

The Effectiveness of the Numbered Head Together Model in Social Studies Learning: Pre-Service Teachers' Perspectives in Microteaching Practice

St. Wijdanah Ram¹, Muhammad Aksa Wahda²

^{1,2}Universitas Negeri Makassar, Makassar, Indonesia

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ABSTRACT

This study aims to analyze pre-service teachers' perceptions of the effectiveness of the Number Head Together (NHT) model in Social Studies (IPS) instruction. Although previous studies have demonstrated the impact of NHT on student learning outcomes, research exploring how pre-service teachers interpret the model's effectiveness through their pedagogical practice experiences remains limited. This study employs a qualitative approach using a case study design conducted at the Faculty of Education, University of Makassar. The research subjects consisted of eight prospective teachers who had implemented NHT in Social Studies microteaching activities, selected through purposive sampling. Data were collected through semi-structured in-depth interviews and analyzed using thematic analysis through a process of coding, categorization, and theme development. The results identified four main themes: increased student participation and social interaction; enhanced motivation and a more dynamic learning atmosphere; improved understanding of IPS concepts; and implementation challenges related to time management and classroom management. The findings indicate that pre-service teachers perceive NHT as an effective learning model; however, this effectiveness is mediated by pedagogical readiness and the quality of lesson planning. This study makes a theoretical contribution by expanding the study of cooperative learning from the perspective of learning outcomes to the construction of pre-service teachers' pedagogical beliefs, and has implications for strengthening reflective practice in teacher education.

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Corresponding Author:

St. Wijdanah Ram
Universitas Negeri Makassar
Makassar, Indonesia
Email: st.wijdanah.ram@unm.ac.id

1. INTRODUCTION

Social Studies (IPS) education in elementary school plays a strategic role in shaping students' civic competencies, critical thinking skills, and social awareness. Social Studies is not only focused on mastering factual knowledge but also on developing social skills and fostering active participation in community life [1]. From a social constructivist perspective, effective learning occurs when students construct knowledge through meaningful interactions and learning experiences. Therefore, the IPS learning approach in elementary schools needs to be designed to be active, collaborative, and contextual [1].

However, various studies indicate that classroom teaching practices are still dominated by a teacher-centered approach that positions the teacher as the primary source of information. This approach has the potential to limit students' cognitive and social engagement, thereby preventing the optimal achievement of Social Studies' goal as a vehicle for fostering social awareness. Therefore, cooperative learning models serve as a strategic alternative to enhance student participation and interaction[2] .

Cooperative learning emphasizes collaboration in small groups to achieve shared goals. One type of cooperative learning that has been extensively studied is Number Head Together (NHT). The NHT model integrates teamwork with elements of games and academic tournaments designed to enhance learning motivation through healthy competition. Theoretically, NHT has five main components: classroom presentation, teamwork, games, tournaments, and group rewards [3]. Various empirical studies indicate that the NHT model is effective in improving student learning outcomes and motivation. A study conducted by Koskinen et al 2018 reported that implementing NHT increased student active participation and strengthened group cooperation compared to conventional methods [4]. Other research indicates that the game element in NHT contributes to increased intrinsic motivation among students due to reinforcement through a scoring system and rewards. In the context of social studies learning, cooperative models such as NHT are considered relevant because social studies material requires discussion, interaction, and deep social understanding [5].

Nevertheless, most previous studies have focused on the impact of NHT on students' cognitive learning outcomes or on comparing its effectiveness with other instructional models. Studies exploring pre-service teachers' perceptions of NHT's effectiveness remain relatively limited [5]. Yet, within the framework of teacher belief theory, pedagogical perceptions and beliefs significantly influence classroom teaching practices. Prospective teachers' perceptions of innovative learning models will influence their readiness to implement and sustain their use in professional practice[6]. Furthermore, practical experience through microteaching or learning simulations is a crucial stage in the development of pedagogical competencies among teacher education students. However, few studies have specifically examined how such experiences shape prospective teachers' perceptions of the effectiveness of the NHT model in social studies instruction. This gap highlights the need for research that not only evaluates the model's effectiveness in terms of student learning outcomes but also from the perspective of prospective teachers as the primary agents of implementation[7].

