



The Effect of Using Number Heads Model on Developing Vocabularies of 10th EFL Grade Students in Jordan

Rafah Awad Abd-Alsalam Al-Tarawneh ⁽¹⁾ | Majid Mohammad AL-Khataybeh ⁽²⁾

^{1,2}Faculty of Educational Sciences, Mutah University, Al-Kerak, Jordan.

Email: ¹Rafah.cck@gmail.com, ²majid@mutah.edu.jo

Abstract

This study sought to determine the effect of using number heads model on developing vocabularies of 10th the EFL female grade students in Jordan during the second semester 2021-2022. The sample of the study comprised (49) female students who were selected purposefully from AlMazar secondary school for girls. The first group of (25) students was taught using the number heads model, and the second group of (25) female students was taught using the conventional method. To achieve the purpose of the study, a written pre and post-test were designed to examine students` skills in vocabularies. The findings of the study revealed that there were statistically significant differences at ($\alpha \leq 0.05$) in favour of the experimental group. Based on the results of the study, several recommendations were suggested

Keywords:

EFL,
number heads,
tenth graders,
vocabularies

Introduction

One of the main important life aspects is that a man has to be educated for Language learning which is considered a tool used by both parties to communicate with one another, and demonstrate their mutual comprehension. The language itself can help us better channel our thoughts, feelings, and a variety of other things. There are many languages in use today; even one region may have up to two and a lot of individuals speak a variety of languages in today's world. The English language is one of the most widely spoken languages (Putra, 2020). Language is the key to determining learning achievement in the field of education. English is a universal language that is spoken in practically every country on earth. English is a language that can be used for oral and written communication. It is used as a communication tool to obtain information, strengthen bonds between people, share knowledge, and appreciate the beauty of language in English culture (Marhamah and Mulyadi, 2020). The English language is taught in Jordanian schools, with the overarching purpose of communication. That is, learners must learn the four skills of the language: listening, speaking, reading, and writing. English is taught from a young age in all Jordanian schools; however, since the 1990s, English has been taught alongside Arabic at the age of four in all Jordanian schools, (Yassin, 2015). The Jordanian Ministry of Education revised English language curricula and created new departments for English language learning and teaching. These effects occurred to be moving in the same direction: to more efficient practical English instruction (Al-Khataybeh, 2002) According to Brown, (2000) learning and

memorizing so many new vocabulary terms in a foreign language is a daunting task. According to (AL-Khataybeh and Al-Tarawneh, 2018), Teachers and students should consider a number of variables when phrase a sentence, including vocabulary, mechanics, grammar, structure, and content. Teachers must employ effective ways to help students build their talents; they must allow students to think meaningfully outside the box and communicate their ideas and thoughts without fear of making mistakes. As a result, this study provides two models that might help students understand how to deal with vocabularies and language challenges and how to be efficient in growing mastery of the English language. This is accomplished by utilizing the effect of using number heads on developing vocabularies of the 10th EFL grade students in Jordan.

Statement of the Problem

By working in the education sector as an English language teacher in the public and private sectors, the researchers noticed that school students and EFL learners face difficulties in constructing structure and vocabularies, even though they have a large vocabulary that they have formed since the beginning of their language learning and are unable to formulate some sentences that are fully understood by the meaning which leads to the loss of the general meaning. From the foregoing, teachers are required to use many modern teaching strategies that help learners form their sentences in correct and useful vocabularies, free from linguistic and grammatical errors, and various in meanings according to the vocabularies as some of these strategies help the teacher deliver information and help the learner to memorize and use it optimally. Vocabulary teaching and learning are ongoing challenges for both teachers and students since there has historically been a lack of emphasis on vocabulary instruction in the ESL classroom (Tamimi and Rajabi, 2018). As a result, an enhanced emphasis on vocabulary growth is critical for English language learners throughout the language acquisition process, it is critical to emphasize the significance of vocabulary education in the EFL classroom. Putra (2017) discovered that vocabulary teaching increases comprehension directly. He also claims that as the complexity of words in a book grows, so does knowledge of the material; hence, in order to grasp new concepts, learners must have a solid command of terminology. We must also have something to say, something to communicate, words to choose, and something to define. As a result, it has become necessary to conduct a study that aims to examine the learners' learning vocabulary strategies (Al-Khataybeh, 2000). This study investigated the effect of using number heads and roundhouse models on developing grammar and vocabularies of the 10th EFL grade students in Jordan.

Significance of the Study

The results of this study could enlighten curriculum experts and teachers about the impacts of using number heads model in enhancing students vocabularies of EFL 10th grade students. This study might be important for the following reasons:

1. It helps students learn how to use, and pronounce fully correct vocabularies constructed in full sentences and to enlighten the problem that they may face while composing a sentence.
2. It gives teachers and students the opportunity to use successful, beneficial, and innovative ways in teaching vocabularies, such as those used number heads model
3. The findings of this study are likely to assist decision-makers in directing instructors to use successful teaching/learning techniques, such as the Number Heads model, in the teaching of English language grammar skills.

Purpose of the Study

The study's primary objective is to investigate number heads model on developing vocabularies of the 10th EFL grade students in Jordan.

Questions of the Study

1. Is there an effect of using number heads model on the development of the 10th grade students' grammar and vocabularies?
2. Are there any statistical significant differences at ($\alpha \leq 0.05$) on developing the students' vocabularies that could be attributed to the variable of number heads model learning strategies?

