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Development of Interactive Multimedia "ABBD: *Aku Bisa Belajar Disiplin*" to Improve Student Discipline in Early Childhood Education

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Abstract

This study aimed to address low technology utilization and poor student discipline in schools by developing interactive multimedia titled *ABBD: Aku Bisa Belajar Disiplin.* Using the ADDIE model (Analyze, Design, Development, Implementation, Evaluation), this Research and Development (RnD) study was conducted over six months (March-August 2023) at RA Mutiara Iman. Participants included ten students aged 5–6 years, selected randomly, while media and material experts and field practitioners were purposively chosen for feasibility evaluations. Data were collected through observations, interviews, questionnaires, and documentation. Qualitative data were analyzed using the Miles and Huberman model, while quantitative data were assessed using Likert and Guttman scales. The results showed significant improvement in student discipline, with scores increasing from 66% pre-intervention to 85% post-intervention. Feasibility evaluations by media experts scored 88.9% (very good), while material experts scored 97.7% (very good). Field practitioners, including principals and teachers, rated the multimedia between 95.3%–100% (very good). Trials with students revealed high acceptance, with one-to-one trials scoring 90% and small-group trials scoring 92.5%. The multimedia incorporated audio, video, animations, and interactive buttons, ensuring user-friendly and age-appropriate content. These findings underscore the effectiveness of "ABBD" in improving discipline among early childhood students and highlight the potential for integrating technology into educational practices. The study's limitations include its focus on a small sample size and short-term evaluation, which may restrict the generalizability and understanding of long-term impacts. Future research should explore its long-term impacts and scalability in diverse educational settings to maximize its broader application.

Introduction

Discipline is critical in early childhood education, shaping students' academic performance and social and emotional development (Zinsser et al., 2022). Instilling discipline at a young age promotes the formation of responsible behaviors and habits that are foundational for lifelong learning and success (Steed & Kranski, 2022). However, many schools need help to address disciplinary issues effectively, as traditional approaches often fail to engage students meaningfully (P. G. Williams et al., 2023). The advent of digital tools and interactive multimedia offers innovative avenues to tackle this problem by combining visual, auditory, and interactive elements that captivate children's attention and promote positive behavioral changes (Eadie et al., 2019). Despite this potential, the need for more technology integration in many early childhood education institutions poses significant challenges, necessitating targeted interventions that align with educational goals and schools' technological realities (Ulferts et al., 2019).

Interactive multimedia has been widely recognized as an effective educational tool for enhancing engagement and learning outcomes across various domains. For example, mobile-based interactive media has shown significant performance differentiation between successful and remedial students, particularly in fostering originality and motivation (Ninghardjanti & Dirgatama, 2022). Similarly, educational games utilizing tangible user interfaces have enhanced young children's engagement and enjoyment of learning activities, leading to improved educational experiences (Wang et al., 2023). In language education, multimedia tools have been shown to outperform traditional teaching methods, improving linguistic skills and fostering interactive classroom environments (Andreyeva et al., 2019; Ding et al., 2024). Furthermore, augmented reality applications in classrooms have significantly improved students' conceptual understanding and ability to engage with abstract ideas in interactive and hands-on ways (Mukhtarkyzy et al., 2022).

Interactive multimedia extends beyond academic achievement to include the development of critical behavioral traits, such as discipline and self-regulation. Research on animated multimedia in early childhood settings demonstrated substantial improvements in students' understanding of rules and behavioral attitudes, with validation from educational experts confirming its feasibility and effectiveness (Desriyanti, 2014). Interactive digital storytelling has also shown promise in fostering socio-emotional learning, allowing students to reflect on rules and their significance in a narrative context (Rahman et al., 2021). Additionally, the school-wide positive behavior support (SWPBS) framework has highlighted the importance of integrating multimedia to reinforce positive behaviors and reduce disciplinary issues in educational settings (Bradshaw, Catherine.P., Waasdorp, Tracy. E., & Leaf, 2012; Rahmasari, 2020). Such evidence underscores the potential of multimedia tools in promoting disciplined behavior through engaging and structured interventions.

