

The Numbered Heads Strategy in Education- The Applications and Objectives

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Abstract

Evolution has affected many fields among which is teaching. Scholars are searching for the best strategies to teach and facilitate the learning and teaching process. With this regard, new strategies have been discovered to serve the learners learning needs one of the new strategies is called the numbered head-together .this strategy came to resolve the shortcomings of the cooperative learning process. This strategy helps in making all the learners work together and making sure that all the learners know the correct answer to the problem posed by the instructor. This constructive learning helps and facilities the positive exchange of information and enhances the individuals responsibility especially that many learner, nowadays, are leaving school .so the question to ask is : what is the educational role that cooperation among learners serves? Does cooperation affect the level and success of learners and help motivating learners to carry on their studies?

Keywords: The numbered head-together strategy__ numbering__ cooperative learning__ learning together__ heads together.

1. From Cooperative Learning to the Numbered Heads Together Strategy: Which is More Beneficial?

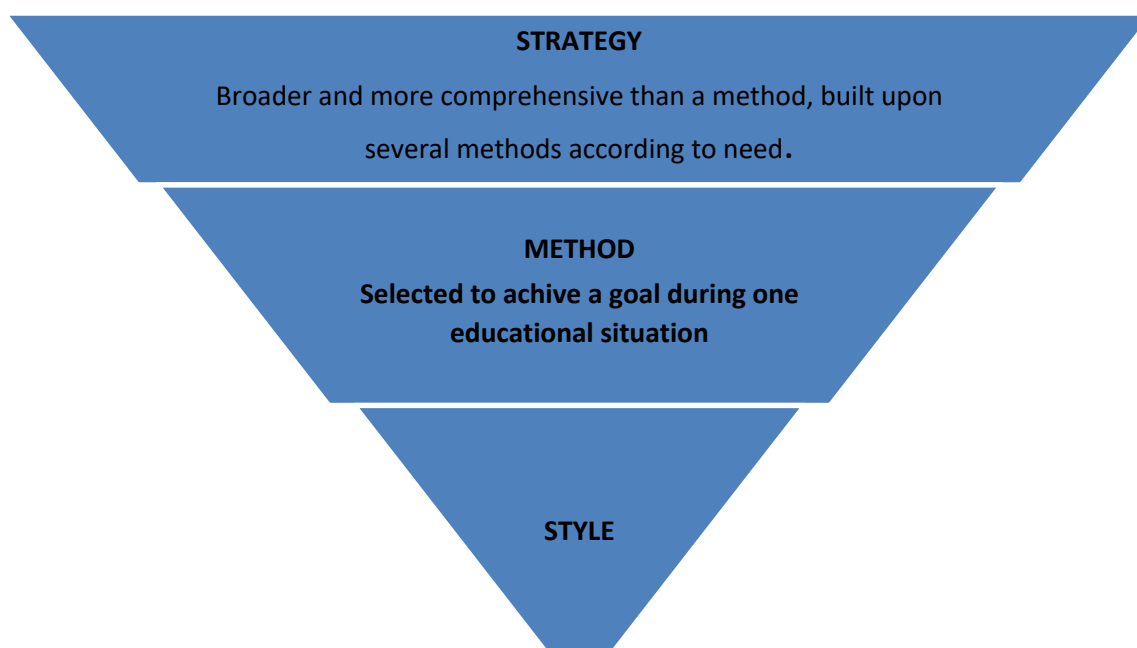
Discussions surrounding contemporary instructional strategies inevitably imply the existence of traditional or classical approaches. These modern strategies are effectively an extension and an adaptation and an evolution of pre-existing frameworks. All such methodologies aspire to foster classroom interaction that yields scholarly benefits for learners and psychological well-being for educators.

Given the current outcomes in education—specifically the phenomena of school dropout and school violence—it has become imperative for researchers to review and refine the adopted strategies to avoid negative or undesirable results. Consequently, the contemporary educational movement has advocated for the activation of cooperative learning techniques due to the positive impact they exert on the instructional process. Cooperative learning is defined as "organizing learners into groups and assigning them a collective task or activity to be performed collaboratively within a comfortable environment free from tension and anxiety, thereby maximizing motivation"¹. Essentially, it is a learning situation that utilizes small

¹Shihata, Hassan. *Modern Trends in Teaching and Learning: Global Experiences and Arab Applications*. Cairo: Dar Al-‘Alam Al-Arabi, 1st ed., 2016. p 217.

groups so that learners work together to optimize their personal learning and the learning of others.