Operational Definition of Terms

Number Heads model (NH)

Is a cooperative learning method created by Spencer Kagan (1992) aimed to alter the patterns where each student in the group has a distinct number depending on the number of participants in the group (Fithiawati, 2014). NH is a learning group allow students to express their ideas and encourage all members of the group to be more involved in working together to improve academic mastery (Leasal and Aloysius, 2017). It is a method of cooperative learning that makes each member of a group responsible for mastering the subject matter. With this method, the students must work in groups and collaborate to identify a solution that involves every group member. Everyone in the group must be aware of the solution because no one can predict when the teacher will ask someone to present the answer (Cooper, 1999). In this study NH is a learning model was used as one of the two study independent variable. It was implemented on (24) female student from the 10th grade of study sample as the first experimental group, the implementation conducted inside their class. They were divided into small groups with heterogeneous students, with structured process as below:

1. Class was divided to six groups
2. Each group had four students
3. Each participant in the group was given a different number (1– 4)
4. The teacher asked a question, (the question should be asked for a multi-part answer so that more than one team can respond).
5. To ensure that everyone is aware of the solution, students from each group put their heads together and discussed the suitable solution.
6. The teacher ask for a number to answer. (The student with that number must either raise their hands or stand each time the teacher names a random number (1–4))
7. Students answered the question and score the wining team from the divided group according to the correct answers

The design of Numbered Heads is a great tool for reviewing ideas and ensuring comprehension. Positive interdependence, simultaneous contacts, and personal responsibility are encouraged. Since they are all participating at the same time and are reliant on one another for ideas, each student is responsible for knowing the solution because they are unsure of who will be chosen. It has a straightforward structure with just major stages (Kagan, 1992).

Vocabulary

Vocabulary learning aids in the acquisition of language and the development of the learners' reading skill. It consists of four stages: discrimination, comprehending meaning, memorizing, and consolidation and expansion of meanings. Teachers have given a number of definitions for the term vocabulary (Carneiro, 2014). "To some, it symbolizes sight-word vocabularies, or kids' instantaneous recognition of words. Others refer to it as meaning-vocabularies, which reflect the words that kids understand; it is also referred to as listening-vocabularies. It is the information that the learners should have about the meanings of words, according to the content teachers. It is an academic vocabulary that represents the content-specific terms or students' understanding of the oral and print words. There are two kinds of comprehension: receptive (understand or recognize) and productive (write or speak)" (Afzal, 2019). Of course, pupils should grasp vocabulary in addition to speaking, reading, writing, and listening. Understanding the vocabulary of the English language is one aspect of learning a language, in addition to the other aspects. The pupils must have a sufficient vocabulary to be able to communicate effectively in a variety of circumstances in order to meet the demands of learning English, which can be communicated both orally and in writing. The most fundamental ability a person learning English must possess is vocabulary mastery (Marhamah and Mulyadi, 2020). In this study, the definition of vocabularies concentrates on: making logical arrangements for ideas and paragraphs, using punctuation to clarify meaning, linking ideas coherently, choosing and using appropriate vocabulary, using strategies to enable them to spell correctly.

Tenth Graders

it is the highest level of the basic educational system in Jordan whom their age between 15 to 16. In this study, they are the 10th grade female students.

EFL

in this study EFL is regarded as English as a Foreign Language Peng(2019) defined EFL as learning English in non-English-speaking countries learners' who learn English in their country are EFL learners whose English is not the first language or the official language of the country.

Limitations of the Study

The study is limited to the following points:

- In terms of sample size, this study is limited to tenth grade students in the schools of Southern Al-Mazar directorate of education.
- In terms of instrumentation, this study is limited to the use of an English vocabulary test constructed by the researcher, and it's validity and reliability were evaluated.
- In terms of time, this study was conducted during the second semester of (2021 - 2022).
- In the term of subject, this study is limited to the following syntactic patterns, passive voice and relative clauses.
- In term of place, this study is limited to Southern Almazar directorate.

Theoretical Framework

“Language is a primary mode of communication since the goal of communication is to get meaning. A same process occurs when learning English. Everyone knows that English is a worldwide language that will accompany people from all over the world. It means that everyone can speak in English with one another” (Eldoumi, 2012). Each child is therefore introduced to English at an early age. There are various factors to take into account when studying English, like the structure, types, abilities, and so forth. A fresh student must master a large amount of vocabulary terms in the first few months of study. The EFL beginner student must learn the vocabulary required to greet each other, give and request personal details, and inquire about directions. They also need to learn colours, figures, and adjectives to verbal descriptions in both written and oral expression, which are all crucial in the process of learning any language. Of course, students come in with hopes and concerns about their abilities and future possibilities.; teachers, on the other hand, may assist ease this transition by approaching this vocabulary acquisition assignment in a nice and simple manner (Lamosas, 2011). Given the significance of vocabulary in both communication and language learning, it is crucial for any language education program to help students build a broad vocabulary. Additionally, acquiring a language is considered to be a difficult task. Nazara, (2019). Thus Thornbury, (2004) argued in favour of including vocabulary instruction in language lessons. Most EFL students struggle with vocabulary and get frustrated when they don't have enough words to communicate what they think or when they don't comprehend the meaning of crucial vocabulary words used in a chapter. As a result, individuals give up on speaking, writing, or reading comprehension because they find it too difficult, laborious, or boring. To assist kids avoid irritation and enjoy language learning tasks, vocabulary growth is essential.

What is Vocabulary?

Without a large vocabulary, one cannot properly listen, speak, read, or write, nor can one communicate. The well-known linguist Leaf believes that having a large vocabulary is essential for properly using foreign languages. There are no words or thoughts. Linguists have also noted that the vocabulary is wide, irregular, and difficult to manage, among other characteristics; it is frequently tough for learners. As a result, vocabulary learning is critical to English language acquisition (Duan, 2017). Along with word meanings, vocabulary also refers to the order of words in a language. Refers to the relationship between words, phrases, word categories, and word phrases as well as how humans use, store, and learn words. A person's knowledge of terminology, the number of words in a language as a whole, and a list of words with meanings or translations are a few examples of different types of vocabulary. (Putra 2017). Everyone is aware that vocabulary is the smallest unit of language and the base of human cognitive activities and thoughts. Learning a foreign language affects a person's capacity to express himself in language and his accuracy of direct idea expression. Linguist Harman once stated that if structure is the skeleton of the language, vocabulary is the most vital organ and blood, demonstrating the importance of vocabulary learning (Duan, 2017). Vocabulary for hearing, speaking, reading, and writing the term "listening vocabulary" refers to all of the words that a person may identify when listening to speech. The term "speaking vocabulary" refers to all of the words that a person can employ in conversation. Reading vocabulary, on the other hand, refers to all of the words that a person may recognize when reading a book. Then, writing vocabulary contains all of the terms that an individual can use in writing that are connected to lexicon, which refers to an individual's lexicon (Putra 2017) .