Educational technology has been instrumental in addressing diverse challenges in early childhood education, from enhancing student motivation to closing performance gaps. For example, augmented reality-based learning materials and interactive games have proven effective in teaching preschool children abstract concepts such as shapes and colors, outperforming traditional teaching methods (Lai et al., 2018; Nurmawati & Yulisetiani, 2022). Similarly, interactive features such as multitouch tabletops have been shown to foster collaboration and communication among young learners, even if their impact on learning outcomes remains inconsistent (Roldán-Álvarez et al., 2020). Digital storytelling and animation technologies have enriched children's play-based programs by increasing cognitive and social complexity, fostering creativity, and improving communication skills (Fleer, 2018; O'Byrne et al., 2018). These findings emphasize the versatility of digital tools in addressing both cognitive and behavioral aspects of early childhood learning.

Despite these advancements, the effectiveness of interactive multimedia in improving school discipline still needs to be explored. While studies have demonstrated the efficacy of multimedia in fostering self-regulation and learning satisfaction among teachers and students (Cojean & Jamet, 2022; Li et al., 2018), there needs to be more research on its application to discipline-specific challenges in early childhood education. The use of gamified educational programs, such as thematic games and virtual environments, has shown potential in developing socio-emotional and physical skills in children, but these studies have yet to address behavioral regulation extensively (Peebles et al., 2018; Pramono et al., 2021) Furthermore, existing research on interactive media often focuses on cognitive or linguistic outcomes rather than the holistic integration of behavioral interventions (Sagri et al., 2018; C. Williams & Beam, 2019). These gaps highlight the need for specialized multimedia tools explicitly addressing school discipline as a behavioral objective.

While prior research highlights the benefits of multimedia in education, it also reveals significant limitations in addressing disciplinary challenges in early childhood. Most studies prioritize academic and cognitive gains, neglecting the behavioral and socio-emotional dimensions critical to holistic student development (Andreyeva et al., 2019; Mustafa, 2023). Furthermore, existing multimedia tools often need more contextual adaptation for resource-limited settings where infrastructure and digital literacy barriers hinder implementation (Nwangwu et al., 2024). Additionally, while frameworks such as SWPBS advocate using multimedia for positive behavioral reinforcement, practical strategies for embedding these tools into everyday classroom routines still need to be developed (Bradshaw, Catherine.P., Waasdorp, Tracy. E., & Leaf, 2012; Rahmasari, 2020). Addressing these gaps requires a tailored approach that combines technological innovations with targeted behavioral objectives, particularly in the context of early childhood education.

This study focuses on developing interactive multimedia, "ABBD: *Aku Bisa Belajar Disiplin*," to introduce school rules and foster discipline among early childhood learners. Guided by the ADDIE model, this research seeks to create an engaging and contextually relevant solution that addresses disciplinary issues and school technological limitations. By targeting young learners, the study aims to improve their understanding of school rules, enhance their awareness of the consequences of undisciplined actions, and motivate positive behaviors through interactive and appealing media. The findings are expected to contribute to the broader discourse on technology-enhanced education by demonstrating how multimedia can effectively address behavioral challenges, thereby supporting teachers and policymakers in creating more disciplined and conducive learning environments.

Methods

This research uses research and development (RnD) with the ADDIE model (Analyze, Design, Development, Implementation, and Evaluation) to develop new products or improve existing products (Branch, 2009). The ADDIE model was chosen because the research procedure is structured and systematic, making it easy to conduct research. This research aims to develop interactive multimedia to improve disciplinary behavior in students.

