

The Effectiveness of the Snowball Throwing Learning Method in Building Responsible Character

Samini, Winarno, Fadhil Purnama Adi

Universitas Sebelas Maret
samsamini147@gmail.com

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Abstract

Responsible character development in learners is becoming an urgency in today's education, and innovative learning methods such as Snowball Throwing offer significant potential in achieving desired goals. This study aims to analyze the effectiveness of the Snowball Throwing learning method in building responsible character in students. The method used is Systematic Literature Review (SLR) with the PRISMA approach, using data from) with sinta indexed articles. The Snowball Throwing learning method has significant effectiveness in building responsible character in students. This method not only increases students' activeness and participation in learning, but also contributes positively to improving academic achievement, developing social skills, and strengthening responsible character. Factors that affect the effectiveness of the implementation of this method include active student participation, collaboration in learning, creativity in formulating questions, and the facilitative role of teachers in creating an interactive and fun learning environment. Compared to other active learning methods, Snowball Throwing shows advantages in terms of encouraging social interaction, increasing creativity, and integrating character education into the learning process. However, it should be noted that the effectiveness of this method can vary depending on the context of implementation and the characteristics of the learner. The implications of these findings suggest that the Snowball Throwing method can be integrated into the educational curriculum as an effective tool for building responsible character while improving students' academic and social skills.

Keywords: *Snowball Throwing, Responsible Character, Systematic Literature Review*

Abstrak

Pengembangan karakter bertanggung jawab pada peserta didik menjadi urgensi dalam pendidikan saat ini, dan metode pembelajaran inovatif seperti Snowball Throwing menawarkan potensi yang signifikan dalam mencapai tujuan yang diinginkan. Penelitian ini bertujuan untuk menganalisis efektivitas metode pembelajaran Snowball Throwing dalam membangun karakter bertanggung jawab pada peserta didik. Metode yang digunakan adalah Systematic Literature Review (SLR) dengan pendekatan PRISMA, menggunakan data dari) dengan artikel terindeks sinta. Metode pembelajaran Snowball Throwing memiliki efektivitas yang signifikan dalam membangun karakter bertanggung jawab pada peserta didik. Metode ini tidak hanya meningkatkan keaktifan dan partisipasi peserta didik dalam pembelajaran, tetapi juga berkontribusi positif dalam meningkatkan prestasi akademik, mengembangkan keterampilan sosial, dan memperkuat karakter bertanggung jawab. Faktor-faktor yang mempengaruhi efektivitas penerapan metode ini meliputi partisipasi aktif peserta didik, kolaborasi dalam pembelajaran, kreativitas dalam merumuskan pertanyaan, dan peran fasilitatif guru dalam menciptakan lingkungan belajar yang interaktif dan menyenangkan. Dibandingkan dengan metode pembelajaran aktif lainnya, Snowball Throwing menunjukkan keunggulan dalam hal mendorong interaksi sosial, meningkatkan kreativitas, dan mengintegrasikan pendidikan karakter ke dalam proses pembelajaran. Akan tetapi, perlu dicatat bahwa efektivitas metode ini dapat bervariasi tergantung pada konteks penerapan dan karakteristik peserta didik. Implikasi dari temuan ini menunjukkan bahwa metode Snowball Throwing dapat diintegrasikan ke dalam kurikulum pendidikan sebagai alat yang efektif untuk membangun karakter yang bertanggung jawab sekaligus meningkatkan keterampilan akademis dan sosial siswa.

