

DEVELOPING SEDGA: AN INNOVATIVE BOARD GAME FOR ADOLESCENT SEXUALITY EDUCATION

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Abstract: Adolescence is a critical developmental phase characterized by significant biological, psychological, and social changes. In Indonesia, adolescents face numerous challenges, including risky sexual behaviors, unintended pregnancies, and exposure to sexually transmitted infections (STIs) and HIV/AIDS. A primary contributing factor to their limited understanding of reproductive health is the lack of effective sexuality education. To address this issue, this study developed "SEDGA (Sex Education Game)," a board game designed as an interactive method to improve sexual health literacy among students at State Junior High School 19 in Bengkulu City. Utilizing a Research and Development (R&D) approach with a one-group pretest-posttest design, the game was engineered to make sexuality education engaging and accessible. A pilot test was conducted with 20 students selected via purposive sampling, and data were analyzed using the Wilcoxon Signed-Rank Test. The results demonstrated a significant increase in respondents' knowledge following the intervention ($p = 0.000 < 0.05$), proving that the SEDGA board game is an effective and innovative medium for enhancing adolescent sexual health awareness. Consequently, this study is expected to contribute to the advancement of school-based sexuality education policies in Indonesia.

Keywords: Board Game, Reproductive Health, Adolescents, Sexuality.

INTRODUCTION

Adolescence is a critical transitional phase from childhood to adulthood, encompassing significant biological, psychological, and social changes (Farida Isroani, 2023). According to the World Health Organization, adolescence is defined as the age range of 10–19 years (WHO, 2023). while the Indonesian National Population and Family Planning Agency (BKKBN) defines adolescents as unmarried individuals aged 10–24 years (Ramdani, Sugiarti, & Anggriani, 2023). Globally, adolescents constitute approximately 1.3 billion or 16% of the world's population, matching closely with Indonesia, where the adolescent demographic accounts for 17% of the total population (WHO, 2024b).

During this transitional phase, adolescents face highly complex challenges, prominently revolving around the TRIAD of Adolescent Reproductive Health (ARH): sexuality, HIV/AIDS, and substance abuse. Other critical risks include unintended pregnancies and sexually transmitted infections (STIs). In 2020, it was estimated that more than one million cases of STIs occurred daily, culminating in 374 million new annual infections, including chlamydia, gonorrhea, syphilis, and trichomoniasis. Furthermore, over 490 million people live with herpes simplex virus (HSV) infections, and 300 million women are affected by human papillomavirus (HPV)—the leading cause of cervical cancer (WHO, 2025). Evidence from 69 Low and Middle-Income Countries (LMICs) indicates that the prevalence of multi-partner sexual behavior among

younger adolescents (aged 12–15) varies significantly due to diverse sociocultural contexts, socioeconomic status, regional policies, and cultural attitudes toward sex. The current global prevalence of adolescents who have ever engaged in sexual intercourse stands at 6.9%, with a higher rate observed among boys (10.0%) than girls (4.2%). Notably, this prevalence escalates to 8.5% among 14- to 15-year-olds compared to 4.0% in the 12- to 13-year-old cohort (Jing, Li, Wang, & Zhou, 2023).

Unintended teenage pregnancies yield severe implications for maternal and child health, alongside far-reaching socioeconomic consequences. Pregnant adolescents are highly vulnerable to obstetric complications such as preeclampsia and preterm birth, while their infants face increased risks of low birth weight (LBW) and developmental issues (WHO, 2024a). Early marriage—defined as a marital union under the age of 19—further exacerbates reproductive health risks, particularly for adolescent girls whose reproductive organs are biologically immature. Clinical consequences include elevated risks of miscarriage, anemia, postpartum hemorrhage, preterm birth, and LBW, which cumulatively drive up maternal and infant mortality rates. Additionally, physiological cervical immaturity at a young age heightens susceptibility to STIs and cervical cancer, threatening the lives of both mother and fetus (Trianita, Hariani, Christiana, & Primayanti, 2025). Efforts to mitigate teenage pregnancy focus on strategies to improve adolescent knowledge, attitudes, and healthcare access. In developing countries like Indonesia, prevention is operationalized through school-based reproductive health education, adolescent health posts (*posyandu remaja*), and the training of peer health cadres by community health centers (*Puskesmas*); similar school-based curriculum interventions have been successfully implemented in countries like Colombia (WHO, 2024a).