The selection of RA Mutiara Iman as a research site and of field practitioners and experts in the media feasibility test used a purposive sampling technique, namely, considering several things first. Meanwhile, the subjects used random sampling techniques. The subjects of this research are students aged 5-6 years in group B, totaling 10. The study was conducted over six months, from March to August 2023.

Data collection techniques come from observation, interviews, questionnaires, and documentation. This research uses two data analysis techniques: qualitative data analysis and quantitative data analysis. Qualitative data analysis uses the Miles and Huberman model by collecting, reducing, presenting, and making conclusions (Miles et al., 1994). Meanwhile, quantitative data analysis uses the Likert Scale with points 1-5, analyzing children's responses using the Guttman Scale with points 0-1 (Riduwan, 2006; Nuryanah, 2022). Furthermore, the scores obtained were interpreted using the Rating Scale (Hilyana, 2021). The results of these calculations are categorized in the product feasibility criteria. The child observation assessment is assessed using an assessment rubric and Likert scale and then interpreted using a rating scale so that it can be seen whether or not there is an increase in student discipline after being introduced to the rules in the form of interactive multimedia.

The instrument development technique involved modifying the research instruments from Ambarita and Marlisa to better suit the research objectives (Ambarita, 2015; Marlisa & Purnama, 2018). After the research instrument grids were made, the experts and supervisors

analyzed and validated the instruments used to conduct research. Planning, design, and development are three stages for developing interactive multimedia (Allesi & Trollip, 2001).

Analysis

Analysis in this research is in the form of preliminary research as the first stage carried out in development research to analyze student needs and teacher needs to identify research needs through pre-research observations of media problems and conditions at school, observing the disciplinary behavior of students before using multimedia, distributing questionnaires to students, interviewing field practitioners, and study literature. After knowing the problems in the field, a framework was developed to facilitate research so that it could become the basis of research.

Design

The design of this research is to create concepts and content on ABBD interactive multimedia. The design was carried out, such as compiling material and an overview of the multimedia developed, making flowcharts to explain how to use multimedia, and the material in interactive multimedia. Then, a storyboard will be created as a detailed layout description to facilitate making ABBD interactive multimedia. Finally, compile evaluation tools.

Development

The development step in this research is carried out based on the design made in the previous stage. Making ABBD interactive multimedia using Macromedia Flash Pro 8 software. We are also conducting multimedia feasibility testing for media and material experts at this stage. After obtaining the feasibility test results, improvements to the ABBD interactive multimedia will be made according to the criticisms and suggestions of the experts. Then, the researcher conducted a multimedia assessment of field practitioners (principals and teachers of group B classes) to optimize the media before field trials to students.

Implementation

The student field trial was carried out in two stages. The first stage was a one-to-one trial consisting of two learners, one student, and one female student. The second stage was small group trials, totaling eight, four, and four female students.

Evaluation

After the field trial, students were given a questionnaire as an interview instrument. Thus, the response (feedback) from students to the use of interactive multimedia can be known. Then, there is an assessment by observing the disciplinary behavior of students after using multimedia. This evaluation is also carried out by applying the product to its target to identify the unmet needs by revising the product.

Result

Analysis Results

Results of Student Needs Analysis

Based on preliminary research, it is known that students have an interest and skills in using technology such as mobile phones and laptops. This phenomenon can be used as the basis of research to help schools overcome problems in the field. So, the steps that can be taken are to make technology-based media innovations such as interactive multimedia. Although the facilities at school still need to be adequate, the research and development of interactive multimedia can motivate educators to continue to be creative despite the lack of facilities and encourage students to improve discipline at school.

Results of Teacher Needs Analysis

The results of pre-research interviews with principals and teachers revealed various school problems, including students' indiscipline. The cause of learner indiscipline is the media used by schools. Schools, as a place to educate and shape good behavior in students, certainly want students who have disciplinary behavior during school so that they are accustomed to discipline wherever they are. Thus, interactive multimedia can be a solution to improve discipline towards students and improve school quality.