Based on this research gap, this study aims to analyze pre-service teachers' perceptions of the effectiveness of the Number Head Together (NHT) model in social studies instruction. This study is expected to make a theoretical contribution by enriching the literature on cooperative learning from the perspective of pre-service teachers, as well as a practical contribution toward strengthening the teacher education curriculum in developing pedagogical competencies that are adaptable to innovative learning models[8].

This study is grounded in the interpretive constructivist paradigm, which views social reality as the result of meaning construction through experience and interaction. In an educational context, prospective teachers' perceptions of the effectiveness of learning models are not understood as a single objective fact, but rather as constructions of meaning formed through pedagogical practice. Thus, this study not only evaluates the NHT model as an instructional strategy, but also examines how prospective teachers interpret these experiences within the framework of their professionalism [9].

This approach aligns with the view that learning is social and contextual. Pedagogical meaning does not exist in isolation but is shaped through interactions among individuals, the learning environment, and the surrounding social structures [10]. Therefore, prospective teachers' perceptions of NHT are analyzed as the result of interactions between their practical experiences, pedagogical values, and conceptual understanding of social studies learning. Social Studies, as a subject based on social phenomena, demands dialogic and reflective learning. Theoretically, social constructivism emphasizes that knowledge develops through collaboration and the negotiation of meaning. In this regard, group interaction is not merely a method but an epistemological medium for building conceptual understanding [11].

The Number Head Together (NHT) model is theoretically compatible with social constructivism because it facilitates positive interdependence and promotive interaction. Team discussions and academic tournaments encourage students to explain, defend, and revise their understanding through social processes. Thus, the effectiveness of NHT in social studies learning can be theoretically justified as a model that supports interaction-based knowledge construction. Social interdependence theory explains that the structure of relationships within a group determines the quality of interactions and learning outcomes; furthermore, social interdependence theory explains that the structure of relationships within a group determines the quality of interactions and learning outcomes, developing social interdependence theory that explains how the structure of relationships within a group determines the quality of interactions and learning outcomes. Positive interdependence, individual accountability, and promotive face-to-face interactions are prerequisites for the

effectiveness of cooperative learning [12]. NHT operationalizes these principles through a tournament system and group rewards. Unlike ordinary group discussions, NHT has a structured evaluative mechanism, so that every member is encouraged to contribute actively[13]. From a theoretical perspective, this structure strengthens collective motivation and reduces the dominance of certain individuals within the group[14].

Empirical research shows that cooperative learning based on a controlled competitive structure can enhance engagement and academic achievement. Thus, NHT is not only methodologically relevant but also has a strong theoretical foundation in educational social psychology [15]. The game elements in NHT can be analyzed through motivation theory, particularly self-determination theory, which emphasizes the importance of the need for competence, autonomy, and social relatedness in enhancing intrinsic motivation. Click or tap here to enter text [16]. Tournaments and scoring systems in NHT provide immediate feedback that reinforces students' sense of competence[17]. On the other hand, the group reward system creates dynamics of extrinsic motivation that are integrated with collective goals. It is this combination of intrinsic and extrinsic motivation that makes NHT effective in increasing student participation. In social studies learning, which is often considered conceptual and theoretical, a game-based approach can serve as a pedagogical strategy to enhance students' emotional and cognitive engagement [18].

Teachers' beliefs are psychological constructs that significantly influence instructional practices. Perceptions of a learning model's effectiveness play a role in determining whether that model will be adopted on a sustained basis. In teacher education, practical experience is a critical factor in the formation of pedagogical beliefs [19]. When pre-service teachers directly experience the application of NHT, they not only evaluate the outcomes but also reflect on managerial readiness, implementation complexity, and its relevance to student characteristics [20]. Thus, this study positions prospective teachers' perceptions as an epistemological variable that bridges learning theory with classroom practice[21]. This perspective broadens the study of NHT's effectiveness from merely student outcomes to the professional reflections of prospective educators [22].

