultural. First, linguistic aims involve helping students to gain an understanding of the nature of ideological meanings embedded in texts as indicated by the way language is used. The aim is to draw on students' grammatical knowledge – not so much in order to aid the reading process, nor to do the kind of conventional language work by which texts are gutted for grammatical structures in rather arbitrary ways, but to facilitate reflection on the effect of language choice. Here foreign language students tend to be advantaged, as noted above, over native speaker readers educated in British schools, who receive little formal grammar instruction, especially in the case of English. Foreign language students, by contrast, tend to have a well-developed knowledge of key grammatical terms which can be put to use as a tool in text analysis.

#### **2.1.2.4. Advantages of Critical Reading**

Critical reading necessitates the active participation of readers for them to think deeply and use varied abilities. In this exercise, students decipher the key concepts of a book and derive conclusions from them. They also forecast the text's aim and examine the arguments presented. Finally, they also assess ideas presented by other students. A critical reader is capable of: (1) accurately summarizing textual arguments, (2) identifying claims, (3) identifying stated or implied assumptions (Barnet & Bedau, 2011).

### **3.0 Introductory Note**

chapter describes the procedures followed for achieving the aims of the study and verifying its hypotheses. It includes the research design, the experimental design, the population, the sample, the pre-test and post-test, the sample equivalence, and the statistical methods for data analysis.

### 3.1. Research Design

Research design is defined as the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy and procedure (Akhtar, 2016). The research design sets the procedure for the required data, the methods to be applied to collect and analyze this data, and how all of this is going to answer the research question (Boru, 2018). On the other hand, Research design is the plan, structure and technique and investigation concaved so as to obtain ensured to search questions and control variance (Thakur, 2021). The design of this research is quantitative research. As the current study aims to know the role of NHT technique of two variables based on statistical analysis.

### 3.2 Experimental Design

The experimental design is" the framework of the procedures that help the researcher examines the hypotheses by getting at relevant results on the relationship between independent and dependent variables" (Best and Khan, 2006).

Moreover, Creswell (2012) also defines the experimental design as a "traditional approach to conducting quantitative analysis or evaluate an idea or procedure to determine whether it affects an outcome or dependent variable'.

The experimental design adopted in this study is entitled 'The quasi-experimental nonrandomized control group pre-test post-test design' as shown in table (1). It contains the following procedures:

- 1-Two groups of students are chosen randomly and assigned to the experimental and the control groups.
- 2-Equalizing the students of the experimental group on the one hand, and students of the control group on the other hand, in some variables as age of the students, parents 'Educational level and students' scores in English language in the previous year.
- 3- The independent variable is applied to the experimental group only
- 4- The two groups are taught the same material from the textbook.
- 5-The experimental group is taught according to the IBS whereas the control group is taught according to the traditional method.

**Table (1): The Experimental Design**

Group	Pre-test	Independent Variable	Dependent Variable	Post-test
EG.	Students critical reading	NHT Technique	Students critical reading	Students critical reading

CG.	Students critical reading	Conventional method	Students critical reading	Students critical reading
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### 3.3 Population and the Sample of the Study

Creswell (2012) defines a population as a group of individuals who have the same characteristic. While a target population (or the sampling frame) is a group of individuals (or a group of organizations) with some common defining characteristic that the researcher can identify and study. A sample is a subgroup of the target population that the researcher aims to study for generalizing about the target population.

The population of the present research includes all the fifth preparatory students in AL-Khansaa, AL-Kawther, AL-Sadeeq, AL-Nabighah, and AL-Ihram preparatory schools for girls in Fallujah city, during the academic year 2023-2024. The total number of students is **685**.