This cooperative learning model has encountered various criticisms, which facilitated the emergence of several strategies designed to address its shortcomings. These issues include a disproportionate reliance on high-achieving students within a single group and a lack of positive interaction among group members. Such factors necessarily lead to diminished academic attainment and an inability to achieve the primary objective, which is the participation of all learners in the educational process. Failure in this regard creates challenges that may affect the learner's future, such as self-alienation resulting from a loss of self-confidence and a subsequent withdrawal from others, leading to the abandonment of their education.



An Illustration of the Holistic Nature of the Strategy

It is well established that strategy, in its general sense, refers to the "art of leadership." For an extensive period, strategy was viewed as a "closed" skill practiced by high-ranking leaders, and its application was restricted to military domains, with its concept linked to the evolution of warfare¹. Therefore, it is incumbent upon the teacher to manage the instructional process through strategies that assist the learner in achieving mastery first and gaining self-confidence and applying what has been learned in both academic and public life. These strategies represent the "art of utilizing available capabilities and resources in an optimal manner to achieve objectives effectively, representing specific methods to solve a problem or perform a task"².

¹ Shahin, Abdul Hamid Hassan Abdul Hamid. *Advanced Teaching Strategies, Learning Strategies, and Learning Styles*. Diploma in Education (Curriculum and Instruction), Faculty of Education, Menoufia, Alexandria, n.d., 2010–2011. p 22.

² Ali, Mohammed Al-Sayyid. *Terminology in Curriculum and Teaching Methods*. Faculty of Education, Mansoura University, 2nd ed., 2000. p 279.

These objectives may be educational or pedagogical, pertaining to the classroom environment and general life circumstances characterized by numerous variables. These variables consistently impact individuals throughout their physical and intellectual developmental stages. This necessitates that teachers address these factors to prevent students from reaching a critical impasse, which often yields dire consequences for the learner, particularly in the early educational stages. Thus, can the "Numbered Heads Together" strategy play a role in this context? And how can they achieve that?

The Concept of the Numbered Heads Together (NHT) Strategy

As noted earlier, a range of instructional strategies has been developed to address the limitations observed in some traditional approaches. The Numbered Heads Together (NHT) strategy emerged within the framework of cooperative learning as an attempt to remedy certain shortcomings associated with earlier methods.

Within this strategy, learners are divided into heterogeneous instructional groups, typically consisting of four to six members. Each member is assigned a number (e.g., from 1 to 6). The teacher then poses a question related to the lesson content, ensuring that the questions vary in difficulty so as to accommodate different learning levels. Students subsequently “put their heads together” to discuss the question and ensure that every group member understands the answer. Afterward, the teacher randomly selects a number, and the students holding that number across the various groups are required to stand and present their group’s agreed-upon response. This strategy is valuable in that it promotes students’ right to active participation, enhances engagement, and develops their communication skills.¹

NHT is also defined as a cooperative learning strategy developed by Spencer Kagan (1993), in which the teacher organizes students into groups of four to six members, assigns a number to each student within all groups, and explains the task to be completed. Students are then encouraged to interact collaboratively within their groups to ensure that all members have mastered the required content. Subsequently, the teacher randomly selects a number, and all students assigned that number present their group’s collective answer, thereby achieving the instructional objective.²

This strategy emphasizes the use of structured interaction patterns designed to shape learners’ modes of engagement, moving beyond traditional, teacher-centered classroom structures. In this context, learners work collaboratively in small, heterogeneous groups (typically consisting of two to four members), where cooperative rewards are prioritized over individual ones. The teacher assigns a problem for joint exploration, and students follow established communication norms in their interactions and performance. The aim is to foster logical thinking, inquiry skills, and discovery related to the learner’s environment, while drawing on prior knowledge and experiences.³

¹ Hnouna, Ahmed Jamil Mohammed. *The Effect of Employing the Numbered Heads Together Strategy in Developing Some Reading Skills among Second Grade Students in Gaza*. Master’s thesis in Curriculum and Instruction, Faculty of Education, Islamic University of Gaza, n.d., 2017. p 10.