According to Lon (2013), vocabulary is defined as all words contained in the language, words controlled by a person or words used by a group of people from the same environment, words used in science, and words used in linguistics. Although not all morphemes that exist in one particular language are vocabulary, the majority of the morpheme is subjected as a vocabulary, and can be a number of words, phrases, and terms of an alphabetically constrained language with limits and captions. English vocabulary is a collection of words that are known to mean something and can be employed in a language. A person's vocabulary is defined as the collection of all words that person understands or that person uses to construct a new sentence. Usually, it is assumed that a person's vocabulary reflects their level of education or intelligence. Vocabulary comprehension is frequently seen as an essential component of language acquisition or the growth of a person's proficiency in a learned language. New terminology are usually taught to students as a component of a particular subject, and many adults view the process of building a vocabulary as both entertaining and educational. (Marhamah & Mulyadi, 2020). Larsen (2003) highlights the importance of vocabulary development by relating the number of words students know to academic language learning resources. He maintained that a lack of word awareness is the root cause of academic failure. The breadth of a person's vocabulary affects how well they comprehend a material. Between 2,500 and 5,000 words should be in a beginner language learner's vocabulary.

Vocabulary Teaching Principles in General

Nunan, (2003) proposed four principles for teaching vocabulary: First, the most important terms should be the focus of the teacher. Many different contexts can be utilized with some words. Other's use is far more constrained. The best return on learners' learning investments comes from emphasizing the teaching of useful words over less helpful ones. The most helpful words are those that are necessary for any English learner to hear, speak, read, and write, as well as to utilize in both official and informal situations. Second, the teacher should put their full attention toward vocabulary instruction. This concept deals with the best ways to teach and learn to students. Teachers must differentiate between how they handle low-frequency words and high-frequency terms. Third, all during the class, the teacher should concentrate on high-frequency words. The majority of a course requires the use of high-frequency vocabulary. It should be acknowledged, used for speaking, reading, and writing messages, and given careful consideration through research and instruction. Access to high-frequency words should be simple for both receptive and productive activities. Fourth, the teacher should challenge the students to reflect on and take ownership of their own learning. This fundamental idea need to be the cornerstone of all judgments and instruction. Students must realize they are responsible for their own education.

What is Number Heads Model?

It is one of the cooperative techniques that can be used is the NH technique. Numbered Heads is a group learning technique that motivates students to take more ownership of their education and learn from both the teacher and one another. Typically, the class is divided into small, heterogeneous learning groups, with student's assigned numbers ranging from 1 to 4, using the Numbered Heads (NH) technique. (Safitri, 2018). NH is a method of cooperative learning where each student is responsible for comprehending the subject. Each student in each group is given a number and their own work in this strategy, but they are required to choose the best and most appropriate response for the group by taking into account the responses of all the group members. Kagan (1992) was the first to develop

NHT in order to involve more students in lesson-based learning material and to evaluate their understanding of the information presented. (Ratnawati and Hortono, 2018). The number assigned to each pupil is designed to assist her focus on her assignment. In this scenario, the teacher assigns a text to the pupils to read as well as a sheet of questions based on that text. They then read the material and work together to discover the best response to each of the teacher's questions; each group must ensure that every student in the group knows the answers. Furthermore, the teacher selects a student at random from those who raise their hands to respond to one of the questions, and then verifies with other students for agreement. They had time to discuss and settle on the best solutions because they were given time to do so. Everyone, including lower-achieving pupils, is more likely to know the correct answer. Furthermore, because they can't predict who will be called on to react, they're more inclined to make sure everyone in their group understands the answers. (Safitri, 2018)

Number Heads Model Steps

The game leads your class through a number of stages designed to encourage learning through collaborative study, active participation, and personal responsibility.

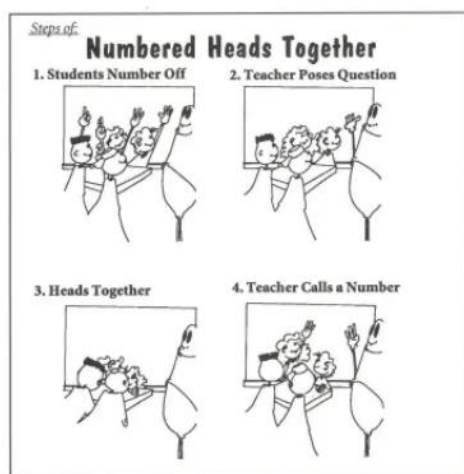
1. Thinking time. Everyone mulls over their options for answering the inquiry. There is silence.
2. Compose a response. On a separate piece of paper or response board, each person writes their own response.
3. Join your ideas. Team members combine their resources and exchange ideas. They discuss, teach, and come to an agreement on a team answer so that everyone is aware of the answer or how to solve the problem.
4. Who Responds? The Student Selector spinner in the game is used to select one student from each squad. The selected students are all upright and prepared to answer on their own. They're not allowed to talk to colleagues anymore.
5. Respond to the question. How the students respond to the question is decided by the teacher.

All standing students display their response boards:

- A. The teacher asks one of the standing students to share their solution aloud.
- B. The teacher selects a student from a team to share using Team Selector.
- C. The teacher asks several standing pupils to share.
- D. For True/False or Multiple Choice questions, students use response cards or their fingers.
- E. The teacher assigns a similar problem to the chosen team representative

Figure 1

Steps of Number heads model



Source: <https://www.csuchico.edu/cbms/assets/documents/numbered-heads-together.pdf>

The Advantages of Number Heads

According to Fithyawati, (2014), the advantages of Number Heads are:

1. (NH) can increase students' academic progress and can be used in nearly every topic. It is beneficial in developing the four language abilities, improving English proficiency and enhancing grammar and vocabulary.
2. (NH) can boost student involvement.
3. (NH) reduces the dominance of intelligent students, allowing students' equitable participation to be visible.
4. (NH) can encourage kids since it creates a feeling of competitiveness and excitement for them. Furthermore, pupils will be desired and encourage since their teammates will assist them. Students that are motivated will actively participate in the lesson.
5. (NH) encourages talented kids who know the answer to assist other team members who do not. Having to educate and be mentored by peers makes the exchange of knowledge much more dynamic than rote remembering and isolated textbook work.