**Table (2) The number of total populations**

No.	Schools' Name	Number of students
1	AL-Khansaa	200
2	AL-Kawther	110
3	AL-Sadeeq	180
4	Nabighah	95
5	AL-Ihram	100
<b>Total</b>		<b>685</b>

The target sample of the present study includes 60 fifth-grade students of Al-Khansaa preparatory school for girls in Fallujah city, during the academic year 2023-2024. The students are distributed into two sections: A and B these sections have been randomly selected to represent the experimental and the control groups. Section A has been selected to be the experimental group which consists of thirty students, while section B has been selected to represent the control group, which consists of thirty students. Eight students are excluded from section A, and seven students are excluded from section B.

The total number that excluded from the two sections is fifteen students. The total number of the involved sample is 60 students as shown in table (3)

**Table (3) The Sample of the Study**

Sections	Groups	No. of pilot students	No. of sample students	Percentage
A	Experimental	8	30	80%
B	Control	7	30	
<b>Total</b>		<b>15</b>	<b>60</b>	

### 3.6 Construction of the Posttest

McNamara (2000) describes that the achievement tests are limited to specific material covered in a curriculum within a question. It can help as assign

of features that a student needs to work on in the future. The primary role of an achievement test is to determine the achievement of course objectives at the end of the period of instruction.

An achievement post- test has been given to students in which there are five questions. The posttest is constructed in terms of the contents and behavioral objectives of the instructional material. The first two questions measure students' achievement at the recognition level, while the last three questions measure students' achievement at the production level. An achievement posttest has five questions. The first and the second questions consist of six items. The third and fourth questions consist of four items. Question number five consists of two branches.

### **3.8 Validity of the Test**

Gronlund (1998) defines validity as the extent to which inferences made from assessment results are appropriate, meaning, and useful in terms of the purpose of the assessment. Validity as an integrate evaluative judgement of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment. Validity refers to the truth of the test when it measures the components that the testees proposed to measure. The purpose of validation in language testing is to ensure the justifiability and fairness of interpretations based on test performance. There are two important types of validity: face validity and content validity (Bynom, 2001).

#### **3.8.1 Face Validity**

According to Mousavi (2009), face validity is the degree to which a test looks right and appears to measure the knowledge or abilities it claims to measure, based on the subjective judgement of the testees who take it, the administrative staff who decide on its use, and other psychometrically simple observers. In order to ensure the face validity of the test, it has been exposed to a jury of specialists in the field of linguistics, methods of teaching English and English literature. All the notes and modifications stated by jurors have been considered.

#### **3.8.2 Content Validity**

According to Anastasia and Urbina (1997), content validity refers to "the systematic examination of the test content to determine whether it covers a representative sample of behavior domain to be measured".

Brown (2010) states that if a test actually samples the subject matter about which conclusions are to be drawn, and if it requires the test-taker to perform the behavior that is being measured, it can claim content-related evidence of validity, often popularly referred to as content-related validity.

#### **3.8.3 Construct Validity**

Weir (2005) illustrates that construct validity is a matter of the a posteriori statistical validation of whether a test has measured a construct in individuals. McNamara (2000) defines validity as relationship between evidence from test performance and the inferences about the candidate's capacity to perform in the criteria that are drawn from that evidence. Items of the test are treated by certain issues and criteria so as to judge about the suitability and practicality of the test to the level of the participants. These procedures are as follows: Difficulty level, Discrimination power, and Internal consistency. See table (12)

### **3.9 The Pilot Administration of the Posttest**

The aims of conducting a pilot study are as follows:

1. To make sure whether the items are suitable,
2. To analyze the test items, the difficulty level and the discrimination power of the items.
3. To evaluate the clarity of the test instructions.
4. To know how much time required for the examinees to answer the given questions.

In order to achieve these goals, the test has been given to a sample of thirty students, who purposefully excluded from the total participants. The test implemented on the fifth preparatory students in Al Khansaa preparatory school in 17 of February 2024.

After administering the pilot study, the researcher found out that:

1. The test questions and the items are related to teaching material.
2. There is no serious ambiguity in the instructions of the posttest.
3. The time required to answer the test items ranges between 40-55 minutes. This means that the average length of time required for performing the test is 50 minutes.