Kata Kunci: *Snowball Throwing, Karakter yang Bertanggung Jawab, Tinjauan Pustaka Sistematis*



INTRODUCTION

Responsibility character is one of the important aspects in the development of students, relating to an individual's ability to fulfill obligations, complete tasks on time, and show concern for tasks and the surrounding social environment. Indicators of responsibility include the ability to plan and organize tasks, demonstrate initiative, and show consistency in completing work (Sulaeman, 2021; Triyono et al., 2020). Students who have a responsible character tend to be more disciplined in following rules and are capable of completing academic tasks effectively. Factors influencing the development of responsibility character in students include the influence of family, particularly parenting styles and the attention of parents (Buchanan et al., 2018), as well as the school environment, where the role of teachers and peers is crucial in shaping responsible behavior (Feldman & Wentzel, 2020). Social norms and societal expectations also play a role in shaping students' responsibility mindset (Miller et al., 2019). However, reality shows that the development of responsible character in schools is still not optimal. Some studies indicate low student responsibility character, which is reflected in behaviors such as not doing assignments on time, not complying with school rules, and lack of concern for the surrounding environment (Zulfana & Wahyuni, 2023). This condition requires systematic efforts to build and strengthen the responsible character of students through an effective learning process.

One of the learning methods that has the potential to build a responsible character is the Snowball Throwing method. One of the learning methods that has the potential to build a responsible character is the Snowball Throwing method. Snowball Throwing style cooperative learning has a positive impact on the academic achievement of elementary school students compared to the expository learning model (Irawahyuni et al., 2021). Several studies have shown the effectiveness of Snowball Throwing in improving student activities and learning outcomes. For example, research (Al Hafidz & Arifin, 2019a) demonstrated an increase in student activity from 53.3% in the first cycle to 68.8% in the third cycle, as well as an increase in learning achievement from 33.3% to 83.3%. Snowball Throwing style cooperative learning has a positive impact on the academic achievement of elementary school students compared to the expository learning model (Irawahyuni et al., 2021). Several studies have shown the effectiveness of Snowball Throwing in improving student activities and learning outcomes. For example, research (Al Hafidz & Arifin, 2019a) demonstrated an increase in student activity from 53.3% in the first cycle to 68.8% in the third cycle, as well as an increase in learning achievement from 33.3% to 83.3%.

However, these studies focus more on the cognitive aspects and activeness of students, while their effectiveness in building responsible character has not been widely explored. In fact, the Snowball Throwing learning process that requires students to actively ask questions, answer questions, and participate in group discussions has the potential to train student responsibility. Therefore, further studies are needed to evaluate the effectiveness of research from (Linda Elvira Ndruru et al., 2022a; Warni et al., 2023) explain that this method is effective in influencing student responsibility and improving student achievement with an average responsibility of 3.8% higher than the average of the control class (Hardiansyah, 2022a; Linda Elvira Ndruru et al., 2022a).

The urgency of research on the effectiveness of the Snowball Throwing method in building responsible character is increasing considering the importance of character formation in the context of national education. Character education, including responsible character, is one of the main focuses in the development of the curriculum and learning process in Indonesia. However, there is still a gap between expectations and the reality of the implementation of character education in schools, including in terms of the use of effective learning methods. The urgency of research on the

effectiveness of the Snowball Throwing method in building responsible character is increasing considering the importance of character formation in the context of national education. Character education, including responsible character, is one of the main focuses in the development of the curriculum and learning process in Indonesia. However, there is still a gap between expectations and the reality of the implementation of character education in schools, including in terms of the use of effective learning methods.

Research question: The research questions that will be answered in this study are:

1. How effective is the Snowball Throwing method in improving students' responsible character?
2. What are the factors that affect the effectiveness of the implementation of the Snowball Throwing method in building responsible character?
3. How does the effectiveness of the Snowball Throwing method compare with other active learning methods in the context of responsible character development?

This study uses the Systematic Literature Review (SLR) approach to synthesize the results of previous research systematically and objectively. Through SLR, a more comprehensive picture of the effectiveness of the Snowball Throwing method in building responsible characters can be obtained based on various studies that have been conducted. The purpose of this study is to analyze the potential for the effectiveness of the Snowball Throwing learning method in building students' responsible character based on previous studies.