According to Adhini, (2017) numbered Head Strategy has some advantages too;

1. Students have a positive reliance on one another.
2. Students can work together to overcome the learning difficulty by studying together.
3. Make cooperative learning a regular practice.
4. Reducing learner failure in the learning process, because students can discover a solution to the material issue provided material.

According to (Adhini, 2017), numbered head also has some weaknesses, as;

1. There is a negative reliance among pupils since some students will wait for responses from other students.
2. The students must carefully supervise the learner.
3. Sometimes learners have conflicting viewpoints and find it difficult to reach an agreement.

When Can We Use Number Heads?

1. Science: Use this method to prepare for an exam or quiz. Ask questions regarding the topic that will be on the test or quiz using the numbered heads together technique.
2. Math: When solving math problems, numbered heads can be utilized together. "What are the facts in this problem?" and "Which technique would be most appropriate?" are examples of good questions to ask.
3. Writing: Using a rubric, students can assess the quality of their writing.
4. Social Studies: This method can be employed after reading a chapter in a text or after presenting material.
5. English: Comprehension questions can be assigned to groups, and students can collaborate to find solutions

Number Heads and Vocabulary Acquisition:

Despite having learned English since elementary school, the majority of students in school still have difficulty speaking. There are several issues that students experience when speaking, such as the fact that most students remain quiet during the teaching learning process since it is difficult for them to convey their ideas in English. When the teacher questions them about the topic, the majority of them are unable to respond because they have no idea what to say in English. Furthermore, when the teacher asks them to speak English in class, none of them want to since they are bashful and afraid of speaking, (Patau, 2022). To address the issues raised above, the teacher should make every effort to ensure that the learners can talk well, such as allowing them to practice speaking every day. There are numerous excellent tactics or strategies that teachers can employ to teach speaking, such as number heads combined in teaching speaking to achieve the best results and help students speak English properly. Cooperative learning with numbered heads together is effective because the teacher has power over both the group and each individual member of the group. (Rahman and Kencana, 2020). English teachers use cooperative learning strategies such as NH in their teaching and learning processes. The group works together to fulfil the study's goal of group members supporting one another. It has been demonstrated that cooperative learning improves students' ability to employ language when speaking. A cooperative learning group is made up of two or four students. Students with poor ability will be assisted by students with high ability while they study together in the group. The group's students have varied levels of speaking ability. Different talents are not an issue in cooperative learning, but this method can help students with varying capacities learn. (Patau, 2022).

Literature Review

The researchers reviewed and browsed several studies with common aim with the current study. Among which are the following studies that are presented from the current to the oldest .

Septona and Pusparini (2022) used the classroom action method in their study on the employment of number heads together to enhance vocabulary acquisition in the eighth grade students in the academic year 2019–2020. 30 pupils make up the study's sample. The researchers addressed the issue of improving vocabulary knowledge after putting the activity into practice. The students were able to deduce the word's meaning from the context. When teaching vocabulary, the number head combined method facilitates student comprehension and memorization. Enthusiastic and take pleasure in the teaching-learning process

Patau(2022) examined NH in his research which was its purpose to determine the effectiveness of cooperative learning with the Numbered Head Together technique in teaching speaking at Grade VII. The research was of the qualitative nature. The research discovered that the adoption of the numbered head together technique itself: The highest student grade was 93.3 and the lowest was 53.3. The majority of the student scoring categories were excellent.

Solikhin et al (2021) employed the NH model to enhance student learning outcomes and encourage student participation in the online learning process. The learning result test instrument and the student activeness observation sheet were the tools employed in this study, which involved 34 students as participants. This research is separated into two cycles, and the findings during the online learning process, there was an increase in student involvement and learning outcomes. From 40.19% in cycle I to 85.29% in cycle II, student involvement in online learning rose. In the meantime, from 55.88% in the first cycle to 57.88% in the second cycle, the proportion of students who successfully fulfilled their learning outcomes rose to 82.35%. Both have achieved or above the 75% mark. And as a result, various recommendations were made.

Pardede and Herman (2020) investigated the effect of the numbered heads together method using quantitative research on grade IX students' ability in writing recount text at SMP N 2 Siantar. The researcher used two classes as the sample, one for the experimental group and one for the control group. By creating a recount test for both groups; data were analysed using the t-count. It was discovered that the t-count value was greater than the t-table value ($2.25 > 1.76$). It is concluded that the numbered heads together method has a significant impact on the students' ability to write recitation text. To improve the students' ability, the teacher should use the numbered heads together method when teaching English, particularly when teaching writing recount text.

Widyaningtyas et al (2018) studies the challenges that instructors have while using the Numbered Head Together learning paradigm in social science classes. The study is qualitative descriptive in nature. The research focuses on a third-grade elementary school teacher in Sukoharjo Sub-district. The study findings were evaluated using Miles and Huberman's interactive analysis and presented using a descriptive narrative style. The findings highlight a number of challenges that the teachers faced. For starters, there is a time constraint. Second, due to the great number of kids in the classroom, the environment is loud. Third, the overall number of pupils is not equal. Fourth, the pupils are always interfering with one another. Fifth, the group does not consist of all of the pupils. Sixth, the kids are not actively participating in the discussion. Seventh, the pupils lack confidence in their ability to present.

Safitri (2018), conducted a study about teaching Reading Comprehension by Using Numbered Heads Together Technique. To learn how to educate students to grasp reading using NHT and to learn about some of the benefits of utilizing NHT in teaching reading comprehension. To meet the study's objectives, the researcher conducted pre-experimental research utilizing the Numbered Heads Together approach. The experiment was conducted in a single experimental class. The information was acquired using tests, which were given as a pre-test and a post-test. In this study, a questionnaire was utilized as a tool to collect data on student replies. According to the findings of this study, the Numbered Heads Together approach was helpful in teaching reading comprehension. These results demonstrate that there is a substantial difference before and after using the Numbered Heads Together approach in teaching reading comprehension. As a result, the Numbered Heads Together Technique is useful for teaching reading comprehension.