Results of Media and Material Analysis

Interactive multimedia"ABBD: *Aku Bisa Belajar Disiplin*" uses Macromedia Flash 8 software. The application was chosen because it is easy to use, the size is not too heavy (only 1.64 KB), and it can be used offline. In making interactive multimedia "ABBD: *Aku Bisa Belajar Disiplin*," the researchers also consulted media experts to assist researchers in developing media by the objectives, characteristics of children, children's age, and aspects of the discipline. The directions obtained use a background that does not disturb the concentration of students when applying multimedia, interesting backgrounds and games, and scenes in multimedia.

Material analysis on interactive multimedia is carried out to identify the content of the material in accordance with learning objectives and basic competencies and in accordance with the "Standard Tingkat Pencapaian Perkembangan Anak (STPPA)." This analysis is consulted with material experts to ensure that the material presented has language that is understood by children and helps achieve learning objectives.

Results of Evaluation Tool Analysis

Analyzing evaluation tools as research instruments for interactive multimedia is carried out with media and material experts. The tools must be analyzed in accordance with students' and schools' needs, characteristics of students, and research objectives.

Design Results

Results of Media and Material Design

The interactive multimedia"ABBD: *Aku Bisa Belajar Disiplin*" is designed to be enjoyable, easy, and efficient. The interactive multimedia design includes several scenes, including loading scenes, menus, information, competencies, materials, evaluations, profiles, exits, and endings. In designing multimedia, researchers use audio in the loading scene and background in all scenes. Media design is also organized with flowcharts and storyboards to make multimedia creation more systematic.

Designing materials to be presented in multimedia based on school rules that apply at RA Mutiara Iman. The presentation of the material includes the definition of discipline, the purpose of discipline, and various kinds of rules at RA Mutiara Iman. The language used in the presentation of the material is easily understood by children, considering that the material in multimedia must be made according to the child's age.

Results of Flowchart Design

A flowchart is a scheme that presents the steps for using interactive multimedia products. Its function is to clarify a program's process flow, identify system errors, improve program efficiency, guide multimedia product development, and make it easier to create programs.

Results of Storyboard Design

A storyboard is a sketch that describes the appearance of a product in sequence. Making flowcharts and storyboards using Microsoft Word. The function of the storyboard is to visualize a program that is made, make it easier for developers to create a product overview, and predict the needs that will be used.

Results of Evaluation Tool Design

The design of evaluation tools involves preparing instruments to assess the products produced through questionnaires for experts and field practitioners and interview instruments for students. After making the instrument grids, the design of the research instruments is carried out. Then, the research instruments can be validated by media and material experts.

Results of ABBD Interactive Multimedia Development

The results of the development of interactive multimedia "ABBD: *Aku Bisa Belajar Disiplin*" have several scenes, from the loading scene to the ending scene. The interactive multimedia "ABBD" based on Macromedia Flash Pro 8 has a size of 800×600 pixels. The font type, font size, and font color used are customized. In this step, supporting media elements are needed to create interactive multimedia: audio, voice-over, button effects, videos, text, images, animations, navigation icons, and action scripts.

Interactive multimedia received several suggestions and comments from media experts and material experts. The following is a view of the interactive multimedia "ABBD: *Aku Bisa Belajar Disiplin*" after passing the product feasibility test and product revision. (Kamu Bisa Lihat gmabar lengkap media di lampiran) Using a mouse, interactive multimedia can be used by pressing buttons on a laptop or computer screen. First of all, the child waits for loading on the loading page. Then, the child enters the menu page and presses the "Information" button to find out information about the function of the buttons on the multimedia screen; if the child already understands, he can press the "Back" button on the screen. After that, the child presses the "Competency" button on the menu page; this section consists of essential competencies and objectives that the researcher will explain; if it has been described, then the child is allowed to press the "Back" button on the screen.