### **3.10 Test Reliability**

Reliability is an important characteristic of a good test. A test is said to be reliable if its degree of accuracy stays stable and consistent each time it is conducted under the same conditions for the same sample of students (Veram and Beard, 1981).

One of the necessary characteristics of a good test is reliability. Alderson (1995) states that "reliability is the extent to which test scores are consistent." Reliability is explained by Ravitch (2007). "In testing, a measure of consistency. For example, if a person took different forms of the same test on two different days, the scores on both tests should be similar. To achieve this aim, the test-retest method is considered. Thus, the same achievement test has been administered to the pilot sample of fifteen subjects. The two administrations have been performed within a period of thirteen days, taking into consideration the time, place, and quietness of the administration of the test on the two occasions. The Alpha-Cronbach formula is used to measure the

reliability of the posttest. The coefficient is found to be 0.87, which is considered acceptable (Alderson, 1995).

### 3.10.1 Inter-Rater Reliability

Inter-rater reliability refers to the consistency of data recorded by two or more raters, measuring the same subjects over a single trial. Inter-rater reliability is a measure of consistency used to evaluate the extent to which different judges agree in their assessment decisions (Scheel, et al, 2018). Inter-rater reliability determines the extent to which two or more raters obtain the same result when using the same instrument to measure a concept (Woldoff, 2004). Cohen's kappa coefficient is used to find out the consistency between two judges, which calculated to be (0.٦١) as moderate agreement.

### 3.11 Item Analysis

The test items are required to be analyzed in order to determine two important features: difficulty level, and discrimination power, as follows:

#### 3.11.1 Difficulty Level (DL)

The difficulty level is specified as the ratio of the students who replied correctly to each item (Rosas, 2000).

Item difficulty refers to the extent to which an item appears to be complicated or facilitated for a given number of tests. It just reflects the percentage of learners who respond correctly to the object. The most suitable test item will have item difficulty varying between 0.15 and 0.85 (Brown, 2010). According to the table12, the DL of the present test items varies from 0.32 to 0.72.

#### 3.11.2 Discrimination Power (DP) of The Posttest

Discrimination power means "calculating the degree to which a particular item's results correspond with the results of the entire test' (Alderson, 1995). This means that an object is deemed to have weak power of discrimination if it is correctly scored by high-skilled students as well as low-skilled students.

Item discrimination refers to the degree to which an object makes a difference between good and poor testers. An object has good power of discrimination if it collects the right answers from the good students and the wrong answers from the bad students. It is worth noting that the high power of discrimination will be close to 1.0, and no power of discrimination will be nil at all (Brown, 2010). The test item DP was found to have a range of 0.28 - 0.73. The test items for DP and DL are shown in the following table (12).

### 4.0 An Introductory Note:

In order to fulfill the aims of this study and verify the hypotheses, the results of the test are analyzed in such a way to find out the extent to which preparatory students' achievement levels have developed.

#### 4.1 Data Analysis

The student's responses to the test items have been analyzed statistically as follows:

##### 4.1.1 Results related to the First hypothesis

In order to achieve the first aim of the current study, the following hypothesis is verified "**There are no statistically significant differences in the mean scores of the experimental group which is taught by using NHT technique and that of the control group which is taught using the conventional method**".

To find out if there is any significant difference between the mean scores of the experimental group and those of the control group in the posttest. Statistics show that the mean scores of the experimental groups are 78.63 and those of the control group are 56.43. By using the t-test formula for two independent variables, the calculated t-value is found to be 5.652, while the tabulated t-value is found to be 2.000 at the degree of freedom 58 and level of significance 0.05. This means that there is a significant difference between the achievements of the two groups, in favor of the experimental group. Thus, the first hypothesis, which states that there is no statistically significant difference between the mean scores of the experimental group and that of the control group in the posttest, is rejected, as shown in table 14.