Leasal and Aloysius (2017) looked at how the number heads together (NH) cooperative learning paradigm affected the cognitive performance of elementary children in natural

science. Both NHT and conventional teaching techniques were accessible. The discrepancy between students' cognitive accomplishment based on learning models and total academic competence was supported by the results. Finally, educators are asked to use a variety of cooperative learning techniques to produce learning that is more innovative. Furthermore, in order to reduce unfair competition among students in the classroom and subsequently enhance students' academic ability, schools are encouraged to promote a more cooperative learning atmosphere. To evaluate the significance of other cooperative learning components on kids' cognitive development, more research is required.

Adhini (2017) examined the efficacy of the numbered heads together method in enhancing students' reading comprehension of narrative literature. The research population was made up of SMK N 11 Semarang eleventh graders. In two classes, the research strategy was used. The study's conclusions show that those two classes' pre-test performance was identical. After the intervention, post-test results showed that the controlled class' mean was 71.68 and the experimental class' mean was 83.84. It means that the experimental class's students did better than its control group's kids. It is possible to draw the conclusion that Numbered Head Together significantly affects reading ability based on the results.

Rayanto (2017) studied the Number Head Together, one of the cooperative learning strategies, might increase students' reading comprehension. This research was designed as Classroom Action Research (CAR) since it focuses on teaching and learning actions in the classroom. This study was carried out in the eighth grade of SMPN 1 Rejoso Kabupaten Pasuruan, which has 27 students in the D class. The outcome of this research may be described as a success because there was an improvement in progress from each cycle done. It was demonstrated by the test results in cycle one (52%) and cycle two (84%) from the standardized success criteria of which 80 percent of the students received a minimum standard score of 76.

Discussion of the Previous Studies:

After analysing some of the most relevant studies to the subjects of this study, this study discovered that, to the best of the knowledge of the researcher, there has been no previous study that compares the two learning models in the development of grammar and vocabulary of 10th EFL grade students; most prior research that examined the use of one of the two models in different cognitive domains as reading comprehension in (Patau, 2022; Safitri, 2018; Adhini, 2017; Rayanto, 2017). In social studies as in Widyaningtyas (2018), science as Leasal (2017) and online learning as in Solikhin and Dewi (2021) it shown also from the studies that the researchers focuses on the reading skills more than the vocabularies acquisitions which need to compiles with all together . Only four studies were discuses directly the effect of using the number heads on the developing of vocabularies but not for the 10th grade EFL students as in Septona and Pusparini (2022), Pardede and Herman (2020). Limited and few studies were conducted about the effect of using Number Heads Model in the developing of vocabularies of 10th EFL grade students, whereas, this study investigated the effect of using number heads and on developing vocabularies of 10th EFL grade students in Jordan during the second semester 2021-2022, that was applied in schools, so it was unique in comparing these strategies especially in developing grammar and vocabularies of 10th grade EFL learners . This study contributed to enrich and expand the learning process with effective strategies as it was applied in southern Al-Mazar Directorate of education. Also this study benefited from literature review especially in developing the suitable tools of the

Design of the Study

For this study, a quasi-experimental research approach was used. This method employs the design of equivalent groups, which entails selecting three groups: the first and second are the experimental groups, which were taught using the strategies of numbered heads and the roundhouse, including both, while the third is the control group, which was taught using the conventional method.

Table 1

The Study design

Group	Pre -Test	Teaching Strategy	Post -Test
Experimental Group		Number heads	
Control Group	Conventional		

Population of the Study

According to the statistics of the Planning Department in the Directorate of Education of the Southern Mazar District, the study population consisted of all students in the tenth grade in the Directorate of Education of Southern Mazar District during the second semester of the academic year (2021/2022), and their number is (1430) students.

Sample of the Study

The study sample consisted of (50) tenth grade female students who were randomly chosen to: a control group that was taught using the conventional method, with a total of (25) students, and experimental group, with a total of (25) students who studied using the numbered heads, Table (2) shows the sample distribution.

Table 2

Sample Distribution

Group	Number of students	Percentage
Experimental Group (Number heads)	25	50%
Control Group (Conventional)	25	50%
Total	50	100%

Al Mazar Secondary School for Girls was chosen as a sample to study from the schools of southern Al Mazar Directorate of Education by the intentional method during the second semester 2021-2022, due to the cooperation of the study teachers with the researcher, the presence of the place appropriate application for the experiment, and for the presence of the appropriate number of students.

Design and Variables of the Study

This study followed quasi-experimental research design. The variables of the study are the independent and dependent variables, where independent variable includes (the teaching method), which are:

1. Number Heads model
2. Conventional method

While the dependent variable is:

1. Vocabularies of EFL students

Equivalence of the Three Groups

The equivalence between groups was verified using the one-way ANOVA and the two tables (3, 4) show the results:

Table 3

Means and standard Deviation of the three groups (Roundhouse, Number heads and Conventional on the pre test

Test	Groups	Number	means	Std. Deviation
Before	Experimental group (Number heads)	25	33.12	4.969
	Conventional Group	25	34.08	4.443

The results of Table (3) shows that there are apparent differences between the arithmetic averages of the performance of the study sample members in the two groups on the pre-test, Based on the means, the means of the experimental group that was taught using the Number heads method was (33.12), and the mean of the control group that was taught in the conventional way was (34.08).