METHOD

This study uses the Systematic Literature Review (SLR) method to review and analyze literature related to the effectiveness of the Snowball Throwing learning method in building the responsible character of students. The SLR protocol refers to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a systematic review (Page et al., 2021).

Article selection criteria include inclusion criteria: (1) Publication in sinta indexed journals; (2) Study on the implementation of the Snowball Throwing learning method in responsible character development; (3) Research that presents the results, evaluation methods, or impacts of the use of the Snowball Throwing learning method; (4) Articles in English; (5) Published in 2010-2024 (considering the topic so that the latest is still valid). Exclusion criteria include: (1) Non-primary research review articles; (2) Articles cannot be accessed/paid

Literature searches are carried out through the sinta database by considering its reputation as a highly reputable source in the field of education. The search keywords used are: ("Snowball Throwing" OR "cooperative learning") AND ("responsibility" OR "character building" OR "character education") AND (education OR learning OR teaching) AND (student OR learner). The reference selection process uses Mendeley software.

The data analysis technique in SLR adopts a thematic-based narrative synthesis approach. Every article that passes the final selection will be read thoroughly. The analysis process begins with an in-depth reading of each article to understand its context, methodology, and key findings. Furthermore, the relevant information of each article is coded according to the predetermined research questions, covering aspects such as the implementation of the Snowball Throwing learning method, the impact on the character of responsibility, the factors affecting effectiveness, and the implementation challenges.

The coding that emerges from the various articles is then grouped into broader themes that align with the research question. These themes are organized into a coherent and comprehensive narrative, answering each research question with the

support of evidence from the analyzed articles. Finally, based on this narrative synthesis, a general conclusion was drawn about the effectiveness of the Snowball Throwing learning method in building the responsible character of students.

Through this analysis process, the study aims to analyze the effectiveness and potential of the Snowball Throwing learning method in building the responsible character of students, based on relevant research in the Scopus database. The process of filtering articles will be presented using the PRISMA flowchart in Figure 1 below:

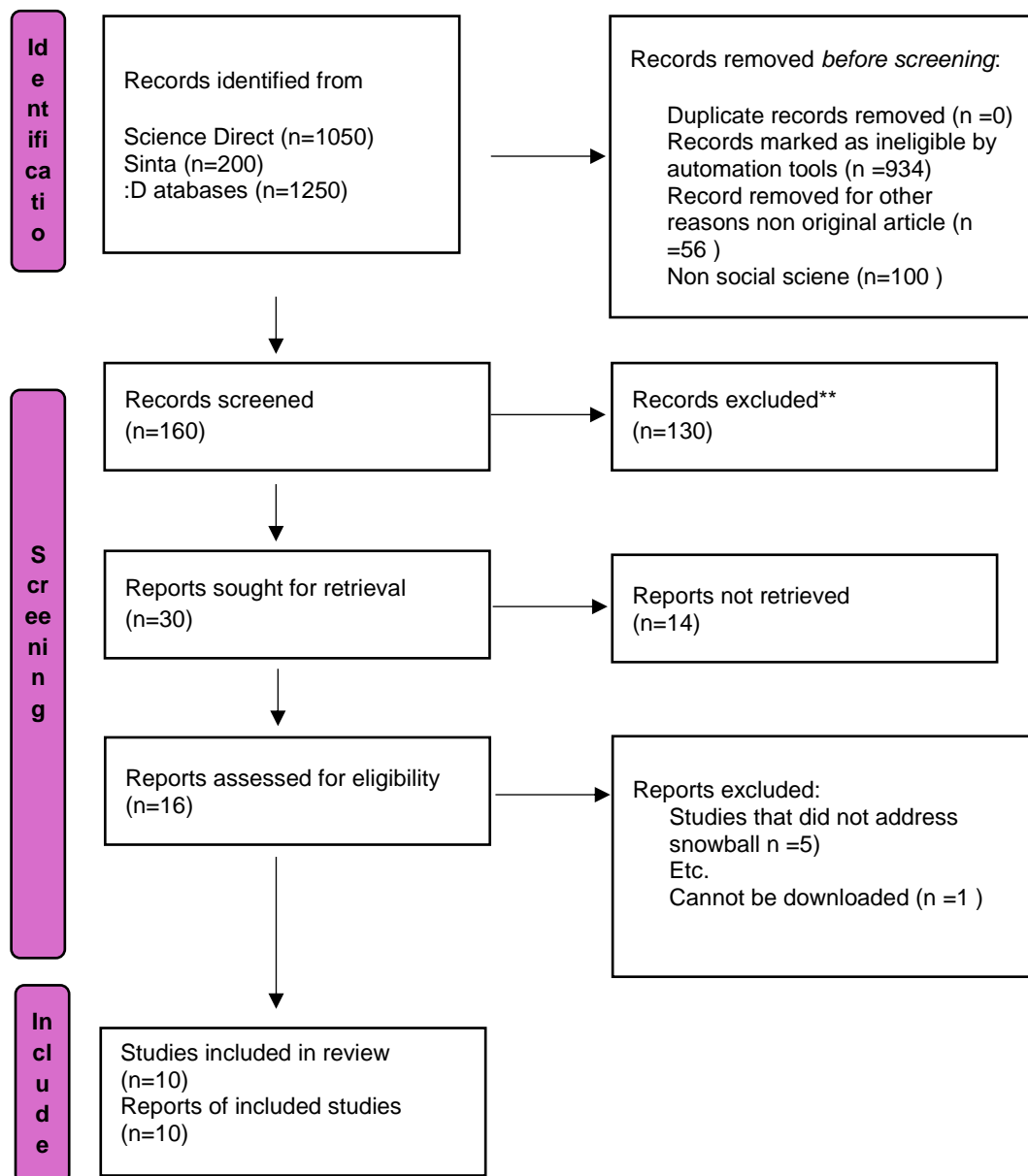


Figure 1. PRISMA Snow Ball Flow Diagram

Before entering the analysis based on the research question, the researcher wanted to examine the relativity and distribution of the data from the final papers used in this study as follows:

Most Commonly Used Research Methods:

1. Experimental and Quasi-experimental: The majority of studies use experimental or quasi-experimental designs (Linda Elvira Ndruru et al., 2022a; Manalu et al., 2022; Matondang et al., 2021; Rismaini et al., 2020)
2. Classroom Action Research (PTK): Some studies adopt the PTK approach, such as the research by Hafidz which was conducted in three cycles.
3. Qualitative Descriptive: This approach is also used, as in Hardiansyah's research which focuses on character education.

Sample:

1. Education Level: Studies cover different levels of education, starting from elementary school (Linda Elvira Ndruru et al., 2022a; Rismaini et al., 2020), Junior High School (Manalu et al., 2022; Matondang et al., 2021), to vocational high schools (Hafidz).
2. Sample Size: Sample size varies, ranging from 30 students (Hafidz) to 44 students (Matondang et al., 2021)
3. Sampling Methods: Some studies use purposive sampling (Rismaini et al., 2020), while others use control group designs and experiments (Linda Elvira Ndruru et al., 2022a)

Research context:

1. Geographical Location: The study was conducted in various locations in Indonesia, including Padang Pariaman (Rismaini et al., 2020) Semarang (Linda Elvira Ndruru et al., 2022a), and Pematang Siantar (Matondang et al., 2021)
2. Subjects: Research covers a wide range of subjects, including mathematics (Rismaini et al., 2020), Catholic religious education (Ndruru et al.), light vehicle engine maintenance (Hafidz), and social sciences (Matondang et al., 2021)
3. Research Focus: These studies explore a variety of aspects, including students' interest in mathematics (Rismaini et al., 2020), learning responsibilities and achievement (Linda Elvira Ndruru et al., 2022a), student activity and achievement (Hafidz), as well as character education (Hardiansyah, 2022a)

