The Impact of the Numbered Heads Strategy on Addressing the Difficulties of Learning Grammar among Non-Arabic Speakers An Applied Model

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Abstract:
This study investigates the use of the Numbered Heads strategy as an innovative teaching method for addressing difficulties in learning grammatical rules among learners who are non-native speakers of Arabic. Learners often struggle to grasp grammatical rules through traditional methods, resulting in repeated errors and weak classroom interaction.
Accordingly, we focus on presenting an applied model that demonstrates how to employ this strategy in the classroom and examines its effect on students' achievement and understanding of grammatical rules.
Thus, through this research paper entitled: The Numbered Heads Strategy and Its Effect on Solving Problems in Learning Grammatical Rules for Non-Native Arabic Speakers An Applied Model we seek to answer a central question: To what extent does the Numbered Heads strategy contribute to solving problems of understanding grammatical rules among non-native Arabic learners and improving their linguistic achievement?
Preliminary results have shown that the use of the Numbered Heads strategy increases student interaction, focus, and speed of comprehension, and facilitates the treatment of common errors in syntax and morphology.
Keywords: strategy, Numbered Heads, teaching grammatical rules, non-native Arabic speakers, linguistic achievement.

Introduction:
Grammatical and morphological rules are considered among the fundamental pillars of learning the Arabic language, as they constitute the structure upon which correct understanding of the language is based and enable the learner to express himself accurately and clearly, whether orally or in writing. However, teaching these rules to non-Arabic speakers constitutes a major educational and linguistic challenge, given the difference in grammatical structure from their mother tongues and the complexity of the rules in terms of formulation, structures, and morphological rules. These difficulties are often manifested in students' weak understanding of grammatical rules, their repeated errors, and the low level of interaction and participation within educational classrooms, which calls for the search for innovative and effective educational solutions. Therefore, educational institutions seek to identify the best methods for presenting grammatical rules in a

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manner that facilitates understanding and ensures effective comprehension, particularly in Arabic language teaching programs for non-Arabic speakers, where students' levels and learning methods differ from one individual to another. From this perspective, the need has emerged for innovative teaching strategies based on organizing and simplifying information in a systematic manner, enabling the teacher to present the educational material clearly and enabling students to comprehend it gradually and sequentially. Within this framework, the importance of the Numbered Heads strategy in teaching grammatical rules emerges, as it allows for the study of methods of organizing information in a logical and gradual manner to help learners deal with the linguistic complexity of the Arabic language, while focusing on developing an applied model that can later be evaluated within a real educational context.

1- The Numbered Heads Strategy:

1-1 Its Concept: It is one of the cooperative learning strategies that enables learners to work together in groups, whereby each member of the group is assigned tasks to perform and attempts to answer the question or questions posed by the teacher. This strategy is based on "dividing learners into groups bearing similar numbers, with the members of the group putting their heads together to ensure the correctness of the answer to the question posed by the teacher. The holder of the designated number provides the answer to the class as a whole. Learners are assigned numbers unknown to the teacher, which is a procedure that makes every student liable to participate in the proceedings of the lesson and answer the questions posed when a number is selected, since it includes more than one student due to the repetition of each number across the groups present in the classroom."[1]

It is also defined as a strategy through which "groups of four are formed, and students are given numbers from (1–4) in each group. The teacher asks a question, and when the groups hear the question, they put their heads together and talk with one another, agreeing on an answer to the question known to all members of the group. The group must make sure that everyone in it knows the correct answer. The teacher then calls out a random number, and those having that number raise their hands high. The teacher selects one of the students from the groups to answer the question posed. If the student is able to answer the question, the others are asked to elaborate on the answer if they have any additional information. If the student is unable to answer, the teacher repeats the question to another student, and so on, continuing to ask questions and receive answers from the students according to their numbers."[2]

Accordingly, the Numbered Heads strategy is one of the strategies that seeks to achieve a set of objectives, including developing the learner's academic and educational achievement, creating an interactive atmosphere, and fostering a spirit of activity and vitality among learners, through group work and interaction among group members to exchange experiences and employ them in an integrated manner.

[1] Al-Sharif Al-Atribi, Learning through Imagination: E-Learning Strategy and Learning Tools, 1st ed., Al-Arabi Publishing and Distribution, Cairo, 2019, pp. 144.

[2] Yahya Abu Harb et al., The New in Cooperative Learning for the Stages of Education and Higher Education, 1st ed., Al-Falah Library for Publishing and Distribution, Kuwait, 1425 AH/2004, p. 131.