² Abu Salmiya, Mohammed. *The Effect of Using the Numbered Heads Together Strategy in Developing Scientific Concepts and Scientific Thinking Skills in Science among Fifth Grade Students in Gaza*. n.d. p22.

³Shihata, Hassan. *Modern Trends in Teaching and Learning: Global Experiences and Arab Applications*. p 228.

Furthermore, when teachers effectively monitor learners' behavioral patterns—particularly in early educational stages—such as introversion, jealousy, motivation for learning, the desire for excellence, creativity, tendencies toward aggression, or social withdrawal, the application of the NHT strategy can help reinforce positive traits. It provides learners with opportunities to engage with peers, recognize varying levels of intelligence and thinking styles within the group, and mitigate negative tendencies. By involving students in intra-group and inter-group competition, the strategy supports self-affirmation and encourages the acquisition of missing competencies, especially given the constant possibility of being selected to respond. In the long term, this approach may contribute to reducing the risk of school dropout, as self-confidence—one of its key outcomes—is a critical factor in preventing such disengagement.

3. Characteristics and Advantages of the Numbered Heads Together (NHT) Strategy

The Numbered Heads Together (NHT) strategy is characterized by a set of features that underpin its effectiveness in ensuring the success of the teaching–learning process and in achieving both short-term objectives (learning outcomes) and long-term goals (such as preventing educational issues like violence and school dropout).¹

One of its key characteristics lies in the formation of heterogeneous groups by the teacher. These groups intentionally include students with varying levels of ability and intelligence, with the aim of improving overall academic achievement and minimizing the risk of learning difficulties.

In addition, each member within a group is assigned a distinct number. This feature enhances students' self-confidence and encourages active participation, to correctly answer the question. Another essential component is the principle of collective thinking—“putting heads together.” Through this process, students engage in consultation and group discussion to reach a shared understanding or a mutually agreed-upon answer. This collaborative interaction benefits all members of the group by promoting deeper comprehension and mutual support.

A further requirement is the presence of positive interaction among students. Without such interaction, the intended instructional goals may not be achieved, as the process risks reverting to the shortcomings previously observed in cooperative learning. In such cases, not only may the educational objective remain unmet, but negative consequences may also emerge, including diminished self-confidence, reduced motivation to learn, and, ultimately, the risk of disengagement from schooling.

Moreover, the NHT strategy is versatile and can be applied across a wide range of subjects and disciplines. This flexibility enables teachers to address various academic as well as real-life topics, including educational and awareness-raising themes. When implemented through this strategy, such topics can yield greater impact, as they are enriched by student discussions and supported by examples drawn from learners' everyday experiences.

Furthermore, this strategy is applicable across all educational levels, from early schooling to higher education. At advanced stages, where learners demonstrate higher levels of proficiency,

¹ Shihata, Hassan. *Modern Trends in Teaching and Learning: Global Experiences and Arab Applications*. p218_219.

it can further enhance motivation, foster healthy competition, and encourage sustained engagement in reviewing material in preparation for future sessions.

As previously noted, one of its defining characteristics is the division of the class into small groups, each consisting of a specific number of students, with every learner assigned an individual number.

Within this framework, the teacher and the learners function as an integrated whole. The student's role complements rather than replaces that of the teacher: the teacher acts as a facilitator and organizer of the lesson, while learners actively contribute—through group collaboration—to the construction and completion of knowledge.

This strategy also cultivates a sense of individual responsibility, as one of its core principles is that the individual's goal aligns with the group's goal. Each student's response represents the entire group rather than the individual alone, thereby reinforcing accountability and collective commitment.

These are among the most salient characteristics of the NHT strategy. In addition, it offers numerous advantages, which may be summarized as follows:

- It promotes a dynamic pattern of classroom interaction, dialogue, and discussion between the teacher and students, particularly during the retrieval and articulation of knowledge.
- It serves as a cognitive tool that stimulates thinking and mental organization, while ensuring equitable opportunities for teacher attention across students with varying academic levels.
- It provides learners with opportunities to express diverse viewpoints, thereby fostering respect for differing opinions and perspectives.
- It requires the teacher to select respondents randomly, ensuring fairer participation compared to reliance on volunteers who raise their hands.
- It enhances learners' motivation and contributes to improved outcomes, especially for those with lower levels of performance.
- It encourages active engagement during lessons and fosters a spirit of competition and enjoyment through collaborative interaction among group members.
- It supports the mastery and review of fundamental facts, concepts, and information prior to assessment.
- It is adaptable to a wide range of instructional objectives.
- It enables students to acquire knowledge, ideas, and skills through engagement with challenging questions that require critical thinking and group discussion.
- It strengthens cooperation and teamwork among learners.
- It helps organize the instructional process through structured dialogue, discussion, and interaction—both between teacher and students and among students themselves.