The Instructional Material

The test topic was taken from Edwina, (2014) Action Pack, 10th grade English textbook. Action Pack is a twelve-level curriculum which is studied by Jordanian students from the Basic to the Secondary stage. It is built on language teaching methods, uniting a topic-based approach with functional communicative activities, specific attention to grammar and vocabulary, and a comprehensive skills syllabus. The textbook is structured into six modules: three in the first semester (Starting out, the natural world, Science) and three in the second semester (Journeys, Climate and Earth, Tourism), with two sections in each module. The book offers a wide range of topics targeted to Jordanian tenth grade students' educational goals and learning methods. In accordance with the approval of the Board of Education resolution No. 56/2013 for the 2013/2014 academic year this book was accredited for teaching by the Ministry of Education in the Jordanian schools. The passive voice, the conditional sentences and the relative clauses were chosen as the unites of the study that are included in units five and ten. Table No. (4) shows this

Table 4

Subjects of the study

No.	Subject	Page
1	Passive Voice	56-82
2	Relative Clauses	56-82

Instruments of the Study

The researchers constructed the following instruments to meet the research objectives:

1. (Pre – Post) Test

To meet the study's objectives, the researchers created a test to assess the level of vocabulary development that measures the effect of the educational material that was prepared according to the numbered heads, compared to the conventional teaching method . First, the researchers determine the purpose of the test: which aims to measure the pre and post development of the tenth grade students in the English language book through the units from the seventh to the tenth. To determine the type of test items, the test was prepared in the form of (fill in the blank, correct between brackets and rewrite the sentences). According to the analysis of the content of the educational material, the test was prepared in its initial form by building (40) Items, to cover all aspects of the topics specified in the current study.

2. Lesson Plan: The Lesson Plan Was Built Through the

Identification of the material, represented in the unit from the seventh to the tenth unit of the English language book / second semester of the tenth grade and distributed over the following lessons (passive voice and relative clauses). Determining the topics: The topics for the experiment were determined from the English language book / second semester of the tenth grade. Preparing a models of daily study plan according to the numbered heads strategy, and

3. Test Validity

To ensure the test's validity, it was handed to a jury of (10) professionals as well as English language supervisors and English language instructors. Each expert was given a copy of the completed written test to remark on to ensure that the vocabularies topics are suitable for tenth grade students. The first draft of the test comprised of five questions, each with a number of required sentences to be completed.

4. Test Reliability

To validate the reliability of the test, the (test – retest procedure) was a pilot study of (33) tenth female students chosen from the sample population but excluded from the study sample. The same test applied again in two weeks; Table (5) shows the Correlation Coefficient between the two Applications.

Table 5

Correlation Coefficient between to Applications

Application		Second
First	Pearson correlation	0.76
	Sig	0.000
	N	33

Table (6) shows that the correlation coefficient was (0.76), at the level of ($\alpha=0.000$) which is a statistically significant value at the level ($\alpha\leq 0.05$), and the stability of the test was also

verified using Richardson equation (KR21), and the reliability coefficient calculated in this way reached (0.94), and these values are considered appropriate and indicates that the test has an appropriate degree of reliability .To verify the factors of discrimination and difficulty of the test items, the answers of the students of the exploratory sample (n = 33) were analysed after they were arranged in descending order according to their grades, then the researcher divided them into two equal groups: the high performance group (17) and the low performance group (16). Extract the coefficient of discrimination and difficulty for the paragraphs, and table (6) shows that:

Table 6*Items Discrimination Coefficient and Difficulties*

Item.N	Difficulties Coefficient	Discrimination Coefficient	Item.N	Difficulties Coefficient	Discrimination Coefficient
1	0.82	0.33	21	0.88	0.32
2	0.88	0.22	22	0.85	0.44
2	0.73	0.71	23	0.88	0.25
4	0.70	0.71	24	0.76	0.65
5	0.61	0.80	25	0.82	0.30
6	0.79	0.70	26	0.85	0.45
7	0.85	0.40	27	0.91	0.26
8	0.91	0.27	28	0.79	0.24
9	0.82	0.57	29	0.79	0.50
10	0.73	0.49	30	0.73	0.60
11	0.91	0.44	31	0.64	0.74
12	0.85	0.62	32	0.82	0.38
13	0.76	0.75	33	0.85	0.40
14	0.79	0.44	34	0.73	0.69
15	0.82	0.58	35	0.79	0.54
16	0.82	0.51	36	0.85	0.41
17	0.82	0.36	37	0.79	0.53
18	0.76	0.65	38	0.82	0.25
19	0.76	0.74	39	0.82	0.42
20	0.85	0.47	40	0.79	0.50

It is clear from Table (7) that the discrimination coefficients ranged between (0.22 - 0.80) and these coefficients are suitable for applying the test in accordance with the Able criteria referred to in (Al-Nabhan, 2004), which indicates the appropriateness of the items to conduct the test and all of them have been approved. The coefficients of difficulty ranged between (0.64 -0.91) and it is also suitable for the application of the test.

Procedures of the Study

The researchers followed the following procedures to conduct the research.

- Reviewing previous studies that were related to Number heads model, and learning resources and were relevant to the current study.
- Getting formal Mu'tah University approval and southern Al-Mazar Directorate of Education permission to conduct the study.

- The researchers selected the schools where the strategies would be implemented. Furthermore, 10th graders were chosen at random within these schools.
- The selected sections of the 10th graders were classified into experimental and control groups according to the strategies to be employed for the purpose of this study.
- The researchers coordinated all of the study's logistics with the school principals.
- The researchers trained the teacher who applied the study using the number heads models.
- The researchers stated and tested the study's instruments of the study to ensure their validity and reliability.
- The researchers stated a unit plan for the topic that was taught to students.
- The researchers designed a lesson plans for the material that taught for students (Number Heads)
- Based on the material provided to the students, the researchers stated a lesson plan for the traditional technique with the teacher
- The researchers confirmed with the teachers that the primary subject material structure has already been distributed to students
- The two tests were carried out by the researchers for each of the two groups.
- The test was included with some necessary instructions clearly and concisely to help the student in the accuracy of the answer and included the following:
 - A. The researchers set instructions for answering the test items so that they are clear, and they included the number of test items, and the students were asked to read the items accurately.
 - B. Distribute the marks to all the test items in a manner appropriate to the nature and objective of the test.
 - C. Determine the test time using the following equation: Average time = time of the fastest student to answer + time of the slowest student/2 where the test time was determined by calculating the average time taken by the first female student, which is (40) minutes, and the last female student which is (50 minutes) to answer the test questions, thus calculating the appropriate time for the test, which is: appropriate time to test, $(40+50)/2=45$; Accordingly, the test time was determined, which is 45 minutes.
- The researchers conducted the test
- The researchers with the teacher corrected students` papers.
- The researchers started the process of teaching the model (Number Heads) as the following:
 - The researchers explained to the students the strategy they will be using in the lesson
 - In front of the first class, the researchers introduced the concept of Number Heads model in front of the second class.
 - The teacher began discussing and implementing the vocabulary lesson on each of the three strategies listed above.
 - The teacher make sure that the vocabulary is clear and related to each strategy
 - The teacher makes the student experiment each strategy practically
 - The researcher presented the test in front of the class, and the teacher provided them instructions to assist them do well on their test.
 - Teacher and researcher corrected their papers and grade it.
 - Students were taught in a room with a desk, a board, and tables: using primarily white board and speak, the researcher then begins with students for the unit subject's and grammar specified above and ensures that they grasp it, and ultimately a test was