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Illustrative Diagram of How Learners Are Divided into Groups According to the Numbered Heads Strategy

The Numbered Heads strategy involves "dividing students into diverse educational groups, with the number of members in each group ranging from (4–6) members. Each member is assigned a number ranging from (1–6). The teacher then poses a question to the students concerning the content of the lesson. The questions vary in order to take into account all educational levels. The students then put their heads together to ensure that each individual knows the answer. Afterwards, the teacher selects a particular number, and everyone holding that number in the different groups must stand and be prepared to provide the answer representing the answer of the group to which they belong. This strategy ensures the student's right to learning and activity and develops their communication skills among one another."[1]

This means that the assessment process through this strategy is not individual but rather collective, as each member works toward the success of the group to which they belong by answering the questions posed by the teacher concerning the content of the lesson. Every learner is subject to being questioned individually and is responsible for the success of his or her group.

1_2- Steps for Implementing the Numbered Heads Strategy:

In order to implement the Numbered Heads strategy, the following steps must be followed:[2]

1- The teacher divides the class into groups consisting of 4 members, and each member is assigned a number from 1 to 4.

2- The teacher poses the question to the class.

3- The members of the group discuss the question, ensuring that each student has had an opportunity to practice and solve it.

4- Ensuring that each member has reached a comprehensive understanding of the problem and its solution.

5- The teacher asks the question again and assigns a random number; for example, the teacher asks the student holding number 2.

[1] Ahmed Jamil Muhammad Hanouna, The Effect of Employing the Numbered Heads Strategy on Developing Some Reading Skills among Second-Grade Basic School Pupils in Gaza, unpublished Master's thesis, Curricula and Teaching Methods, Faculty of Education, Islamic University of Gaza, 2017, p. 10.

[2] Fayza Ahmed Al-Husseini Mujahid, Modern Approaches, Strategies, and Methods in Teaching and Learning Social Studies, University Education House, Alexandria, 2021, p. 112.

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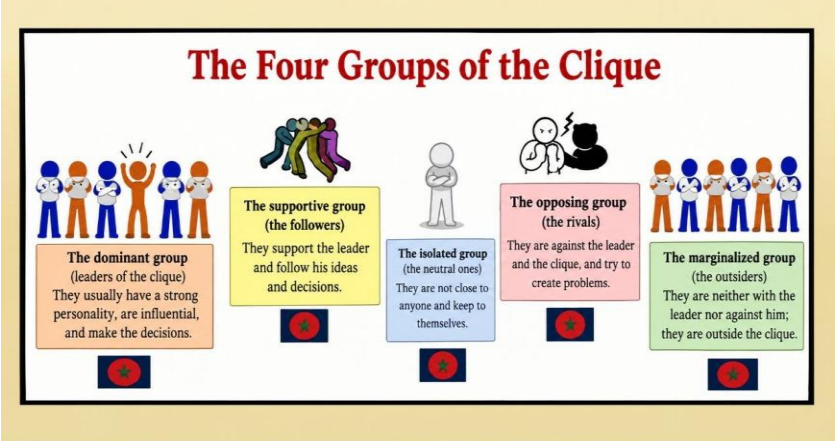
6- The teacher asks the students to provide their answers, with each student representing his or her group.

When implementing the Numbered Heads strategy, the teacher divides the learners into groups, with each group comprising learners who differ in terms of abilities and capabilities, with no more than six members in each group. The teacher then assigns each group a specific number and each learner a specific number within his or her group. Afterwards, the teacher poses a set of questions in general and identifies the number of the learner who will answer the questions posed, while also identifying the group number. In this way, the learner knows that he or she is the one concerned with answering the question posed.



Illustrative Diagram Showing the Steps for Implementing the Numbered Heads Strategy

3- Importance of the Numbered Heads Strategy:

The Numbered Heads strategy is one of the effective strategies in teaching due to its positive impact on academic achievement and its great importance in improving learners' understanding and developing their skills. It works to:[1]

· Attract learners' attention to the activities and actions performed by the teacher during the lesson, as it reduces all the learners in the class in each activity to (6) learners according to their numbers.

· Move away from the traditional method that relies on names and the resulting focus on specific, distinguished, or weak students.

· Encourage cooperation and group work among mutually understanding groups, thereby developing their social coexistence skills.