**Means, Standard Deviation, and t-Values of the Two Groups in the Achievement Test**

Groups	No. of students	Mean	SD.	T-Value		DF	Level of Significance
EG.	30	78.63	13.12	Calculated	Tabulated	58	0.05
CG.	30	56.43	17.04	5.652	2.000		

##### 4.1.2 The Second Hypothesis

In order to achieve the first aim of the current study, the following hypothesis is verified "**There are no statistically significant differences between the mean scores of the experimental group's critical reading at the recognition and production levels at the Post-test**".

It is found that the mean score of the difference between the students' performance of the experimental group in the Production is 48.93 with a standard deviation of 8.31. Whereas the recognition level is 29.40 with a standard deviation of 5.92, The calculated t-value is 16.171, which is found to be higher than the tabulated t-value, which is 2.045. The degree of freedom is 29, with a level of significance of 0.05. Thus, the second hypothesis, which states that there is no statistically significant difference between the experimental groups' performance in recognition and their performance in

production level, is in favor of the Production level. Therefore, the second hypothesis is rejected, as shown in the table 15.

**The T-test Value of paired samples, the Experimental Group Performance in the Pretest and Posttest**

Group	No. of students	Mean	SD.	T-Value		DF	Level of Significance
Production	30	48.93	8.31	Calculated	Tabulated	29	0.05
Recognition	30	29.40	5.92	16.171	2.045		

**4.1.3 The Third Hypothesis**

In order to achieve the first aim of the current study, the following hypothesis is verified **"There are no statistically significant differences between the mean scores of the experimental group in critical reading skills interpretation, analysis, inference, evaluation, explanation, Text structure and Purpose, Meaning words & Phrases. at the Post-test"**.

In order to achieve the third aim of this study, which states "that there is no statistically significant difference between the mean scores of experimental group students at seven components of critical reading," a one-way analysis of variance is used, as shown in the following table:

**One-Way Analysis of Variance (ANOVA)**

Groups	Sum of Squares	DF	Mean Square	F-value		Sig.
				Calculated	Tabulated	
Between Groups	2813.829	6	468.971	69.941	2.89	0.05
Within Groups	1361.167	203	6.705			
Total	4174.995	209				

The table 16 shows that the calculated f-value of 69.941 is higher than the tabulated f-value of 2.89 at the 0.05 level of significance and DF = 6,203. This indicates that there are significant differences between preparatory school students in seven components of critical reading.

**Table (17) Comparisons of Means Between Seven Components of Critical reading (Scheffe<sup>a</sup>)**

Groups	N	Subset for alpha = 0.05		
		1	2	3
Meaning words & phrases	30	4.5667		
Explanation	30		9.4333	
Inference	30		9.7667	
Text structure & purpose	30		9.7667	

Interpretation	30			14.3667
Analysis	30			15.2333
Evaluation	30			15.2333
Sig.		1.000	1.000	0.946

According to the table 17 above, the comparisons of means showed that the mean scores of the meaning words and phrases are 4.5667, explanation is 9.4333, inference is 9.7667, text structure and purpose are 9.7667, interpretation is 14.3667, analysis is 15.2333, and evaluation is 15.2333 with a harmonic mean sample size of 30. This means that there is a significant difference between meaning words and phrases and the three components: explanation, inference, text structure, and purpose, in favor of explanation, inference, text structure, and purpose at a level of significance of 1.000. Whereas there is a significant difference between explanation, inference, text structure and purpose, and the other three components: interpretation, analysis, and evaluation, and in favor of interpretation, analysis, and evaluation at the level of sig. 1.000. Thus, the third hypothesis is rejected.

