



IMPLEMENTATION OF THE GROUP DISCUSSION METHOD FOR PHYSICS TO ENHANCE THE ACHIEVEMENT OF GRADE X STUDENTS AT CRISTAL SECONDARY SCHOOL, DILI

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ABSTRACT

The objective of this study to explore the implementation of the group discussion method in physics classes at Cristal Secondary School, Dili. Its effects on improving students' academic achievement. This study is using a qualitative research approach. Data were collected from two classes with 20 students each. One uses the group discussion method and the other employs traditional lecture-based instruction. Classroom observations, semi-structured interviews, and focus group discussions were conducted to gather insights into students' engagement, collaboration, and conceptual understanding. Thematic analysis revealed that the group discussion method enhanced peer interaction, improved conceptual understanding, and increased student motivation, leading to better academic performance in physics. The study concludes that collaborative learning through group discussions can serve as an effective teaching strategy for challenging subjects like physics, fostering critical thinking and problem-solving skills among students.

INTRODUCTION

The development of secondary education worldwide is an essential factor in improving human educational quality and investing in knowledge across all areas.

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Education is universal and continues perpetually, passing from one generation to the next globally. It is an aspect of the development of a nation and for transforming individuals' mindsets. Education also serves as a pathway to achieving a better life for every individual, guided by knowledge of science and technology for the future.

Timor-Leste, as a nation that has recently begun its development process after emerging from prolonged conflict and colonial occupation, has endured significant suffering and complexity. These experiences have led Timorese people to prioritize education to develop the Democratic Republic of Timor-Leste. A country that seeks to expand itself must first enhance its human resources.

Cristal Secondary School's existence aligns with its vision and mission to employ various methods, including group discussions, to improve the quality of education in Timor-Leste, particularly within the school. It also emphasizes the dedication of all its staff to prepare themselves and provide education in adherence to the principles of Don Bosco: Love, Domination, Peace, and Stability, ensuring that young people acquire the necessary knowledge and skills to guarantee and enhance the quality of education in this democratic nation.

Teachers at Cristal Secondary School are committed to preparing lesson plans, attending classes, and following guidelines set by the Ministry of Education, Youth, and Sports, as well as adhering to the curriculum and accreditation standards established by ANNA, to ensure the quality and success of students at Cristal. One of the methods used, particularly for the subject of physics, is group discussions.

Achievement refers to the valuation of students' learning outcomes and the extent to which they meet their study goals, known as academic achievement. Achieving good performance in any task or activity is not easy; it requires great effort and continuous sacrifice. Thus, one's efforts and sacrifices measure their performance in work or study. Performance refers to the outcomes one achieves' in work, study, or other activities. Students' achievement in research settings follows planned procedures or established rules, such as assessments based on their capacity during the learning process, including attendance, individual and group work, presentations, and evaluation of group discussions in physics, ultimately analyzed to assess each student's capacity and intelligence through grades, identifying their achievements.

In this case, implementation is defined as a process of utilizing additional

resources to enhance students' knowledge and assess what students can achieve in group discussions on physics, demonstrating positive results in the classroom. Implementing the group discussion method is a learning approach characterized as a system of exchanging ideas or experiences within study groups. Through group discussions, students gain valuable learning experiences because each student possesses unique knowledge, abilities, and ways of learning.

Teachers must dedicate themselves to educating students according to their abilities, and facilitating their learning experiences. Teachers act as mediators, transformers, and educators, influencing students' capacity and mindset during the learning process in group discussions.

In Cristal Secondary School, group discussion methods are commonly used in exact sciences subjects, particularly in physics. Students are enthusiastic about this method because it creates a calm environment in the classroom and allows them to benefit from excellent science education. This method helps students improve their knowledge through group discussions, building their confidence and ability to solve problems in physics. Group discussions during the learning process, led by a teacher, aim to stimulate positive factors among students.

Based on the contextual explanation, the author raises the following research problem: How does the implementation of the group discussion method in physics enhance the academic achievement of 10th-grade students at Cristal Secondary School, Dili? The objective of this research is: To analyze and assess students' knowledge through the implementation of the group discussion method in physics to enhance the academic achievement of 10th-grade students at Cristal Secondary School, Dili.

LITERATURE REVIEW

Student Achievement

Student achievement, according to da Costa et al., (2018), refers to the outcomes of learning activities as a result of individual efforts, expressed in forms such as numbers, letters, or sentences that reflect the results obtained by individuals. Furthermore, da Costa et al., (2019) defines student achievement as the outcomes of learning efforts attained after undergoing a learning process. The success of learning is reflected in the values assigned by teachers in various disciplines studied by students,

aiming for maximum learning outcomes. Rachmawati et al., (2021) states that student achievement is the formulation provided by teachers in the process of studying activities, showing progress or realization after completing the learning process. Additionally, Costa et al., (2019), defines student achievement as the results achieved through learning activities. Bukhari M (1983) interprets it as either the expected or actual results achieved.