4. The Importance of the Numbered Heads Together (NHT) Strategy

Given its distinctive characteristics and advantages, the Numbered Heads Together (NHT) strategy holds considerable significance in educational practice. Its importance can be highlighted as follows:¹

- It serves as an effective tool for rapid review prior to assessments, allowing teachers to verify the extent to which learning objectives have been achieved.
- It promotes both individual accountability and positive interdependence among members of the same group.
- It fosters a sense of initiative and motivation in learners, encouraging them to strive for the success of their group.
- It provides learners with opportunities to express their views by proposing alternatives and suggesting solutions to problems.
- It encourages students to work collaboratively and to accept and respect one another's opinions.
- It supports collective success, as students confront challenges together while simultaneously reinforcing their sense of self-worth.
- It contributes to strengthening and developing positive social relationships among students.
- It enhances desirable social behaviors both داخل and beyond the classroom environment.
- It places learners in a position of responsibility for their own learning as well as that of their peers within the group.
- It fosters a more democratic classroom climate, reducing authoritarian dynamics that may increase anxiety, and instead creating a more supportive and friendly learning atmosphere.

5. Objectives of the Numbered Heads Together (NHT) Strategy

The objectives associated with the Numbered Heads Together strategy are diverse; however, they converge around a set of shared meanings and underlying principles, including:²

- It helps eliminate intellectual rigidity through continuous activation processes, particularly by stimulating groups that may be underperforming.
- It develops learners' verbal expression and persuasive abilities through sustained and inclusive participation.
- It fosters creative thinking by encouraging learners to use their own ideas, even if initially expressed in a rudimentary manner, as these skills gradually improve over time.
- It unleashes learners' potential—an essential responsibility of the teacher—by identifying individual talents and abilities and working to develop them. This, in turn, has a significant impact on sustaining students' engagement in their academic trajectory and preventing dropout.

¹ Hnouna, Ahmed Jamil Mohammed. *The Effect of Employing the Numbered Heads Together Strategy in Developing Some Reading Skills among Second Grade Students in Gaza*. Master's thesis in Curriculum and Instruction, Faculty of Education, Islamic University of Gaza. p30.

² Abu Saeed, Abdullah & Al-Balushi, Suleiman. *Methods of Teaching Science*. Amman: Dar Al-Masirah, 1st ed., 2009. p 117.

- It ensures equal opportunities for all learners, avoiding an exclusive focus on high achievers at the expense of average and lower-performing students.
- It promotes the development of scientific thinking skills.
- It provides broader spaces for reflection and deeper cognitive engagement.

These elements support the learner within the classroom environment. In addition, the strategy pursues key educational objectives that help learners overcome certain familial or social challenges that may otherwise weaken their motivation to learn and potentially lead to school dropout. Among these objectives are:

- Instilling a spirit of cooperation within each group, thereby preventing students from feeling alienated from the school environment or disconnected from it.
- Integrating lower-performing students with higher-achieving peers in a non-threatening manner, encouraging their participation and helping them avoid exposure to negative or punitive practices.
- Promoting attentiveness, readiness, and active participation, while discouraging passivity and dependency. This allows learners to feel supported by peers within the educational setting, helping them cope with potential difficulties.
- Reinforcing educational values within the classroom through shared principles reflected in students' behaviors.

Overall, this strategy represents a modern pedagogical approach that reduces reliance on traditional, often monotonous teaching methods that may render the learning process burdensome for students. Moreover, the educational values it embeds within learners' behavior carry broader implications, particularly in raising awareness of the negative consequences of school dropout and encouraging learners to persevere in their educational journey.