Data Collection Method:

1. Questionnaires and Tests: Many studies use questionnaires and tests to measure students' learning outcomes and attitudes (Linda Elvira Ndruru et al., 2022a; Manalu et al., 2022; Rismaini et al., 2020)
2. Observation: This method is used to observe student activity and the implementation of learning methods ((Al Hafidz & Arifin, 2019b; Linda Elvira Ndruru et al., 2022b)
3. Interviews: Some studies, such as Hardiansyah's research, use interviews to collect qualitative data.

Data Analysis:

1. Statistical Analysis: Many studies use independent sample t-tests, normality tests, and homogeneity tests (Linda Elvira Ndruru et al., 2022b; Manalu et al., 2022; Matondang et al., 2021; Rismaini et al., 2020)
2. Descriptive Analysis: Some studies, especially those that use a qualitative approach, apply descriptive analysis (Hardiansyah).

Thus, it can be seen that the articles obtained are eligible for systematic literature review (SLR) because they cover various important aspects in educational research. These studies use a variety of research methods, involve samples from

different levels of education, and apply various data collection and analysis techniques. They also cover diverse contexts in terms of geographic location and subjects, providing a comprehensive overview of the effectiveness of the Snowball Throwing method in various educational settings in Indonesia. This diversity allows for an in-depth analysis of the application and impact of the Snowball Throwing method in different educational contexts.

RESEARCH RESULTS

Here is a table 1 presenting the findings from various studies discussing the effectiveness of the Snowball Throwing method in enhancing students' responsible character. This table outlines the results related to the impact of this method on student activity, academic achievement, and the factors influencing the effectiveness of its implementation in the learning process :

Table 1. Summary of Researches Result

Aspect	Research Findings	References
Effectiveness in Improving Responsible Character	Increased average responsibility in the experimental class (3.25 compared to 1.9 in the control class).	(Linda Elvira Ndruru et al., 2022; Rismaini et al., 2020; Hardiansyah, 2022; Manalu et al., 2022; Tiara Br Tondang et al., 2023)
Student Activity and Participation	Activity scores increased from 53.3% to 68.8%. Active participation reached 95.6% in the experimental class.	(Al Hafidz & Arifin, 2019; Manalu et al., 2022; Tiara Br Tondang et al., 2023)
Improvement in Academic Achievement	Achievement scores increased from 33.3% to 83.3%. Post-test scores in the experimental class were higher than in the control class.	(Al Hafidz & Arifin, 2019; Tiara Br Tondang et al., 2023)
Interest and Motivation in Learning	Increased students' interest in mathematics. Game elements enhanced learning motivation.	(Rismaini et al., 2020; Tiara Br Tondang et al., 2023)
Social Skills and Interaction	Encouraged interaction and collaboration among students. Improved communication and leadership skills.	(Hardiansyah, 2022; Rismaini et al., 202).
Comparison with Other Methods	Superior in fostering social interaction, creativity, and character education compared to other methods. Focused on making math learning engaging and enjoyable.	(Rismaini et al., 2020; Irawahyuni et al., 2021; Hardiansyah, 2022)

Role of Teachers in Success Teachers play a key role as facilitators in creating an interactive and enjoyable learning environment. (Hardiansyah, 2022; Rismaini et al., 2020)

The extent of the effectiveness of the Snowball Throwing method in improving students' responsible character

Based on the reviews that have been identified, the Snowball Throwing method has significant effectiveness in improving the responsible character of students. This method not only substantially increases student activity, but also encourages active participation in learning activities (Al Hafidz & Arifin, 2019b; Rismaini et al., 2020). The improvement in student achievement was evident with each implementation cycle, with the activeness score increasing from 53.3% to 68.8% and the achievement score increasing from 33.3% to 83.3% (Al Hafidz & Arifin, 2019b). The Snowball Throwing method has also proven to be effective in increasing students' interest in mathematics and encouraging collaboration and social interaction among them (Rismaini et al., 2020)