According to Da Costa et al., (2019), achievement also represents the educational value related to the development and change in students concerning the material provided by teachers. Nurkancana and Sunartana (1992) describe student learning outcomes as actual abilities gained by individuals after learning and potential abilities reflecting basic skills for achieving general objectives of knowledge and referenced abilities that referred to the various factors. The factors affecting student achievement are categorized into two groups: internal and external factors. According to Slameto (2003:54-71), these are described as follows:

- a) Internal factors originate within the student, influencing their learning achievement: (1) Physiological conditions: Health significantly impacts learning achievements, as students in good health differ in performance from those with poor health. Sensory conditions, especially vision and hearing, play a crucial role in learning. Psychological factors influencing learning outcomes include: (a) Intelligence: Success in learning correlated with intelligence; highly intelligent students tend to excel more than those with lower intelligence. (b) Talent: Students with talents are more active than those without specific talents. (c) Interest: Learning outcomes are better when students are interested in their studies. (d) Motivation: Motivation is a psychological factor driving individuals to perform tasks.
- b) External factors come from outside the individual, such as family or other environmental influences.

Implementation of the Group Discussion Method

According to Junita and Marlina Siregar (2018), this study aims to examine the application of the group discussion method in improving student achievement in classroom learning. Group 3 discussions provide opportunities for students to conduct

scientific discussions, gather opinions, create conclusions, or prepare alternative solutions to solve problems. Depdikbud (1994) also suggests that learning objectives can be achieved effectively through the application of the group discussion method.

The group discussion method emphasizes student participation, allowing them to exchange ideas about information, knowledge, and opinions on specific topics or problems to find solutions or alternative answers. Subroto (2006:67) highlights that this method develops a scientific approach of discussions. Similarly, Karyadi (2017) and Mustamin (2020) assert that group discussions improve students' learning outcomes, stimulate creativity, respect others' opinions, expand students' horizons, and encourage collaborative problem-solving.

The procedural stages of the group discussion method, as outlined by Subroto (2002), are: (1) Teachers act as leaders, forming discussion groups where students assume roles such as president, secretary, reader, or organizer. (2) Students discuss within their groups while the teacher monitors provides instructions, encourages participation, and ensures discussions flow smoothly. (3) Each group presents their discussion results, which are reviewed and explained by the teacher or approved by the class. (4) Students record the discussion outcomes, and the teacher evaluates the results of each group's discussion.

The group discussion method becomes effective approach for teaching topics or issues by allowing participants to reach decisions or diverse opinions through collaborative discussions. This method is most suitable when teachers aim to: (1) utilize students' existing diverse capacities, (2) provide students with opportunities to learn in specific settings, (3) receive feedback from students to achieve desired outcomes, (4) help students develop critical thinking and self-evaluation skills, (5) assist students in understanding and addressing their issues or problems in the classroom.

Advantages of the Group Discussion Method: (1) Encourages students to recognize that problems can be solved in various ways, not just one, (2) Raises awareness that structured discussions can yield better results, (3) Students listen to and learn from others' opinions, (4) Allows students to express their thoughts and opinions. (5) Provides opportunities for students to serve as sources of information. (6) Offers a platform for collective problem-solving. (7) Trained students to discuss and resolve problems. (8) Stimulates participation and expression, whether in agreement or

disagreement with peers. (9) Fosters responsibility for opinions, conclusions, or decisions. (10) Promotes solidarity and tolerance for differing opinions.

METHOD

According to Creswell, (2014), research methodology is fundamentally a scientific pathway to obtain data and information for specific objectives. Research methods serve as a method to solve problems whose truths are yet to be discovered. The research was conducted at Cristal Secondary School in Dili. The participants of this study are 20 students. Researchers utilize the Qualitative Research Method in this study. The information obtained from respondents serves as valuable input expressed through their responses and feelings to derive accurate results regarding the subject under investigation. Brito, & da Costa, (2023), identifies specific characteristics of descriptive research focusing on exploring and examining them in-depth and comprehensively.

The research employs a phenomenological approach. A phenomenon is an indication that can be observable in the reality of the research field, encompassing factual occurrences. The phenomenon in this research is an activity the researcher can perform and aims to formulate based on the research objectives. This involves creating an environment conducive to group discussions on physics materials among students, and analyzing their activities after the researcher conducts phenomena-related actions tied to the physics subject matter.