· Encourage thinking about the correct answer when one of the members bearing the number concerned with the question is selected.

· This method achieves individual responsibility and positive interdependence among the members of the same team.[2]

· Foster in the learner a spirit of risk-taking and motivation to work and achieve success for the group to which he or she belongs.

· Provide learners with opportunities to express their opinions by presenting alternatives and proposing solutions to problems.

· Enable students to work in the spirit of one team and to accept one another's opinions.

[1] Al-Sharif Al-Atribi, Learning through Imagination: E-Learning Strategy and Learning Tools, p. 145.

[2] Abdel Fattah, Amal Gomaa, Cooperative Learning and Social Skills, n.p., University Book House, United Arab Emirates, 2010, p. 101.

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· Achieve success for all students while, at the same time, enabling them to confront failure together and achieve self-affirmation.[1]

1-4 Objectives of the Numbered Heads Strategy:

Through implementing the Numbered Heads strategy in the classroom, the teacher seeks to achieve a set of objectives that can be summarized as follows:[2]

- It eliminates the dependency on others that learners rely on in conventional teaching methods.
- It develops learners' sense of individual responsibility.
- It makes the learner more prepared.
- It helps maintain continuous attention in the classroom.[3]

Thus, the Numbered Heads strategy is among the effective strategies in teaching, as it works to encourage active learning among learners and seeks to achieve satisfactory educational outcomes for the teacher, whether in terms of learners' achievement or the smoothness of its steps and the reflection of its results on the teacher's performance during the lesson.

1-5 Roles of the Teacher and Learner in the Numbered Heads Strategy

1-5-1 Role of the Teacher:

The teacher's role through the implementation of the Numbered Heads strategy is defined as "fostering a spirit of competition, accustoming the student to working as a team, posing questions and identifying the number concerned with answering, and calculating the groups' points based on the answers of individuals."[4] That is, the learner's role can be summarized in four basic tasks:

- Creating a competitive and interactive environment.
- Posing questions.
- Randomly selecting the respondent.
- Assessing and recording points.

1-5-2 Role of the Learner:

The learner plays an active and effective role in the Numbered Heads strategy, as "responsibility is considered the most important role undertaken by the student, as the responsibility for the progress of his or her group rests upon him or her. This also includes paying close attention to the teacher when posing the question and announcing the number, as well as focusing during the answer so as not to cause the group to lose, and finally benefiting from the answers of others and judging and evaluating his or her own answer."[5]

Accordingly, the learner has an active and effective role, since he or she is the core of the educational process, and this role is integrated with that of the teacher in the educational process, such that neither can succeed independently of the other. The learner must cooperate with his or

[1] Al-Deeb, Hasnaa Farouk, Kagan Structures: Applications to the Latest Teaching Methods, 2nd ed., Horus International Foundation, Alexandria, 2011, p. 38.

[2] Al-Sharif Al-Atribi, Learning through Imagination: E-Learning Strategy and Learning Tools, p. 145.

[3] Manal Hassan Ramadan, Active Learning Strategies Program in Personality Building, n.p., Dar Al-Akademiyyoun for Publishing and Distribution, 2021, p. 15.

[4] Jamal Fouad Hashem, The Comprehensive Guide for the Teacher: From Planning to Assessment, n.p., Mersal Publishing and Distribution House, Alexandria, 2024, p. 61.

[5] Jamal Fouad Hashem, The Comprehensive Guide for the Teacher: From Planning to Assessment, p. 61.

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her peers regarding their ideas or the ideas of their partners with the other members of the group in order to arrive at a single answer that, in their opinion, is the best and that they consider the most interesting. The learner must also work in the spirit of one team, moving away from selfishness and demonstrating interest in and attentive listening to others through interaction.

3- An Applied Lesson in Grammar Using the Numbered Heads Strategy:

Subject: Arabic Language

Topic: The Subject and the Predicate

Target Group: Non-Arabic-speaking learners

The procedural model was applied to a group of learners of Arabic as a foreign language at the Intensive Language Teaching Center of Mila University during the 2026 academic year. The group consisted of approximately 20 learners at the beginner level (A1–A2), who face difficulties in understanding the syntactic structure of nominal sentences, particularly in distinguishing between the subject and the predicate and the types of predicate.