In Indonesia, unintended teenage pregnancy remains a pressing public health concern. Data from BKKBN indicates that approximately 10% of all national births are born to mothers under the age of 20 (Fafilaya, Agustino, & Nugroho, 2025). Epidemiologically, the 2023 Indonesian Health Survey (SKI) revealed that 25.8% of adolescent girls aged 15–19 had already experienced their first pregnancy, while the 2022 Indonesian Demographic and Health Survey (SDKI) noted that 7.2% of girls in this age cohort had been pregnant or given birth (Harlis, 2026). Furthermore, the Ministry of Health reported that approximately 700–1,000 adolescents and children were infected with HIV in 2023, primarily driven by insufficient reproductive health knowledge and risky sexual behaviors (Kemenkes, 2023). This national crisis is distinctly mirrored at the regional level in Bengkulu Province. The Bengkulu Provincial Health Office documented 76 active HIV cases in 2023, with an additional 42 new infections identified as of May 2024. Alarmingly, regional data showed that 6% of early adolescents aged 11–14 were sexually active, while in the 15–19 age group, 74% of males and 59% of females reported being sexually active (D. K. P. Bengkulu, 2023).

Compounding this issue, the Bengkulu Provincial Agency for Women's Empowerment, Child Protection, Population Control, and Family Planning (DP3AP2KB) reported 4,291 child marriage cases over the past five years based on marriage dispensations from the High Religious Court, with approximately 20% of these early marriages directly attributed to risky sexual behavior (Bengkulu, 2024). At the municipal level, the Bengkulu City Health Department recorded 154 HIV cases in 2023, including 2 cases in the 5–14 age bracket and 21 cases among adolescents aged 15–19, alongside 88 recorded cases of STIs like syphilis and gonorrhea (D. K. Bengkulu, 2023).

Moreover, the Ministry of Religious Affairs of Bengkulu City registered 62 underage marriages (under 19 years old) in 2024, with the highest concentration in Selebar Subdistrict, followed by Kampung Melayu Subdistrict with 12 couples. The majority of these cases resulted in school dropouts driven by unintended pregnancies, exacerbated by a pervasive misconception among adolescents that early premarital sex is normative and harmless (K. K. A. Bengkulu, 2023). To investigate these systemic issues, a preliminary survey was conducted between September 24 and 30, 2024, across multiple junior high schools in Bengkulu City. In Selebar

Subdistrict (encompassing SMPN 5, SMPN 16, SMPN 20, SMPN 24, SMP Budi Mulia, and SMP Islam Al Hasana), child marriage cases were minimal, with only two cases identified at SMP Budi Mulia. Conversely, the survey across three schools in Kampung Melayu Subdistrict (SMPN 19, SMPN 23, and SMPN 25) revealed that SMP Negeri 19 exhibited the highest severity, with 3 to 4 students dropping out annually over the past five years due to marriage. Interviews with school principals further revealed a critical institutional gap: there were no formal, structured educational programs regarding premarital sex or reproductive health, leaving students with only brief, casual explanations from teachers.

This lack of structured education leaves adolescents highly vulnerable, especially as easy access to digital global media increasingly exposes them to substance use and early sexual debut (Maulida & Syeh, 2025). Conventional sex education programs often fail to engage this demographic effectively, resulting in poor comprehension. Traditional media, such as informational leaflets, are largely ineffective for school-aged children because their passive, purely visual nature fails to engage active, easily bored learners (Rangga Pusmaika et al., 2025). Modern pedagogical demands require educators to innovate and develop interactive learning methods capable of competing with digital entertainment. Utilizing game-based learning media, such as board games, offers a robust alternative. Board games simultaneously engage cognitive, affective, and psychomotor domains within a cooperative group setting (Türkoğlu, 2024), making them an ideal vehicle for sensitive educational topics.