Furthermore, on the menu page display, the child chooses the "Material" section to be introduced and explained first by the researcher about the rules at RA Mutiara Iman School. The material page contains the definition of discipline, the purpose of discipline, and various kinds of school rules at RA Mutiara Iman. After understanding the material, the child presses the "Next" button on the screen. Then, the child enters the evaluation page.

On the "Evaluation" page, children can evaluate after the material is given by playing three types of games: quiz, choosing game, and adventure game. The first evaluation is a quiz. Before starting the quiz, students write their names in the column available on the multimedia screen. Quiz questions one to five contain easy questions; students can answer them by pressing the "Yes" or "No" icon. This page has a back sound that accompanies students when using interactive multimedia. Finally, the quiz results will be displayed if the student has completed the quiz.

The second evaluation is choosing games. Students are evaluated by being presented with a game to select school supplies. Starting from the shirt, pants, shoes, and bag. The way to play is for the child to press the school equipment icon according to the instructions. Choosing games have gender options that can be selected according to the learner's gender. If the learner fails, they press the "Retry" button to play the game again. On the other hand, if the learner completes the game successfully, they press the "Great" button to proceed to the next game, the Adventure Game.

The third evaluation is an adventure game. This game is played by pressing the right arrow key to move forward and the up arrow to jump on the keyboard. Many students failed to play it because they considered it difficult. If the student succeeds or fails, the value will appear, and each user must press the "Finish" button to continue to the profile scene.

Next, the "Profile" scene appears, which consists of the developer profile, media expert profile, and material expert profile. Finally, the child presses the "Continue" button on the screen. Then, the "Exit Page" appears, and the researcher asks the child to press the "Yes" button. The child will exit automatically in five seconds. If the child presses the "No" button, it will return to the menu page.

Results of Feasibility Test and Field Trial Results
Expert Feasibility Test Results

The feasibility test was carried out once by media experts and material experts. The scores obtained apply to multimedia before and after revision. The following are the feasibility test results on the interactive multimedia "ABBD: *Aku Bisa Belajar Disiplin*."
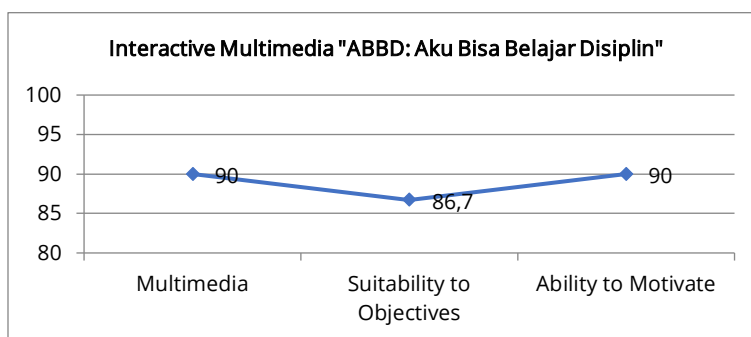

Diagram 6. Media Expert Feasibility Test Results

The feasibility test of interactive multimedia from media experts received a percentage of 88,9% with the criteria "Very Good." The value acquisition is used to determine the feasibility of the multimedia made. It can be understood that interactive multimedia is very feasible for introducing school rules to improve disciplinary behavior.
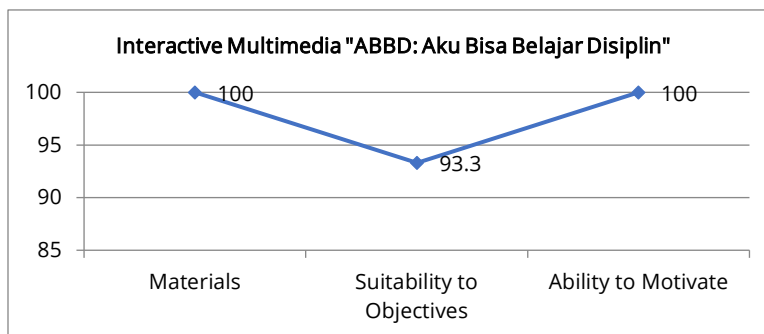

Diagram 7. Materials Expert Feasibility Test Results

The feasibility test of interactive multimedia from material experts received a percentage of 97,7% with the criteria "Very Good." The value acquisition is used to determine the feasibility of multimedia, so it can be understood that interactive multimedia is very feasible for introducing school rules to improve disciplinary behavior.