This level is characterized by the need to simplify the grammatical rule and connect it with actual practice, as the beginner learner tends toward rote memorization without a functional understanding of grammatical elements. This makes the use of the Numbered Heads strategy appropriate for stimulating understanding and inference. Before its application, it was observed that the learners faced difficulties in:

- Identifying the subject and the predicate.
- Matching the predicate with the subject in terms of grammatical inflection.
- Producing correct nominal sentences without rote instruction or memorization.

Educational Objectives:

- Distinguishing between the subject and the predicate in the nominal sentence.
- Forming structurally correct nominal sentences.
- Actively participating in group activities.
- Enhancing deductive thinking when discovering the rule.

Teaching Aids:

- A board and colored pens.
- Cards containing short sentences.
- Motivational educational pictures.
- Worksheets for written exercises.

3-1 Application of the Numbered Heads Strategy in the Lesson on the Subject and Predicate (45 minutes):

First: Introduction (5 minutes)

Displaying a picture of a boy reading a book, a girl playing in the garden, and a blue sky.

The teacher begins by preparing the pupils' minds in order to attract their attention, saying: "Look at these pictures. What do we see in each picture? The boy is hardworking, the girl is active, the sky is blue. Notice the words with which we began the sentences: the boy, the girl, the sky. Today, we will learn how to form sentences that begin with these words, how to identify the noun with which we begin, and what we add after it to complete the sentence correctly. Together, we will learn an important rule in the Arabic language that helps us form comprehensible and grammatically correct sentences."

Second: Dividing the Class and Numbering the Groups:

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The teacher begins activities with the learners aimed at preparing them to discover the rule by themselves. He divides the class into groups (3–4 students), then numbers the members: 1–4. He explains to them that any number may be randomly selected to answer any question in order to ensure everyone's participation. Through this step, the teacher aims to:

- Ensure the participation of all learners in the classroom.
- Activate individual responsibility.
- Facilitate the selection of a random answer from each group.

Third: Discovering the Rule:

Activity One: Identifying the Subject and the Predicate (10 min.)

The teacher distributes sentence cards to the groups as follows:

- The weather is beautiful.
- The school is spacious.
- The book is useful.

Then, he directs a series of questions to the learners for them to answer after discussion and consultation among the members of each group:

- Which word do we begin the sentence with?
- What tells us something about the subject?

The teacher calls out a number, while specifying the group number, and the student answers on behalf of his or her group. After the answers, the teacher directs the discussion to help the students infer the rule by themselves. This stage aims to:

- Address confusion between the subject and the agent and stimulate group discussion.
- Enhance deductive thinking.
- Practice cooperation and participation.

During the discussion, the teacher records common errors on the board and discusses them with the learners. He then asks them to comment on the answers of other groups in order to stimulate constructive discussion and benefit from one another's answers.

Activity Two: Correcting Errors through Distributing Cards Containing Incorrect Sentences (10 min.)

- The weather beautiful.
- The book useful.
- The trip enjoyable.

The groups discuss the sentences containing errors and provide corrections. The teacher then asks a series of questions aimed at reaching the rule through collective inference. The questions are as follows:

- What do you notice in the sentences?
- Where does the error lie?
- How do we correct the sentences!
- The teacher randomly selects a number to present the answer before the learners in order to:
- Address errors resulting from literal translation from the mother tongue.
- Enhance the ability to independently infer grammatical rules.

It was observed that learners sometimes place the predicate before the subject in a sentence in which the order of the subject and predicate is correct, due to the influence of the mother tongue.

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Consolidation of the Rule:

After the group discussion, the learners concluded that the nominal sentence consists of a subject and a predicate. The subject is a noun with which the sentence begins and is in the nominative case, while the predicate is the noun that provides information about the subject or tells something about it and completes the meaning; it is also basically in the nominative case, as in: The weather is beautiful.

Activity Three: Production (10 min.)

The teacher distributes cards containing words to each group and asks them to form correct nominal sentences using specific words on the cards:

- (The student – active)
- (The garden – beautiful)
- (The language – enjoyable)

He then asks a series of questions as follows:

- Which word do we begin with?
- How do we complete the sentence so that it is meaningful?
- What is the grammatical inflection of each of the first and second nouns?

After production, each group is asked to identify the subject and the predicate by itself. The aim of this stage is to apply the rule in a productive context, rather than merely correcting or identifying, while measuring the learner's ability to produce.

Fourth: Assessment (10 min.)

At this stage, the teacher conducts oral and written exercises for the learners in order to determine the extent of their ability to understand the grammatical rule and apply it correctly in sentence formation, distinguish between the subject and the predicate, as well as determine the effectiveness of the Numbered Heads Strategy in understanding, consolidating, and establishing the grammatical rule in the learners' minds.