Experiments conducted by (Linda Elvira Ndruru et al., 2022a) It shows that the class that uses this method has a higher level of responsibility than the control class, with an average responsibility of 3.25 to 1.9. In addition, this method also improves students' skills in asking questions and formulating the material that has been taught (Rismaini et al., 2020). Research from (Hardiansyah, 2022a) It also found that this method not only increases student engagement in learning, but also fosters a sense of responsibility towards the environment.

Research conducted by (Manalu et al., 2022) Further reinforcing these findings, showing a significant increase in student activity, with very active participation reaching 95.6% in the experimental class. This method has also proven to be effective in meeting and even exceeding the KKM score requirements. Similar findings were also reported by (Tiara Br Tondang et al., 2023), which showed higher posttest scores in the experimental class compared to the control class.

Thus the synthesis, it can be concluded that the Snowball Throwing method is not only effective in improving students' responsible character, but also has a positive impact on various aspects of learning, including activeness, academic achievement, interest in learning, and social skills. This method offers an interesting approach to character development and improved student learning outcomes, supported by a variety of empirical studies (Al Hafidz & Arifin, 2019b; Linda Elvira Ndruru et al., 2022b; Manalu et al., 2022; Rismaini et al., 2020; Tiara Br Tondang et al., 2023).

Factors that affect the effectiveness of the implementation of the Snowball Throwing method in building responsible character

Based on the review of the articles that have been obtained, the findings have been identified that the factors that affect the effectiveness of the implementation of the Snowball Throwing method in building responsible character include several key aspects. First, this method significantly increased students' sense of responsibility, as evidenced by the experimental class showing a higher level of responsibility than the control class (Rismaini et al., 2020). Second, Snowball Throwing encourages interaction and communication between students, promotes cooperative learning, and actively engages students in formulating and answering questions (Al Hafidz & Arifin, 2019b; Rismaini et al., 2020). Third, this method increases students' creativity and imagination, as well as creating a supportive learning environment (Rismaini et al., 2020)

Fourth, active student participation is the key to increasing their involvement and understanding of learning materials (Hardiansyah, 2022a; Manalu et al., 2022). Fifth, this method encourages the development of communication skills and curiosity among students, with positive guidance from the teacher during the activity (Hardiansyah, 2022a). Sixth, the game element in this method increases students' motivation and interest in learning (Tiara Br Tondang et al., 2023). Seventh, structured questions encourage critical thinking and deeper understanding (Tiara Br Tondang et al., 2023). Finally, the integration of character values in learning materials strengthens the formation of responsible character (Hardiansyah, 2022a).

Thus, the synthesis that can be shown that the effectiveness of the implementation of the Snowball Throwing method in building responsible character is greatly influenced by the active participation of students, collaboration in learning, creativity in formulating questions, and the role of teachers in facilitating and directing an interactive and fun learning process. By paying attention to these factors, the application of the Snowball Throwing method can be optimized to improve the responsible character of students as well as improve the overall quality of learning.

Comparison of the effectiveness of the Snowball Throwing method with other active learning methods

Based on the review of the article, several comparisons were found between the Snowball Throwing method and other active learning methods. The Snowball Throwing method has several advantages that set it apart from other active learning methods. First, this method specifically encourages interaction and collaboration between students, which may not be emphasized as effectively in other methods (Rismaini et al., 2020). Snowball Throwing also integrates play activities into math learning, making the learning process more fun and engaging for students.

This method increases students' creativity in formulating questions, which may not be emphasized as much in other active learning methods (Rismaini et al., 2020). Snowball Throwing also specifically targets students' low interest in math, making it an effective option for increasing student engagement in these subjects (Irawahyuni et al., 2021). In addition, this method develops students' leadership and communication skills, which may not always be the primary focus in traditional learning methods (Hardiansyah, 2022b).