2. METHOD

2.1. Research Design

This study employs a qualitative approach using a case study design. The qualitative approach was chosen because this study aims to gain an in-depth understanding of prospective teachers' perceptions of the effectiveness of the Number Head Together (NHT) model in social studies instruction[23]. Perceptions are subjective and contextual constructions of meaning, thus requiring in-depth exploration through direct interaction with participants. A case study design was used because the research focuses on a specific phenomenon, namely prospective teachers' experiences in implementing the NHT model within a specific context. A case study allows the researcher to conduct an intensive exploration of the dynamics of experience, pedagogical reflections, and the institutional context that shape these perceptions. Thus, this design is relevant for generating a holistic and contextual understanding, rather than statistical generalizations[24].

The study was conducted at the Faculty of Education, Makassar State University. This location was chosen based on the academic consideration that the faculty is an institution offering a teacher-training program that includes a teaching practice component (microteaching) as part of the curriculum; the selected students had already gained direct experience in designing and simulating social studies lessons using the NHT model. Thus, the informants possessed sufficient reflective experience to assess the effectiveness of the model. Furthermore, the systematic academic environment allowed for a structured process of observation and pedagogical reflection. The research subjects consisted of 8 prospective teachers who had participated in social studies teaching practice using the NHT model. This number was deemed sufficient in a qualitative study to yield depth of data and achieve thematic saturation.

2.2. Participants

The study was conducted at the Faculty of Education, Makassar State University. This location was chosen based on the academic consideration that the faculty is an institution offering a teacher-training program that includes a teaching practice component (microteaching) as part of the curriculum; the selected students had already gained direct experience in designing and simulating social studies lessons using the NHT model. Thus, the informants possessed sufficient reflective experience to assess the effectiveness of the model. Furthermore, the systematic academic environment allowed for a structured process of observation and pedagogical reflection. The research subjects consisted of 8 prospective teachers who had participated in social studies teaching practice using the NHT model. This number was deemed sufficient in a qualitative study to yield depth of data and achieve thematic saturation.

2.3. Instruments

The sampling technique used was purposive sampling, with the following criteria: Students in the teacher education program at the Faculty of Education; who have conducted simulations or microteaching using the NHT model in social studies instruction; and who are willing to serve as informants and participate in in-depth interviews. The purposive approach was chosen because this study required informants with direct and relevant experience related to the research focus. Data were collected through in-depth interviews using a semi-structured interview guide. This approach allows for flexible exploration of prospective teachers' experiences, perceptions, and pedagogical reflections, while maintaining focus on the research objectives. The interview guide covered three main dimensions: Perceptions of the effectiveness of NHT in enhancing student participation and understanding; Experiences with implementation and technical challenges; and Reflections on professional readiness to apply the model in the future. Interviews were conducted face-to-face and recorded with the informants' consent to ensure data accuracy. Each interview session lasted between 30–45 minutes.

2.4. Data Collection

The data collection process lasted approximately four weeks, encompassing the preparation of instruments, the conduct of interviews, transcription, and initial data verification with informants (member checking) [25]. This timeframe allowed the researcher to delve deeper into the information and seek clarification whenever data inconsistencies were found. Data were analyzed using thematic analysis, which aimed to identify patterns of meaning and key themes emerging from the informants' narratives. The analysis process was conducted systematically through the following stages: The researcher read the interview transcripts repeatedly to understand the context and overall meaning of the data [26]. The researcher performs open coding by identifying units of meaning relevant to the research focus. Initial codes are assigned to statements reflecting perceptions of effectiveness, motivation, social interaction, and implementation challenges [27]. These initial codes are then grouped into categories sharing common meanings, such as: increased participation, a pleasant learning atmosphere, time management constraints, and pedagogical readiness.