Through this assessment, the teacher observes:

- The students' ability to distinguish between the subject and the predicate.
- The level of participation and reliance on the group rather than relying on only one student.
- The teacher provides immediate feedback for each answer to consolidate understanding.

Oral Training: This is carried out through forming sentences and identifying the subject and the predicate.

In this oral training, the teacher relies on the learners' independent production of sentences. Each group is asked to create nominal sentences from their daily lives without being provided with ready-made models. After the consultation and discussion stage among the group members, the teacher randomly selects a number according to the mechanism of the Numbered Heads Strategy to present the sentence and orally identify the subject and the predicate.

Note: This procedure aims to measure the extent to which the learner moves from the stage of comprehension to the stage of independent production, reflecting a genuine degree of acquisition of the rule.

Written Training: This is carried out by assigning the learners a set of written exercises:

Exercise 1: Correct the following sentences, then identify the subject and the predicate:

- The school beautiful.
- The book useful.

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- The weather cold.
- The student active.
- The garden spacious.

The teacher aims through this exercise to:

- Consolidate the nominative case marker in the subject and the predicate.
- Measure the ability to identify the error independently.
- Consolidate basic understanding of grammatical inflection.

Exercise 2: Transform the following verbal sentences into nominal sentences:

- The student studies at the university.
- The sun rises in the morning.
- The child plays in the garden.
- The doctor works in the hospital.

Through this exercise, the teacher seeks to achieve the following:

- Distinguishing between verbal and nominal sentences.
- Developing the ability to reconstruct meaning.
- Moving from comprehension to application.

Exercise 3: Write three correct nominal sentences of your own that include a subject and a predicate, with the appropriate grammatical inflection.

The aim of this exercise is to:

- Measure the actual acquisition of the rule.
- Link the rule to the personal context.
- Assess independent production.

The following table presents the most important observations and errors found before and after the application.

Type of mistake	Examples before application	Examples after application	Observations
Confusion between the subject and the predicate	Beautiful is the weather / Useful is the book	The weather is beautiful / The book is useful	Most learners noticed the difference after the group discussion.
Error in the grammatical inflection	The garden spacious.	The garden is spacious.	The learners correctly learned the nominative case of the subject and the predicate.
Placing the predicate before the subject	Useful is the book.	The book is useful.	These errors decreased after the corrective activity.
Production of incomplete sentences	The boy..... / .....The language	The boy is active / The language is enjoyable.	Sentence production became complete after the activities.

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Conclusion:

Through our examination of the topic of the Numbered Heads Strategy and its effect on addressing the problems of learning grammatical rules for non-Arabic speakers an applied model we conclude that this strategy contributes to achieving organized social interaction within the classroom, ensuring the participation of all learners and limiting reliance on passive reception.

It also reorganizes the teacher's role as a planner and facilitator of cooperative work, allowing for more accurate monitoring of learners' performance and more effective guidance. The procedural application in the lesson on the subject and predicate showed an improvement in learners' ability to distinguish between the elements of the nominal sentence and produce structurally correct sentences, reflecting their transition from mechanical memorization to functional understanding of the rule.

Accordingly, the Numbered Heads Strategy may be considered an effective pedagogical approach to teaching grammatical rules, provided that it is employed within systematic planning that takes into account the linguistic level of the learners.

In light of the results reached through the field application of the Numbered Heads Strategy in teaching grammatical rules to learners who are non-Arabic speakers, the following recommendations may be presented:

- The necessity of adopting the Numbered Heads Strategy in teaching grammatical rules at beginner levels, given its demonstrated effectiveness in reducing confusion between the subject and the predicate and improving grammatical inflection.
- Emphasizing the integration of corrective activities within the grammar lesson, as it was found that addressing common errors collectively contributed to consolidating the rule more deeply.
- Adopting free production (oral and written) as an essential stage in teaching grammatical rules, rather than relying solely on identification or gap-filling activities, given its role in moving the learner from theoretical understanding to actual application.
- Encouraging Arabic language teaching centers for non-Arabic speakers to employ cooperative learning in grammar lessons, particularly in classes with moderate numbers of learners, as it provides interaction and individual responsibility within group work.
- Conducting further studies to measure the quantitative effect of the strategy through pre- and post-tests, with a view to supporting the current descriptive results with more precise statistical findings.

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