given to them. Finally, the researcher and another teacher corrected the papers of the students.

- Three weeks later, the researchers introduced the post-test and asked students to answer the same questions from the previous week's test.
- Data collection from both groups and analysis with the Statistical Package for Social Sciences (SPSS).
- The results have been found and discussed.
- Recommendations were provided to those involved.

Statistical Analyses

SPSS (Statistical Package for the Social Sciences) was used to analyse data in order to answer the study's questions. To assess the conclusions of the study's four questions, the following statistical procedures were used:

1. Cronbach Alpha stability coefficient to verify the stability of the achievement test.
2. Difficulty Coefficient and Discrimination Coefficient to verify the difficulty and distinction of paragraphs.
3. T-test for a pair sample to answer the study question

Results and Discussion of the Study

The study's findings and comments provided in accordance with the study's questions.

1. Results and discussion related to the first question “Is there an effect of using Number heads Model on the development of the 10th grade students’ grammar and vocabularies?”

To answer this question, the researcher applied grammar and vocabularies test to the experimental group that studied with number heads Model before and after performing the experiment. To investigate the differences, the results were subject to a t-test for related sample analysis as presented in Table 7:

Table 7

T-test for related sample for the experimental group that used number heads model

Test-variable	Means	St.D.	Degree of freedom	T -Test	Sig
Pre- test	32.00	5.316	23	9.442*	0.80
Post -test	37.13	3.208			

* Statistically significant at level ($\alpha \leq 0.05$)

Figure 2

T-test for related sample results for the experimental group that used number heads model (pre and post test)

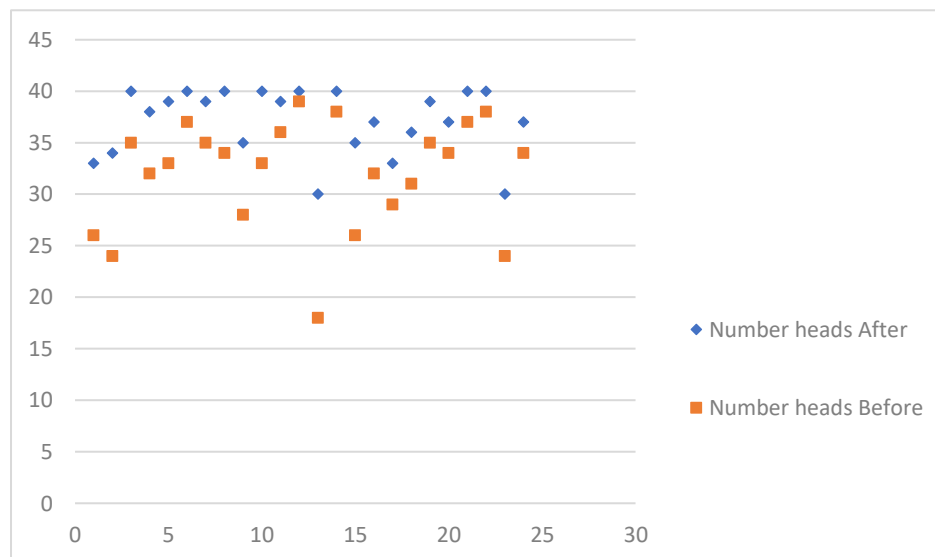


Table (8) shows that there were remarkable differences among students scores between pre-achievement and post- achievement results where the maximum mark was (40) points. The difference between the results of students in the pre-test and post-test was even more pronounced (5.31) points, indicating the efficiency of the number heads model in developing the development of the 10th grade students' grammar and vocabulary. Furthermore, these differences were statistically significant at the level of $\alpha \leq 0.05$ between the pre-post-test of the students in the number heads model group. The mean value of the students in the post-test (37.13) is higher than the level achievement of the students in the pre-test (32.00), indicating that the differences were in favour of the post test.

Moreover the effect size calculated reached (80%). This results, according to Cohen's classification, confirmed the number heads model had a significant effect on achievement of the 10th grade's students grammar and vocabularies.

Discussion of the results related to the research first question. The results showed that there was a statistically significant effect at the significance level ($\alpha \leq 0.05$) of the method of teaching using the numbered heads model in developing grammar and vocabulary for tenth grade students, where the differences were in favor of the post-test after teaching the students using the numbered heads model at the pre-test that was taught in the conventional method.

The researcher linked this outcome to the fact that this teaching methodology assisted students in organizing their thoughts, selecting terminology, and form sentences and merge them into coherent paragraphs. The researcher also believes that the use of this model contributed to simplifying the vocabulary and grammar of the English language and contributed to presenting it in a clear and meaningful way that contributed to increasing understanding and use of English grammar and increasing the vocabulary. This model of teaching methods allows the student to freely express her ideas and thus break the barrier of fear of making a mistake in ordering sentence rules.