Driven by the high dropout rates due to early marriage in the Kampung Melayu subdistrict and the absolute absence of formalized premarital sex education at SMP Negeri 19 Bengkulu City, this study aimed to develop a board game-based educational medium named "SEDGA (Sex Education Game)." This product is designed to provide an interactive, non-judgmental, and comprehensive platform to enhance sexual health literacy among adolescents at SMP Negeri 19 Bengkulu City.

RESEARCH METHODS

This study is a Research and Development (R&D) study, a research method designed to produce specific products with the goal of improving quality and effectiveness in a particular field. In the context of this study, the primary focus is on the development of an interactive learning medium designed to increase student engagement and understanding. Thus, this study is expected to make a positive contribution to improving the effectiveness of the teaching and learning process. The steps in Research and Development can be described as follows:

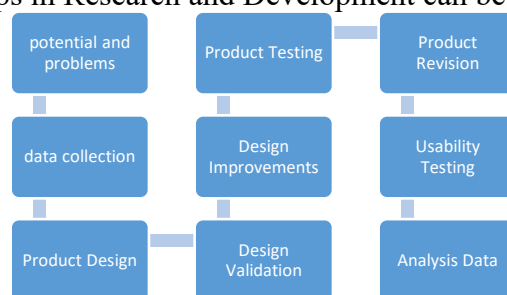


Figure 1. Steps in Research and Development (Sugiyono, 2017).

Potential and Problems

The research begins by identifying potential and challenges. Potential encompasses everything that can be utilized to create added value, such as resources, technology, or favorable conditions. This process involves collecting relevant data through direct observation, interviews, or document reviews, as well as utilizing empirical data from previous research, statistics, case studies, or the latest relevant documentation—specifically, the issues in sex education faced by adolescents in junior high school, as well as the need for engaging and effective learning materials.

Data Collection

Once the potential and challenges have been identified, the next step is to data collection. A literature review was conducted to understand the theories, concepts, and previous studies related to these opportunities and challenges, which helped formulate the theoretical basis for the product to be developed. Additionally, a needs analysis was conducted to gather information about user preferences and needs, as well as the opportunities and challenges. Preliminary data collection was carried out through surveys and interviews to gain an initial understanding of students' knowledge and understanding of sex education.

Product Design

The product design was developed by referencing an evaluation of the old system as well as studies of similar systems from other units or industries. The evaluation of the old system helped identify strengths and weaknesses that could be applied to the new design. Meanwhile, studies of other systems provided ideas for effective and innovative designs. The design process involved creating a product with clear specifications, covering functionality, features, and appearance. This design is presented in the form of drawings, diagrams, or models to visualize the product concept and facilitate evaluation (Sugiyono, 2017). Concept Design involves designing the concept for the SEDGA (Sex Education Game) board game, which includes learning objectives, game mechanics, and content materials aligned with sex education standards. Prototype Development involves creating an initial prototype of the board game, including the physical design, game cards, and other components necessary for gameplay.

Design Validation

Once the design is complete, the next stage is design validation. This validation is conducted through discussion forums with experts who evaluate the product design based on technical, functional, and practical criteria. Feedback from these discussions is crucial for assessing the design's strengths and weaknesses and ensuring that it meets the expected standards and criteria. Feedback from the experts is used to refine the design and ensure that the developed product can meet user needs and expectations (Sugiyono, 2017). At this stage, the researcher prepares a list of questions using a Likert scale to facilitate quantitative analysis, in addition to utilizing the results of the discussions and written suggestions from the experts to refine the media.

Design Improvements

Based on the validation results, the next stage is design improvement. Weaknesses identified during the validation process are analyzed to determine the necessary improvement steps. These improvements include revisions to the design based on expert input, with the goal of addressing shortcomings and enhancing product quality.

Product Testing

Product testing was conducted to evaluate the effectiveness and efficiency of the designed product. This testing was carried out on small groups of target adolescents at different schools.