2.5. Data Analysis

The categories were then analyzed to identify key themes representing prospective teachers' perceptions of the effectiveness of NHT. The final themes were determined based on the consistency of patterns and their relevance to the study's theoretical framework [28]. To ensure the credibility and validity of the findings, this study employed several trustworthiness strategies: source triangulation, which involved comparing responses across informants to assess thematic consistency; Member checking, which involves asking informants to review summaries of interview results to ensure interpretive accuracy, Peer debriefing, through discussions with colleagues to test the consistency of the coding process, and Audit trail, by systematically documenting the analysis process so that it can be methodologically traced[29].

3. RESULTS AND DISCUSSION

3.1. Result

A thematic analysis of the eight interviews yielded four main themes: (1) increased participation and social interaction, (2) enhanced motivation and learning atmosphere, (3) improved understanding of social studies concepts, and (4) implementation challenges and pedagogical readiness. All informants stated that NHT encourages active student engagement during social studies lessons. The team structure and tournament system ensure that every group member is responsible for understanding the material. I1 stated: "When using NHT, almost all students are involved. They feel a sense of responsibility because they will represent their team in the tournament." I3 also emphasized: "Usually there are passive students, but when using NHT they join the discussion because they don't want their team to lose." Some informants observed that social interaction becomes more intensive compared to regular learning. I5 explained: "The discussions are more lively. They explain the material to each other before entering the tournament phase." Meanwhile, I7 added: "The students help each other, especially those who understand better helping their friends so their team's score is high." These findings indicate that NHT is perceived as effective in fostering promotive interaction and equitable participation within the group.

Enhancing Motivation and the Learning Environment. The second dominant theme was increased motivation to learn through elements of play and healthy competition. Informants described a classroom atmosphere that was more enthusiastic and less monotonous. I2 stated: "Social Studies is usually considered boring, but when there's a tournament, they get really excited." I4 remarked: "As soon as the game session begins, the atmosphere changes. The students are more focused and want to answer correctly." Several informants highlighted the reward system as a motivating factor. I6 noted: "Because there are scores and

rewards, they take their studies more seriously before the tournament.” I8 added that the motivation generated is not only competitive but also builds self-confidence: “When they can answer correctly at the tournament table, their self-confidence clearly increases.” This data indicates that NHT is perceived as effective in fostering a learning environment that is both enjoyable and healthily competitive.

Improved Understanding of Social Studies Concepts: Most informants felt that NHT helped students understand social studies material more deeply. The group discussion process before the tournament was considered a crucial step in reinforcing concepts. I1 stated: “Before the tournament, they really discussed things. That’s where you could see them clarifying the material for one another.” I3 added: “Because they wanted to win, they studied more seriously. So their understanding was stronger than if they had just listened to the teacher’s explanation.” I5 also noted: “The tournament is like a live assessment. From that, it’s clear who already understands and who needs further help.” However, some informants emphasized that effectiveness regarding understanding is heavily influenced by the quality of the teacher’s planning. I7 stated: “If the tournament questions don’t align with the indicators, the results aren’t optimal. So the planning really has to be thorough.” These findings indicate that perceptions of effectiveness in the cognitive aspect are conditional and depend on the teacher’s instructional readiness.

Implementation Challenges and Pedagogical Readiness: Although the majority of informants viewed NHT as effective, they also identified a number of challenges. The main obstacles are time management and classroom management. I2 stated: “There are quite a few steps, so if the time isn’t managed properly, it might not be finished in a single session.” I4 noted: “During the tournament, the atmosphere gets quite lively, so the teacher really needs to be able to control the class.” Some informants also mentioned that they still need practice to become more skilled in implementing NHT. I6 said: “I think this model is good, but I need more practice to handle the technical aspects more smoothly.” Nevertheless, the practical experience was seen as enhancing professional readiness. I8 concluded: “After trying it out firsthand, I feel more confident about using NHT at school later on.”