6. The Roles of the Teacher and the Learner in the Numbered Heads Together (NHT) Strategy

6.1 The Teacher's Role

The teacher's role within the implementation of the Numbered Heads Together (NHT) strategy can be defined as follows:

a. Planning and Preparation:

The teacher designs instructional situations and selects appropriate strategies in accordance with the nature of the lesson content and the characteristics of the learners. This includes creating a supportive learning environment that enhances students' motivation and self-confidence, and enables them to assume responsibility for their own learning and make informed decisions related to it.

b. Guidance:

Rather than presenting information in a ready-made form, the teacher guides learners toward relevant sources of knowledge and instructs them on how to carry out assigned tasks. Additionally, the teacher fosters cooperative skills that strengthen collaboration among students, enabling these skills to develop into lasting life competencies.

c. Motivation:

The teacher plays a key role in stimulating students' interest in learning through diverse methods and techniques. This includes continuously encouraging learners and revitalizing group engagement when motivation declines, whether through moral support or by reminding them of assessment criteria.

d. Facilitation:

The teacher ensures the provision of a conducive learning environment by facilitating the learning process and supplying the necessary resources, tools, and materials. In this capacity, the teacher acts as a facilitator who supports students and responds to their questions when they encounter difficulties.¹

e. Assessment:

The teacher provides ongoing feedback on students' performance and develops diverse assessment methods aligned with the learning objectives, thereby enabling an accurate evaluation of the extent to which these objectives have been achieved.²

6.2 The Learner's Role

Within the NHT strategy, the learner assumes an active and dynamic role, which can be summarized as follows³:

- Contributing to activities, sharing ideas, and providing feedback within a framework of mutual respect, while actively listening to others. Each learner is encouraged to express and exchange ideas.
- Engaging effectively with group members, offering support, encouraging peers, and exerting maximum effort to contribute to the group's success.
- Solving problems using a scientific approach by formulating hypotheses, analyzing data, and verifying the validity and logic of results. This process helps learners overcome fear and develop autonomy.
- Collecting and organizing information and ideas systematically.
- Linking prior knowledge and experiences to new learning situations.

Accordingly, the learner occupies a central position in the teaching-learning process, with a role that is both active and complementary to that of the teacher. Neither role can succeed in isolation. Learners are expected to collaborate with their peers, integrate diverse perspectives, and work collectively toward a shared answer that they consider the most appropriate and meaningful. This requires a spirit of teamwork, a rejection of individualistic tendencies, and a demonstrated commitment to attentive listening and constructive interaction.

¹Hnouna, Ahmed Jamil Mohammed. *The Effect of Employing the Numbered Heads Together Strategy in Developing Some Reading Skills among Second Grade Students in Gaza*. Master's thesis in Curriculum and Instruction, Faculty of Education, Islamic University of Gaza. p 31.

²Hnouna, Ahmed Jamil Mohammed. *The Effect of Employing the Numbered Heads Together Strategy in Developing Some Reading Skills among Second Grade Students in Gaza*. Master's thesis in Curriculum and Instruction, Faculty of Education, Islamic University of Gaza. p32.

³ Abu Harb, Yahya et al. *Recent Developments in Cooperative Learning for General and Higher Education*. Amman & Kuwait: Al-Falah Library for Publishing and Distribution, n.d., 2004. p 160.

7. Stages of Implementing the Numbered Heads Together (NHT) Strategy

The effectiveness of the NHT strategy is closely linked to careful planning prior to its classroom implementation. This planning is typically reflected in six main stages:

7.1 Motivational Warm-up Stage:

This stage aims to capture students' attention and direct it toward the lesson topic or the problem to be addressed, thereby stimulating their interest and readiness to engage.

7.2 Task Clarification Stage:

At this stage, the teacher explains the tasks and ensures that learners fully understand the problem to be solved. This is achieved by linking prior knowledge to the new learning requirements or the task at hand.

7.3 Transitional Stage:

The teacher shifts to cooperative learning by dividing students into groups and providing the necessary guidelines for collaborative work, while also assigning specific roles or tasks to each group member.

7.4 Group Work Stage:

Students work collaboratively to accomplish the assigned tasks. Meanwhile, the teacher circulates among the groups to offer guidance, support, and feedback to ensure that the tasks are completed effectively.