The impact of this model, in the opinion of the researcher, may stem from presenting the rules in a simplified manner that is easy to remember. It also increases the acquisition of vocabulary among students, as it is one of the forms of cooperative learning, where each student benefits from the answers of other students after agreeing on the correct answer through the group. Corrective feedback that is, correcting the wrong grammar and vocabulary by observing the answers of other students. The student in this model is more active and responsible for understanding the topic of the lesson and preparing for it. It also gives the group time to think and write the answer on a separate sheet. Accordingly, each group makes sure that every student in the group knows the answer. The role of the student is positive so that she remains attentive and in a state of focus. All the time, it also develops individual and collective responsibility through working in groups and cooperating with colleagues and the teacher to reach a solution to the question and search for the meaning of the term, and this contributes to reviewing ideas and confirming understanding. The effectiveness of this model in teaching may stem from following the method of discussion and agreement among the members of the group on the correct answer to the sentence in terms of rules and the correct meaning of the vocabulary and its confirmation from the rest of the members of the group. The researcher believes that the effect of the numbered heads model may come from treating all female students equally and controlling smart students from obtaining the answer as a result of cooperation between the members of the group. Benefiting from the experience of other female students that they know, and this increases their effectiveness in class, as students with low abilities benefit from superior students, and it also develops a spirit of positive competition between students in the group and between groups. It reduces the possibility of student failure, and improves the student's use of vocabulary when speaking. This result is consistent with the results of a study Septona (2022) which it shows that the students were able to determine the meaning of the word. And can easily understand and memorize vocabulary by using the number head together technique in teaching vocabulary and the study of Patau (2002) which it shows that the majority of the student scoring categories were excellent. Also it agrees with Solikhin (2021) study that shows there was an increase in student activity and student learning outcomes during the online learning process using the number heads model. Also with Safitri (2018) and Adhini (2017) that both of the studies discussed the numbered heads model was helpful in teaching reading comprehension.

2. Results and discussion related to the second question “Are there any statistically significant differences at ($\alpha \leq 0.05$) on development of 10th grade students' vocabularies that could be attributed to models taught with (number heads, conventional method)?”

To answer this question, means and standard deviation of the students results on the post achievement test in English vocabularies for two groups (number heads, conventional method). One way ANOVA was used to examine the differences between the two groups in term of post- test achievement levels. The output results are shown in tables (8) and (9)

Table 8

Means and standard Deviation of students' achievement according to the different teaching strategies

The model	No.	Means	St.D
Number heads	25	36.92	3.707
Conventional method	25	33.72	2.731

The results of table (8) show that the students' means achievement as follows; number heads model was (36.92) whereas the conventional method was (33.72). these results show the superiority of the number heads, over the conventional method, these results indicate that the achievement of the experimental group (those who taught with number heads model) outperform their counterparts who taught by conventional method, to insure the significance of the statistical differences between the student in the post –test in the two groups at the level of ($\alpha \leq 0.05$), one way –ANOVA, was used and the results are shown in table (9):

Table 9

Results of One Way ANOVA of variance to show the differences between the two groups in the achievement in the post -test

Source of variance	Sum of Squares	Degree of freedom	Mean Squares	Calculated F Value	Level of sig	Effect size Eta Squares
Between Groups	180.833	2	90.416	8.611*	0.000	0.195
Within Groups	745.505	71	10.500			
Total	926.338	73				

* Statistically significant at level ($\alpha \leq 0.05$)

Table (9) shows statistically significant differences among the groups in the post achievement test according to (F) value = 8.611 and the significance level= 0.000, and this value statistically significance at ($\alpha \leq 0.05$), the calculated effect value (Eta Squares) is (19.5%) this value indicates that the effect of diversity of teaching method on development of 10th grade's students' vocabularies is large . in order of identify the Direction of the deference among means score of students in the two groups, the Scheffe post hoc Multiple Comparison was used to identify the deference direction as shown in the table (10):

Table 10

Results of Scheffe post hoc comparisons to show the Direct of the differences between the two groups

The model	means	Differences among Group	
		Number heads	Conventional method
Number heads	36.92	-0.21	3.20*
Conventional method	33.72	-3.41*	-

* Statistically significant at level ($\alpha \leq 0.05$)

The results as presented in the table (12) showed that there were statistically differences among two group, in favour of number heads on account of conventional method, moreover the table shown that there were no differences between both number heads and round house models on development of 10th grade's students' grammar and vocabularies

3. Discussion of the results related to the third research question

The results showed there were statistically significant differences in the development of vocabulary in the English language among tenth grade students, due to the conventional teaching method in favour of the numbered heads models. The researcher attributes the

convergence of the effect of the model of numbered heads on the acquisition of vocabulary, to the fact that both models are collaborative learning, and develop the skill of solving problems scientifically among the students and enable the students to express their opinion freely and without restriction, as they improve remembering, storing information and retrieving it when needed. The researcher also believes that model have knowledge between the students, and therefore the students benefit from each other's experiences, and they form sources of support for each other, and this forms a feedback that reinforces and corrects their wrong information. The researcher also believes that the model focus on the student as the focus of the learning process and an active and positive component, so she must search for information, and remain ready to provide an answer to a question that the teacher randomly directs. From the students' self-confidence and push to search for information, link the information together and give it a meaning. The convergent level of impact can be attributed to the cognitive organization, the development of the skill of generalization and deduction, and the giving of meaning to the term and the rule, which can be provided by the two models. This result may also be due to the convergence of the level of excitement and motivation in the models, as raise the learning motivation of the students, encourage positive competition among the students, and maintain the continuity of the students' attention to what is presented during the lesson. The model make vocabulary and grammar easier to understand and remember and make learning vocabulary and grammar a fun process.

Recommendations

Based on the results of the study, the following recommendations can be proposed:

- Holding training workshops to train English language teachers on the use of the Numbered Heads model in developing English vocabulary.
- Encouraging English language teachers to use the Numbered Heads model to develop vocabulary, as the results of the current study revealed their impact on developing vocabulary
- Conducting further studies on the effect of the Numbered Heads on the development of English speaking ability such as speaking, listening, and writing.
- Conducting further studies on the impact of the Numbered Heads in developing vocabulary of the English language on other communities and samples to benefit from the results of the current study.

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