In contrast to traditional methods, Snowball Throwing encourages students to formulate questions and solve problems, improving their critical thinking skills. This method also effectively integrates character education in the learning process, an aspect that may not always be present in other active learning methods (Hardiansyah, 2022b). Snowball Throwing creates an engaging and enjoyable learning environment for students, increasing their curiosity and responsiveness.

Thus, the author can synthesize that the Snowball Throwing method has several advantages over other active learning methods, especially in terms of encouraging social interaction, increasing creativity, integrating character education, and creating a fun learning environment. However, it should be noted that the studies reviewed tend to focus on the effectiveness of Snowball Throwing without providing direct comparisons with other methods. Therefore, further research is needed that specifically compares Snowball Throwing with other active learning methods to gain a more comprehensive understanding of its relative advantages and disadvantages.

DISCUSSION

The purpose of this study is to assess the potential effectiveness of the Snowball Throwing learning method in developing students' responsible character, based on an analysis of previous studies. The systematic literature review reveals that the Snowball Throwing method significantly improves students' responsible character.

This improvement is visible in multiple dimensions, including student activity, participation, academic achievement, responsibility level, and social and communication skills. Al Hafidz & Arifin (2019b) report an increase in student activity from 53.3% to 68.8% and an improvement in academic achievement from 33.3% to 83.3% after implementing this method. Similarly, research by Linda Elvira Ndruru et al. (2022b) found a higher average responsibility level (3.25) in the Snowball Throwing class compared to the control class (1.9). Additionally, this method has proven effective in increasing student interest in subjects, particularly mathematics, and in fostering collaboration and social interaction among students.

The effectiveness of the Snowball Throwing method in cultivating responsible character is influenced by factors such as active student participation, collaboration in learning, creativity in formulating questions, and the teacher's role in guiding an interactive learning process. The method encourages students to actively engage in asking and answering questions, enhancing their creativity, imagination, and contributing to a positive learning environment. Moreover, the inclusion of game elements in the method boosts student motivation and interest in learning. When compared to other active learning methods, Snowball Throwing offers several advantages. It promotes interaction and collaboration among students, integrates play into learning, enhances creativity in question formulation, and develops leadership and communication skills. It also successfully integrates character education into the learning process, which is not always a feature in other active learning methods.

However, the study has some limitations. The majority of the studies analyzed were conducted in Indonesia, so the findings may not be easily generalized to other cultural and educational settings. Additionally, many of the studies did not provide direct comparisons between the Snowball Throwing method and other active learning methods, which means further research is needed to determine its relative effectiveness. Future research should explore how the Snowball Throwing method can be optimized for students with diverse learning styles and special needs, which would contribute to its broader application in educational practices. Further discussion can focus on the components of both the Snowball Throwing method and responsible character development to provide deeper insights.

CONCLUSION

The Snowball Throwing learning method has significant effectiveness in building responsible character in students. This method not only increases students' activeness and participation in learning, but also contributes positively to improving academic achievement, developing social skills, and strengthening responsible character. Factors that affect the effectiveness of the implementation of this method include active student participation, collaboration in learning, creativity in formulating questions, and the facilitative role of teachers in creating an interactive and fun learning environment.

Compared to other active learning methods, Snowball Throwing shows advantages in terms of encouraging social interaction, increasing creativity, and integrating character education into the learning process. However, it should be noted that the effectiveness of this method can vary depending on the context of implementation and the characteristics of the learner. Nonetheless, these findings highlight the potential of the Snowball Throwing method as an effective tool for building responsible character while improving students' academic and social skills. The implications of these findings suggest that the Snowball Throwing method can be integrated into the educational curriculum as an effective tool for building responsible character while improving students' academic and social skills.

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