The objective of descriptive qualitative analysis is to describe in detail and comprehensively the occurrences of phenomena in the research field or site. Descriptive qualitative research is a technique or method used in qualitative research. Qualitative research emphasizes observing phenomena happening in the study area.

RESULT AND DISCUSSIONS

Result

Implementation of Group Discussion Method

The results of the interview identified specific subcategories that reflect students' achievements as shown in the following table:

Category	Subcategory
Implementation of Group Discussion Method	How the implementation of the group discussion method in physical education is applied to 10th-grade students in Cristal Secondary School, Dili

Table 1: Category and Subcategory of Achievement

Source: Results written by Researcher, 2023

According to the results of interviews conducted with 10th-grade students at Cristal Private Secondary School in Dili. Regarding the implementation of the group discussion method, students provided information stating. Referring to the results of interviews conducted with 10th-grade students at Cristal Private Secondary School in Dili, regarding the implementation of the group discussion method, students provided information stating that:

According to student (A1), during the implementation of the group discussion method for physics lessons in class, this method helps them enhance their thinking and mentality to engage in discussions on the topics taught by the teacher. It also trains them to speak confidently in front of others. However, they encounter difficulties, such as not fully understanding the material due to limited time to prepare and present the results of their group discussions. Despite these challenges, the group discussion method helps them exchange ideas, support each other, and deepen their understanding of physics formulas and exercises. The method is very beneficial, allowing them to better grasp the topics explained by the teacher. 5

(A2) noted challenges like noise during group discussions because some peers do not collaborate effectively. Despite this, the group discussion method is highly effective as it enables students to help each other, especially those who struggle to understand the material, by voicing their difficulties.

(A3) added that a common challenge is the inability to hear each other in the group due to noise created by some students.

According to (A4), the group discussion method helps them manage time effectively and adequately utilizing the explanations provided in physics lessons.

(A5) observed that the implementation of group discussions in class allows many students to access the discussions, enhancing their ability to solve the physics problems assigned by the teacher.

(A6) and (A7) highlighted that group discussions allow them to consult with peers when they don't understand a concept and listen to others' ideas.

(A8), (A9), and (A10) emphasized that group work enables them to support one another, fostering active interactions during the learning process.

Based on the interview results utilizing the group discussion method for 10th-grade students at Cristal Secondary School is crucial in enhancing their ability to discuss materials, increasing their knowledge, and developing their confidence presence the outcomes of their discussions. This approach motivates them to exchange ideas, work collaboratively to solve problems, and engage actively in learning process.

Student Engagement

The interview results identified three specific subcategories reflecting the implementation of the group discussion method, as summarized in the table below:

Category	Subcategory
Increase achievement of students	How to increase the achievement of students

Table. 2 Category and sub-category of Achievement

Source: Results written by Researcher, 2023

The results of the interview with the students regarding the implementation of the group discussion method in physical education to improve the performance of 10th-grade students at Cristal Secondary School in Dili are as follows:

According to the student (A1), the group discussion method in learning physical education in class helps us understand more about physical education topics that we haven't yet fully grasped, and it allows us to explore topics that the teacher has already covered through discussion. Moreover, physical education also includes preparation for the national exam, which motivates us to improve our performance in class.

Student (A2) states that the group discussion method helps us expand our knowledge to better understand the content in physical education, including how it connects to real-world applications of natural physical sciences, as physical education is a subject specifically within the natural sciences.

Student (A3) mentions that the group discussion method helps us understand physical formulas better.

Students (A4, A5, A6, A7, A8, A9, and A10) say that the benefits of implementing the group discussion method in physical education make it easier for us to understand the discussion process, how to analyze discussion results, and increase our knowledge in physical science, linking it with other subjects like biology, chemistry, mathematics, and geography, as well as understanding natural resources, chemical elements, and the physical characteristics of different planets.

Through the group discussion method in physical education, we are able to improve our mindset when presenting in front of a large audience, which enhances our capacity and knowledge.

Therefore, researchers suggest implementing this discussion method across all subjects as it allows us to exchange ideas and develop our knowledge in physical science. It will also help us better understand the content of 10th-grade physical education and prepare us for 11th and 12th grades when facing the national exam.

According to the statements provided by the students regarding how implementing the group discussion method enhances student achievement. In order to promote student achievement in the learning process within the classroom, the discussion method is an effective means to explore students' scientific knowledge, mentality, ethics, and responsibility.

Discussion

Based on the research results, which include data obtained through observations and interviews, the following conclusions can be made.