Overall, the eight prospective teachers perceived NHT as an effective model for enhancing participation, motivation, and conceptual understanding in social studies. Its effectiveness was most evident in the areas of social interaction and a dynamic learning environment. However, this effectiveness was not without implementation challenges, particularly regarding time management and classroom management. Thus, the prospective teachers’ perceptions of NHT are positive yet reflective, as they recognize that the model’s success heavily depends on pedagogical readiness and thorough planning.

The research findings indicate that prospective teachers perceive the Number Head Together (NHT) model as effective in enhancing participation, motivation, and conceptual understanding of social studies. These findings generally support social constructivism theory, which states that collaborative interaction is a crucial prerequisite for knowledge construction[30]. Team discussions prior to the tournament demonstrated processes of meaning negotiation and conceptual clarification, reflecting the mechanisms of social mediation in learning. The findings are also consistent with Johnson & Johnson’s (2009) social interdependence theory, particularly regarding the aspects of positive interdependence and individual accountability[31]. The informants’ perception that each member feels responsible for the group’s score indicates that the NHT structure successfully fosters productive interdependence. Thus, the results of this study reinforce the assumption that structured cooperative instructional design can enhance the quality of learning interactions [32].

In the dimension of motivation, the research results support Deci & Ryan’s (2000) self-determination theory framework. The game elements and reward system within the NHT reinforce the need for competence and social relatedness. Students’ enthusiasm during the tournament indicates that the integration of gamification elements can enhance cognitive and emotional engagement [33].

However, this study also found that the effectiveness of NHT is conditional, depending on the quality of planning and classroom management. This finding expands upon previous studies that tended to emphasize the advantages of NHT without thoroughly examining implementation factors at the teacher level. This means that although NHT has a strong theoretical foundation, its effectiveness is not automatic [34].

NHT is perceived as effective in the context of social studies learning, because, first, social studies is a subject based on social and discursive phenomena. These characteristics are inherently aligned with a cooperative approach that emphasizes dialogue and collaboration. Therefore, models that encourage active interaction tend to be more relevant than traditional lecture methods. Second, the tournament structure in NHT creates positive performance pressure. According to Slavin (1995), controlled competition in cooperative learning enhances learning focus because students have clear and measurable goals. The findings of this study indicate that the desire to achieve the best score motivates students to prepare more seriously [35].

Third, from an educational psychology perspective, the combination of intrinsic and extrinsic motivation explains the observed increase in participation. Deci and Ryan (2000) emphasize that intrinsic motivation develops when individuals feel competent and have control over the learning process. In NHT, the

opportunity to answer questions at the tournament table provides an experience of success that reinforces a sense of competence [34].

On the other hand, challenges in time management and classroom management indicate that implementation complexity increases when the model involves multiple stages. This aligns with findings in the teacher education literature that pedagogical innovations require adequate managerial competencies. In other words, the emerging barriers do not stem from conceptual weaknesses in NHT but from implementation readiness [32].

3.2. Discussion

The research findings indicate that prospective teachers perceive the Number Head Together (NHT) model as effective in enhancing participation, motivation, and conceptual understanding of social studies. These findings generally support social constructivism theory, which states that collaborative interaction is a crucial prerequisite for knowledge construction (Vygotsky, 1978) [36]. Team discussions prior to the tournament demonstrated processes of meaning negotiation and conceptual clarification, reflecting the mechanisms of social mediation in learning. The findings are also consistent with Johnson & Johnson's (2009) social interdependence theory, particularly regarding the aspects of positive interdependence and individual accountability [37]. The informants' perception that each member feels responsible for the group's score indicates that the NHT structure successfully fosters productive interdependence. Thus, the results of this study reinforce the assumption that structured cooperative instructional design can enhance the quality of learning interactions [38].