Product Revision

After the first product trial, the results are analyzed to identify any shortcomings or problems found. Product revisions are made based on the results of this analysis to improve the product's performance and effectiveness.

Usability Testing

The improved product was then tested in a broader range of usage scenarios to evaluate its performance and practicality in real-world contexts. Ongoing evaluations were conducted throughout the usage period to identify any issues or obstacles that arose in practice. Product adjustments could be made based on these evaluations to ensure the product better meets user needs (Sugiyono, 2017). At this stage, experimental testing was conducted on a larger sample group. The study employed a one-group pre- and post-test design. The target population consisted of students at SMP Negeri 19 in Bengkulu City. A sample of 20 respondents was

selected using purposive sampling, with inclusion criteria of being 14–15 years old, in good health, able to communicate, not colorblind, and willing to participate until the study's completion. The questionnaire was adapted from Erayanti's (2018) study on adolescents' knowledge of sexual behavior (Erayanti, 2018). The final score was determined by summing the total scores for each statement to obtain an individual final score. Data analysis was performed using the Wilcoxon test. This study underwent an ethical review process by the Health Research Ethics Committee of the Faculty of Public Health, University of Jember, with reference number 585/KEPK/FKM-UNEJ/III/2025.

RESULTS AND DISCUSSION

Product Design Results

This board game features images and characters designed to capture adolescents' interest. Additionally, the images and characters in this game were created using various AI-based applications such as Canva, Picsart, Photoshop, and Pixlr. The board game is structured so that adolescents can use it directly as a learning tool. The appearance of the “SEDGA (Sex Education Game)” board game can be seen in Table 1:

Table 1. Appearance of the SEDGA (Sex Education Game) Board Game After the Revision Phase

No	Board Game Interface	Description
1.	LOGO 	After receiving validation results from media experts, it is recommended to add a logo to the SEDGA board game. A logo is a symbol or graphic design used to represent the identity of the SEDGA board game; it serves as an easily recognizable visual element that helps people associate the game with the brand. The primary purpose of this logo is to create a strong first impression, differentiate the brand from its competitors, and build a consistent image of the SEDGA board game in consumers' minds.
2.	GAME BOARD 	The game board is the primary medium of the game, consisting of a flat surface featuring the game's title, “The Sex Education Game,” as well as squares or paths containing colors, instructions, and characters used to guide players' moves when drawing cards. It comes with dice, cards, and game pieces, as well as a rulebook that outlines how to play and the game's objectives. Inside. This game board is square, measuring 50 cm x 50 cm, with a total of 40 squares or player spaces surrounding the center. Its design resembles Monopoly, with squares containing icons, illustrations, and symbols related to sex education topics. The game begins on the “START” space, where each player rolls the dice once per turn to determine how many spaces their meeple must move. If a player lands on a challenge card, rights & responsibilities card, health card, or knowledge card space, they must draw the corresponding card. Every time a player lands on a hospital, police station, or home space, they must draw one free card from the challenge, rights & responsibilities, health, or knowledge card category indicated by an opponent. The game ends when one of the players returns