Implementation of the Group Discussion Method

According to Syaifudien, (2015), discussion is a process of two or more individuals engaging in verbal interaction. It aims at achieving objectives that have already been defined and sharing information. In this context, Sadia (2014) further adds that students learn more through active involvement with concepts, and principles, and the encouragement of teachers, who provide experiences and engage in activities that help students grasp these concepts more effectively.

The results align with the theory of Muhali (2004), who states that learning emphasizes students working in groups. This helps students to optimize their learning achievement. On the other side showcase discussion activities with other students. The group discussion method is seen as an approach that teaches through actions on a topic including participants to reach decisions or opinions based on the discussions. Discussion is considered an adequate learning method and is important, especially when the teacher desires to engage students' involvement in learning processes.

Based on the researcher's discussion, the conclusion is that the group discussion method is an effective way to present materials in the classroom. This method fosters opportunity for students to form groups, helping them enhance their learning achievements.

Implementation of Student Achievement

Referring to the interview results with students, the researcher obtained information regarding the group discussion method at Cristal School, particularly for secondary school students. Teachers consistently use this method in various subjects, especially in physical science. Students express great enthusiasm when this method is used because it helps create a positive environment within the classroom, allowing them to make the most of their learning in the subject. This method can also help students improve their learning by fostering a better educational experience. Additionally, it builds students' confidence in their abilities to solve problems in physical science.

Group discussions during the learning process facilitate teachers and also help encourage positive factors in study. Therefore, student achievement relates to the value that teachers provide in every subject that students study. Student achievement can be defined

by two key terms: "learning" and "study." These two terms are related but hold different meanings. Student achievement results from activities or actions that students engage in, which help them develop their learning.

Based on the results of the group discussion method provides as a powerful approach for presenting topics effectively. It engages a large number of people. However, there are challenges and difficulties, especially when implementing the group discussion method for certain subjects. Despite this, the benefits are evident; it leads to significant positive results in the learning process. Through this method, students at Cristal Secondary School in Dili have shown improved academic achievement.

Implementation of the Group Discussion Method

To achieve good student performance, it is essential to have good facilities, quality curriculum, and effective teachers who help facilitate activities and teaching, enabling students to learn and achieve positive outcomes. Facilities play an important role in the learning process, and this is why the concept of "facilities" is crucial—they act as key elements that support the learning process, such as library books, materials, and others.

Student achievement in the research setting follows a plan, procedure, or established rules, such as assessment based on individual student capacity throughout the learning process. This includes factors such as attendance, individual and group work, individual and group presentations, and positive achievement, which can also be assessed through group discussions related to the subject of physics. The evaluation process includes analysis and testing to assess each student's capacity and intelligence, followed by grading to identify the individual achievement of each student.

The problems faced by students at Cristal Secondary School are related to language, which creates difficulties in the learning process, as well as issues with management skills, learning facilities, classroom environment, and student health conditions. Problems with facilities include classroom materials, textbooks or manuals used for teaching, laboratories, libraries, chairs, tables, teachers acting as facilitators, and other materials that directly related to the learning process. Based on the explanation above, the conclusion is that the use of the group discussion method is considered highly effective in the teaching and learning process, especially for enhancing students' critical thinking abilities when solving problems. There is enthusiasm among students when participating in group discussions, as these activities enhance their experience and build their confidence and courage for further activities.

Student achievement reflects the outcomes of their activities and efforts, encompassing individual and group work, attendance, and presentations. These factors positively influence their learning outcomes, especially in group discussions on physics topics. Assessment of students' capabilities and intellect further demonstrates the effectiveness of this method in achieving positive results.

Challenges

Students from Private Senior High School of Cristal confront various challenges including language barriers, learning facility constraints, environmental conditions, and health issues. Additional challenges include inadequate classroom conditions, insufficient practice materials, lack of textbooks or manuals, limited access to laboratories and libraries, and insufficient tables and chairs. Teachers, as facilitators, also face limitations in providing necessary materials. The group discussion method is considered an effective teaching strategy, particularly for enhancing students' critical thinking skills and problem-solving abilities. Students show great enthusiasm when participating in group discussion activities, which improves their confidence and courage. The findings discovered that group discussions is highly beneficial for academic achievement and should be encouraged in the learning process.

CONCLUSIONS

Based on the research findings above, the researcher concludes that the group discussion method for physics subjects serves as a means to present material provided by the teacher in the classroom, offering students the opportunity to form groups to enhance their academic achievement. These words are interconnected but carry different meanings. Even though, students deal with various barriers, learning facility constraints, environmental conditions, and health issues.

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