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This aligns with findings in the teacher education literature that pedagogical innovations require adequate managerial competencies. In other words, the emerging barriers do not stem from conceptual weaknesses in NHT but from implementation readiness. This study indicates that pre-service teachers perceive the Number Head Together (NHT) model as an effective teaching strategy in the context of social studies instruction. This effectiveness is manifested through increased student participation and social interaction, enhanced learning motivation, and support for conceptual understanding. However, the effectiveness of NHT is not viewed as an automatic result of the model's design but rather depends on teachers' pedagogical readiness, the quality of lesson planning, and their classroom management skills [41]. Theoretically, this study expands the literature on cooperative learning by positioning pre-service teachers' perceptions and beliefs as a crucial dimension in assessing the effectiveness of learning models. These findings confirm that the successful implementation of NHT is mediated by the pre-service teachers' professional development, which is shaped through reflective practice. Thus, the effectiveness of a learning model is not merely instructional but also professional [42].

In practical terms, the findings of this study indicate the need to strengthen training in the implementation of practice-based cooperative models in teacher education, particularly in the areas of instructional planning and classroom management. Structured and reflective practical experiences are key to preparing prospective teachers to adopt innovative learning models on an ongoing basis. This study makes

several important theoretical contributions. First, this study expands the examination of NHT's effectiveness from a focus on student learning outcomes to an analysis based on prospective teachers' perceptions. By integrating Pajares's (1992) teacher belief theory, this study demonstrates that the effectiveness of a learning model is determined not only by academic outcomes but also by the construction of prospective educators' pedagogical beliefs. Second, this study enriches the literature on cooperative learning by emphasizing the implementation dimension as a mediating variable[43].

This means that the relationship between the NHT model and learning effectiveness is mediated by the quality of classroom planning and management. This perspective corrects the tendency in previous research to view learning models in a deterministic manner. Third, in the context of social studies learning, this study emphasizes that the effectiveness of learning models must be analyzed based on the compatibility of content characteristics with instructional structures. Thus, this study provides a conceptual elaboration on the contextual compatibility between social studies and game-based cooperative learning.

4. CONCLUSION

The findings of this study have strategic implications for the development of teacher education policies. First, teacher education curricula need to allocate a greater portion to the direct and reflective practice of implementing innovative learning models. Microteaching experience has been shown to play a role in shaping professional confidence and pedagogical readiness. Second, pre-service teacher training should not only focus on conceptual understanding of learning models but also on classroom management and time management. The identified implementation challenges highlight the need for more intensive simulation-based training. Third, teacher education institutions need to develop contextual NHT training modules for social studies instruction. This is important so that prospective teachers can adapt tournament designs, materials, and evaluation systems to the characteristics of core social studies competencies.

Fourth, from a broader policy perspective, strengthening pedagogical competencies based on reflective practice can serve as a strategy to enhance teachers' readiness for the implementation of the Merdeka Curriculum, which emphasizes active and collaborative learning. Overall, the results of this study support social constructivism, social interdependence, and motivation theories, while simultaneously expanding upon them by demonstrating that the effectiveness of learning models is significantly influenced by the professional readiness of prospective teachers. Thus, the effectiveness of NHT in social studies learning is not merely a matter of instructional design but also the construction of beliefs and pedagogical competencies formed through practical experience.

This study shows that pre-service teachers perceive the Number Head Together (NHT) model as an effective teaching strategy in the context of social studies instruction. This effectiveness is manifested through increased student participation and social interaction, enhanced learning motivation, and support for conceptual understanding. However, the effectiveness of NHT is not viewed as an automatic result of the model's design but rather depends on the teacher's pedagogical readiness, the quality of lesson planning, and classroom management skills.

Theoretically, this study expands the literature on cooperative learning by positioning pre-service teachers' perceptions and beliefs as a crucial dimension in evaluating the effectiveness of learning models. These findings confirm that the success of NHT implementation is mediated by the pre-service teachers' professional development, which is shaped through reflective practical experience. Thus, the effectiveness of a learning model is not merely instructional but also professional. Practically, the results of this study indicate the need to strengthen practice-based training in the implementation of cooperative models in teacher education, particularly regarding instructional planning and classroom management. Structured and reflective practical experiences are key to preparing prospective teachers to adopt innovative learning models sustainably.

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