		to the “START” space with a certain score.
3.	PLAYER’S MANUAL  Cover and One Page from the Book	This book provides game instructions, explains the rules, and presents the answer keys for the cards to help players or facilitators better understand the material and the steps of the game. This book is A5 size
3	RIGHTS AND RESPONSIBILITIES CARDS  One of the cards with Front Page and Card Contents	The “Rights and Responsibilities” cards in the “Sex Education Game” board game aim to educate players about individual rights related to sexuality—such as the right to information and the right to privacy—as well as the responsibility to maintain healthy relationships and respect others. These cards encourage players to understand the importance of making wise decisions and showing mutual respect in the context of sexuality. The card measures 10 cm x 7 cm.
4	HEALTH AND SAFETY CARDS  One of the cards with Front and Back of the Card	The “Health and Safety” card in the “Sex Education Game” board game serves to educate players on the importance of maintaining physical and mental health in relation to sexuality. This card provides information on how to protect oneself, avoid health risks, and the importance of communication and counseling regarding sexual issues. The goal is to help players understand how to keep themselves and others safe in the context of sexual relationships. The size of this card is 10 cm x 7 cm.
5	CHALLENGE CARDS  One of the cards with Front and Back of the Card	The “Challenge” cards in the board game “Sex Education Game” present situations or questions that test players’ understanding of sexuality. Players are presented with scenarios or dilemmas that they must resolve by choosing the correct answer or action. These cards are designed to encourage players to think critically and make wise decisions regarding issues of sexuality, as well as to deepen their understanding of the topic. Card size: 10 cm x 7 cm.
6	KNOWLEDGE CARDS  One of the cards with Front and Back of the Cards	The “Knowledge” cards in the board game “Sex Education Game” contain educational information or facts about sexuality, reproductive health, and healthy relationships. Players will be asked to answer questions or complete quizzes based on the information on these cards. The purpose of these cards is to enhance players’ understanding of important topics related to sexuality in an accurate and informative way. The cards measure 10 cm x 7 cm.
7	COMPLETE GAME COMPONENTS	The complete components of the "Sex Education Game" board game include: 1. Game Board 2. Cards: a. Rights and Responsibilities.

		b. Health and Safety. c. Challenges. d. Knowledge. 3. Pawns/Tokens. 4. Dice. 5. Instruction Manual
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Expert Validation Results

The developed educational media product underwent rigorous validation by experts to assess its suitability across various domains, including design, content, and usability. The quantitative scores obtained from this validation phase were interpreted based on predetermined assessment categories using specific threshold standards. Three experts served as validators at this stage: one multimedia expert holding a master's degree who teaches at a specialized multimedia school, and two content experts who are midwifery instructors holding master's degrees in midwifery. Based on the evaluation questionnaire, the product achieved an average score of 4.8. Qualitatively, this score falls into the "Very Good" category as it significantly exceeds the minimum acceptance threshold. However, despite the high quantitative rating, qualitative feedback and written suggestions from the validators indicated that the product still requires minor refinements to optimize its quality.

Design Improvements

Following the product validation by the validators, the researchers made revisions based on the feedback provided, specifically: A custom logo was created for the game (SEDGA) to give it a stronger distinctive identity; greater attention was paid to the consistency of font and color usage, aligning with the card design to create visual harmony; and the layout of the user manual was revised and adjusted to match the card design, ensuring a more uniform and easily understandable appearance.

Product Testing

The purpose of this product testing was to gather feedback from end users regarding the appeal, ease of use, and effectiveness of the educational media that had been developed. Five students from SMP Negeri 11 in Bengkulu City participated in this test, and the following results were obtained:

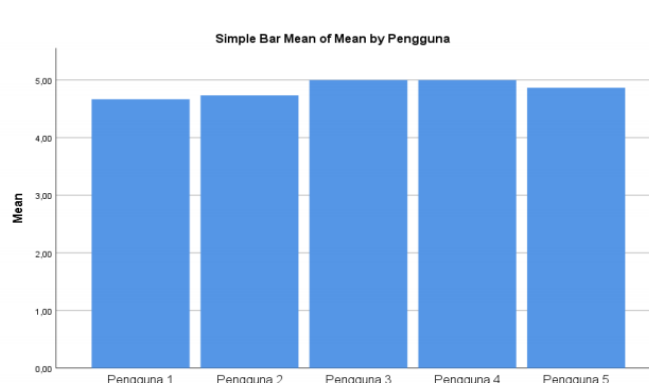


Figure 2. Graph of Product Testing Results for the Small Group

Based on the figure above, the evaluation of the product developed by the five users showed very positive results. All users gave high ratings, with an average of 4.6 to 5. The majority were very satisfied with the product's quality, as indicated by the qualitative rating of

“very good.” This indicates that the use of the educational media received a positive response and is considered a satisfactory educational tool. Furthermore, based on the feedback and comments from the user evaluations, the following results were obtained:

User 1: The SEDGA board game is excellent, fun, engaging, and helps increase knowledge about sexuality.