#### 4.2 Discussion of the Results

The results obtained in the current study show that the achievement of the experimental group which is taught by using NHT has a more positive role in teaching critical reading than that of the control group which is taught by using the conventional method. This means that NHT proves to be more effective and usable in teaching critical reading. The improvement of students 'achievement in learning critical reading took place for the favor of using NHT. This success does not come from vacuum but more justifications are discussed with illustrative figures. According to the results of the **first hypothesis**, the achievement of the control group which is taught by using the conventional method is leveled lower than the achievement of the experimental group which is taught by using NHT as it shown in figure 3. The positive effect of the later may be attributed to students themselves who investigate and discover information through their learning process (learning by doing / students-centered learning) therefore, the obtained data may not be forgotten for a long time. The NHT also gives students opportunity to ask teachers and share their ideas with other classmates. The weakness of the control group may be due to the lack of students' role in the learning process (passive learners/ teacher-centered learning) just stay stable and receive data.

Through looking at the results of the **second hypothesis** the achievement of the students at the level of production is higher than their achievement at the recognition level as clarified in figure 4. At production level, the favor is granted to NHT which successfully enlarges students' imagination and expands their vocabularies that takes place through investigation. It also encourages self-learning that supports learners' confidence and expressive aptitude to write at

least part of the answer especially in the productive questions rather than zero (if the answer is incorrect) as in recognizable questions that mostly answered with memorized material which need less deal of one's own words.

The results of the **third hypothesis** indicate that the students' achievement in the seven components of critical reading is as the following that the mean scores of the meaning words and phrases are 4.5667, explanation is 9.4333, inference is 9.7667, text structure and purpose are 9.7667, interpretation is 14.3667, analysis is 15.2333, and evaluation is 15.2333 with a harmonic mean sample size of 30. This means that there is a significant difference between meaning words and phrases and the three components: explanation, inference, text structure, and purpose, in favor of explanation, inference, text structure, and purpose at a level of significance of 1.000. Whereas there is a significant difference between explanation, inference, text structure and purpose, and the other three components: interpretation, analysis, and evaluation, and in favor of interpretation, analysis, and evaluation at the level of sig. 1.000. Thus, the third hypothesis is rejected.

## **5.0 Introductory Note**

This chapter consists of three sections. The first section deals with the main conclusions summed up from the results of the present study, while the second section presents some recommendations, and finally, the third section contains suggestions for further studies.

### **5.1 Conclusions**

According to the obtained results of the current study, the following points have been concluded:

- 1- The achievement of the students of the experimental group is better than that of the students of the control group which indicates that those students have efficiently engaged in learning through NHT technique than the conventional method as NHT technique was more interesting and commanded their attention longer.
- 2- Using NHT increased a variety of lessons when preparing lessons for instruction, which of course reduced the students' boredom of seeing the same things all the time.
- 3- It also increased the students' motivation and involvement in the classroom.
- 4- NHT was easy to use in presenting the lessons, saving them and retrieving them again several times.
- 5- Students show a positive response towards NHT since it is easy and simple to use and creates a joyful environment.

### **5.2 Recommendations**

In term of the obtained results and drawn conclusions, the following recommendations are put forward:

- 1- Schools are advised to use NHT in teaching the English language to improve their students' critical reading.

- 2- Curriculum designers in the Ministry of Education are recommended the adoption of NHT in teaching the English language.
- 3- Teacher of EFL English language should be involved in in-service training workshops that aim at familiarizing teachers with the use of NHT in the classroom situation.
- 4- The need to equip the schools with NHT to facilitate and enrich the teaching-learning process.

### 5.3 Suggestions for Further Studies

For further work, the following studies are suggested to investigate:

- 1- The Role of Number Head Together (NHT) Technique in evoking critical reading for EFL university students.
- 2- The Role of Number Head Together (NHT) Technique in evoking critical thinking for EFL university students.
- 3- The effect of Number Head Together (NHT) Technique on EFL university students' achievement.
- 4- The Role of Number Head Together (NHT) Technique EFL school students' vocabulary.

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