7.5 Classroom Discussion Stage:

Each group presents its ideas, perspectives, and findings. This stage also involves correcting misconceptions and discussing the challenges encountered by different groups.

7.6 Lesson Closure Stage:

The lesson is concluded by summarizing the key ideas and outcomes reached by the students. The teacher may also assign follow-up tasks for further exploration and discussion in subsequent sessions, while rewarding the group that successfully completed the task¹.

8. Steps for Applying the Numbered Heads Together (NHT) Strategy

After forming balanced groups of students, the strategy can be implemented through four sequential and interrelated steps:²

Step 1: Numbering

The teacher divides learners into groups, assigning each member a number based on the size of the group.

Step 2: Questioning

The teacher poses a question to the learners. Questions may vary in nature: they can be highly specific (e.g., "How many Arab countries are located in Asia?") or more guiding in form (e.g., "Ensure that each of you knows the capitals of Arab countries bordering the Mediterranean and the Red Sea").

¹Zaytoun, Ayesha. *Constructivist Theory and Science Teaching Strategies*. Amman: Dar Al-Shorouk, 1st ed., 2007. p 262_263.

²Shihata, Hassan. *Modern Trends in Teaching and Learning: Global Experiences and Arab Applications*. p228.

Step 3: Heads Together

Students in each group “put their heads together” to discuss the question collaboratively, ensuring that every member understands and can provide the answer.

Step 4: Answering

The teacher calls out a number at random. Students assigned that number raise their hands and stand to present their group’s answer to the entire class.

The table and figure that follow provide a more detailed and structured illustration of these steps.

Steps of Strategy
1-Students are first divided into groups, with each group assigned a specific name.
2-The teacher then distributes a set of numbers within each group, ensuring that every member is given an individual number.
3-The teacher poses a question to the students, after which the procedure unfolds through the following steps: <ul style="list-style-type: none">• Step 1: Each student independently reflects on and formulates an answer.• Step 2: Each member shares their answer with their group, engaging in collaborative discussion.• Step 3: The teacher randomly selects a number, and the student holding that number in each group stands.• Step 4: The selected students present their answers before the teacher, representing their respective groups.

Therefore, the Numbered Heads Together (NHT) strategy is considered one of the modern instructional approaches advocated by contemporary educational movements. Research has demonstrated its positive impact on academic achievement, as it is based on dividing learners into small groups that work collaboratively to achieve a specific objective while fostering interaction and positive interdependence.

This concept is not entirely new to teachers and educational practitioners; rather, it represents an attempt to establish a new organizational structure that ensures every member of the group is familiar with the correct answer to the teacher’s question. It also reinforces individual learning, as each student may be held accountable for the success of the group.¹

Conclusion

Accordingly, this strategy promotes a higher level of social interaction compared to traditional teaching methods. This interaction is particularly constructive, as lower-achieving learners are encouraged to participate actively due to the possibility of being selected at any moment.

It also provides students with greater opportunities to engage both inside and outside the classroom by applying and practicing what they have learned, thereby making better use of instructional time in a meaningful and productive way.

¹ Mohammed Jamil. “Learning Strategies: Numbered Heads Together Strategy,” October 1, 2019. Available at: <https://arabpsychology.com>

The contemporary educational movement has emphasized this strategy due to its positive effects on learners across multiple dimensions, including self-confidence, the reduction of social isolation, and the development of trust in others and appreciation for group work. It also strengthens relationships among students and between students and teachers, ultimately fostering a stronger sense of belonging and attachment to the educational institution.

Furthermore, the strategy does not neglect the role of the teacher, who acts as both planner and facilitator of the classroom through the previously outlined steps (numbering, questioning, heads together, and answering). This approach yields several important benefits, including:

- Reducing the amount of time the teacher spends directly presenting information to learners.
- Enabling the teacher to monitor a limited number of groups rather than managing 40 to 50 students individually within a single classroom.
- Decreasing the teacher's effort in managing and addressing classroom problems by gaining a better understanding of learners, thereby enhancing their motivation and willingness to learn.
- Supporting the development of multiple intelligences related to various aspects of life.

In addition, the NHT strategy fosters a spirit of teamwork, cooperation, and support for weaker learners. It also encourages healthy competition and motivates learners to strive for achievement and the attainment of predefined learning objectives.

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