User 2: This game successfully makes learning about sensitive topics easier and more enjoyable.

User 3: The explanations of the material in the SEDGA board game are very easy to understand.

User 4: This game can broaden knowledge about sexuality that was previously unknown.

User 5: It is very beneficial for adolescents to understand this topic in a fun way.

Usability Testing

After testing the product on a small group—which required no revisions—a pilot test was conducted on a larger group. This pilot test was carried out at SMP Negeri 19 in Bengkulu City with 20 students. The characteristics of the sample are described as follows:

Table 2. Respondent Characteristics

No	Characteristics	F	%
1.	Gender		
	Male	5	25
	Female	15	75
2.	Religion		
	Islam	18	90
	Christian	2	10
3.	Father's Occupation		
	Indonesian National Armed Forces	1	5
	Laborer	5	25
	Fishermen	2	10
	Farmers	3	15
	Self-Employed	9	45
4.	Mother's Occupation		
	Housewife	16	80
	Laborer	1	5
	Civil Servants	2	10
	Self-Employed	1	5
5.	Father's Highest Level of Education		
	Bachelor's Degree	4	20
	High School	7	35
	Junior High School	8	40
	Elementary School	1	5
6.	Mother's Highest Level of Education		
	Master's Degree	4	20
	Bachelor's Degree	1	5
	High School	9	45
	Junior High School	5	25
	Elementary School	1	5
7.	Prior Knowledge: Have you ever heard of adolescent sexuality education before?		

	Yes	13	65
	No	7	35
8.	If you have heard of it, where did you get the information?		
	Print media	15	75
	Electronic media	5	25

Based on the table above, the majority of respondents are female (75%), the majority are Muslim (90%), the fathers of nearly half of the respondents are self-employed (45%), the majority of mothers are homemakers (80%), the fathers' educational background is predominantly high school or below (80%), and the mothers' educational background is also predominantly high school or below (75%). Meanwhile, regarding initial knowledge of adolescent sexuality, more than half (65%) of the respondents had been exposed to information, and the primary source of this initial knowledge was print media (75%).

The Wilcoxon Signed-Rank Test was used to measure differences in data groups before and after the intervention because the data did not meet the assumption of normality. The Wilcoxon Signed-Rank Test was used to compare knowledge scores in the intervention group before and after the intervention using the SEDGA (Sex Education Game) board game.

Table 3. Results of Data Analysis

Group	Description	N	Mean Rank	Sum of Ranks	Z	<i>p</i>
Pre-post test	Negative Ranks	0	0	0	3.763	0.000
	Positive Ranks	18	9.5	171		
	Ties	2				
	Total	20				

Based on the analysis results, the *p*-value is $0.000 < 0.05$ with a Z-value of 3.763. This indicates that there is a significant difference between the pretest and posttest scores, with the pretest score being 3.763 lower than the posttest score after education was provided through the SEDGA (Sex Education Game) board game. Thus, the use of the SEDGA Board Game is effective in improving respondents' understanding of the material presented. Therefore, this educational medium can serve as an innovative and engaging learning method to enhance students' understanding.

Discussion

This study developed an educational media product based on a board game called "SEDGA (Sex Education Game)" as an alternative for sexuality education among adolescents. The product was validated by experts and has undergone a series of revisions based on feedback from validators and users. Overall, it is deemed suitable for use as an educational medium because it meets established minimum standards. The product validation results show that the game received an average score of 4.8, which is categorized as "Very Good" because it exceeds the threshold score of 4.0. However, several aspects require improvement to enhance the product's quality, such as creating a custom logo to strengthen the game's identity, ensuring consistency in the use of fonts and colors, and refining the layout of the instruction manual to better align with the card design.

Previous research by Wahyu Seto, Lidia, and Vania Al-Fitri (2024) developed visual media proven to be interactive, effective, and efficient in training students' creative thinking skills, particularly in algorithm-related material (Wahyu Seto, Lidia, & Vania Al-Fitri, 2024).

Adopting a similar approach, we designed a medium to train students' thinking skills within the context of sexuality education. The medium developed is the SEDGA board game, in which students are presented with various challenges to solve. Through these challenges, students are encouraged to find the correct answers and are motivated to complete the game until they reach the finish line. The initial product pilot involved five users, and the results showed a very positive response. The majority of users were satisfied with the quality of the game, giving average ratings between 4.6 and 5.0. Additionally, users found the game not only enjoyable but also effective in enhancing their understanding of sexuality-related topics.

Based on the revisions made after the initial pilot test, the researchers incorporated various suggestions, such as refining the card design and layout to make the game more engaging and user-friendly. Following these revisions, another pilot test was conducted with five students from SMP N 11 in Bengkulu City. The results showed that the game was considered highly effective in helping them understand sexuality in a more interactive and enjoyable way. Based on the results of the Wilcoxon Signed-Rank Test presented in Table 2, out of 20 respondents, none experienced a decrease in their pretest and posttest knowledge scores (Negative Ranks = 0). A total of 18 respondents showed an increase in knowledge scores after being exposed to the SEDGA Board Game (Positive Ranks = 18), while 2 respondents had identical pretest and posttest scores (Ties = 2). The total number of respondents analyzed was 20. The analysis results show a Z-score of 3.763 (or 3.763) with a *p-value* of 0.000. Based on statistical decision-making criteria, this *p-value* is less than 0.05 ($0.000 < 0.05$), indicating a significant difference between knowledge scores before and after the intervention.

These research results are consistent with the findings of a study conducted by Sakti and Kartiani (2023), which demonstrated the effectiveness of using board games to improve student learning outcomes. Analysis using an independent samples t-test yielded a significance value (2-tailed) of 0.000 ($p < 0.05$), indicating an increase in student motivation. Furthermore, a significance value (2-tailed) of 0.013 ($p < 0.05$) indicated an improvement in student learning outcomes (Sakti & Kartiani, 2023). This study is also consistent with the findings of Rahayu, Indryani, and Wulandari (2023), which showed that the Sex Kids Education (SKIDU) board game was deemed highly practical after undergoing several stages of testing. The evaluation results indicate that the SKIDU board game is highly effective for sex education in early childhood, receiving positive feedback from parents, educators, and children. This study found that the SKIDU board game is highly effective in enhancing early childhood sex education knowledge, with a 100% approval rating from educators and a 98% approval rating from parents. Field trials yielded positive results with an average score of 91.25%, indicating that this medium is highly suitable for both face-to-face and self-directed use (Rahayu, Indryani, & Wulandari, 2023).

Finally, this study aligns with the findings of Khalidah and Ariani (2022), who developed a board game-based learning medium for sexuality education. Based on evaluations by subject-matter, media, and instructional-design experts, their board game was rated very good and suitable for use as a learning medium. The subject-matter expert evaluation indicated that the content's comprehensiveness fell into the "very good" category, with an average score of 3.2, and the appropriateness of the language was rated as good, with an average of 3.3. The media expert evaluation showed that the functionality of the print materials, game-based learning, and the board game's visuals were all rated as very good, with an overall average score of 3.4. The instructional design expert evaluation awarded a "very good" rating with a score of 3.5 for the "Nine Events of Instruction" aspect (Khalidah & Ariani, 2022).

Conclusion

This game is designed to provide an effective learning experience through engaging challenges that encourage adolescents to think critically when finding the correct answers. The game's design is tailored for easy comprehension by adolescents, delivering highly relevant material on sexual health topics. In addition to enhancing understanding, SEDGA creates a fun

learning atmosphere and motivates participants to actively engage in the learning process. Consequently, SEDGA serves as an innovative, proven educational medium with strong potential for widespread implementation in sex education across Indonesia.

Recommendations for Future Research

Although the pilot test results indicate significant effectiveness, further research is required to refine several aspects of the game. Future studies should focus on developing more in-depth content, improving the visual design and game instructions, and conducting larger-scale testing across diverse adolescent demographics. These refinements will ensure that the medium can be implemented more widely and optimally in various educational settings.

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