Field Practitioner Feasibility Test Results

Assessment validation from field practitioners includes group B's principal and class teacher. The assessment was carried out once, and there were no comments on multimedia improvement.

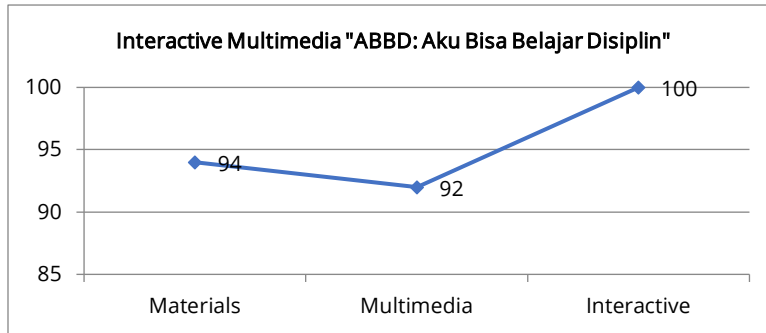**Interactive Multimedia "ABBD: Aku Bisa Belajar Disiplin"**

Diagram 8. Multimedia Assessment From The Principal

The principal's assessment of the interactive multimedia received a 95,3% with the criteria "Very Good" without revision. The score is used to determine the feasibility of multimedia so it can be understood that interactive multimedia is very feasible for introducing school rules to improve disciplinary behavior.

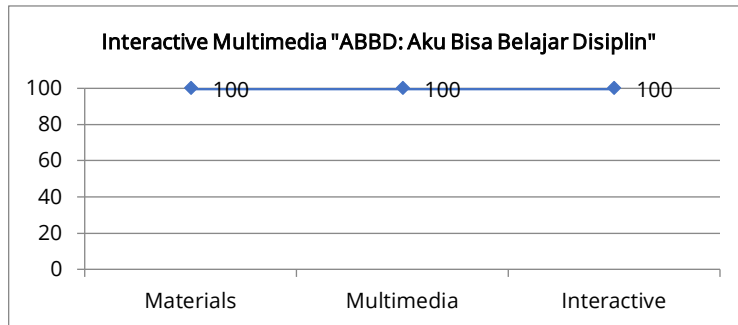**Interactive Multimedia "ABBD: Aku Bisa Belajar Disiplin"**

Diagram 9. Multimedia Assessment From The Teacher

The class teacher assessed interactive multimedia and received a 100% score with the "Very Good" criteria without revision. Value acquisition is used to determine the feasibility of multimedia. Interactive multimedia is very feasible for introducing school rules to improve disciplinary behavior.

One-to-One Trial Results

Figure 1. Azalea

Figure 2. Arsya

The one-to-one trial was conducted after learning with two students. The trial is implemented after the child uses multimedia. The researcher then interviews the child to get a response or

feedback from the student as a multimedia user. The interviews with students are used as data for the trial results.

One to One Trials

Diagram 10. One-to-One Trial Results

The results of the field trial of interactive multimedia from two students received a 90% with the criteria "Very Good." Thus, the acquisition of the value of interactive multimedia is declared very feasible to improve disciplinary behavior.

Small Group Trial Results

The small group trial was conducted one week after the first stage. This trial was conducted with eight students. The trial is implemented after the child uses multimedia and is interviewed by the researcher. The interviews with students are used as data for the trial results.
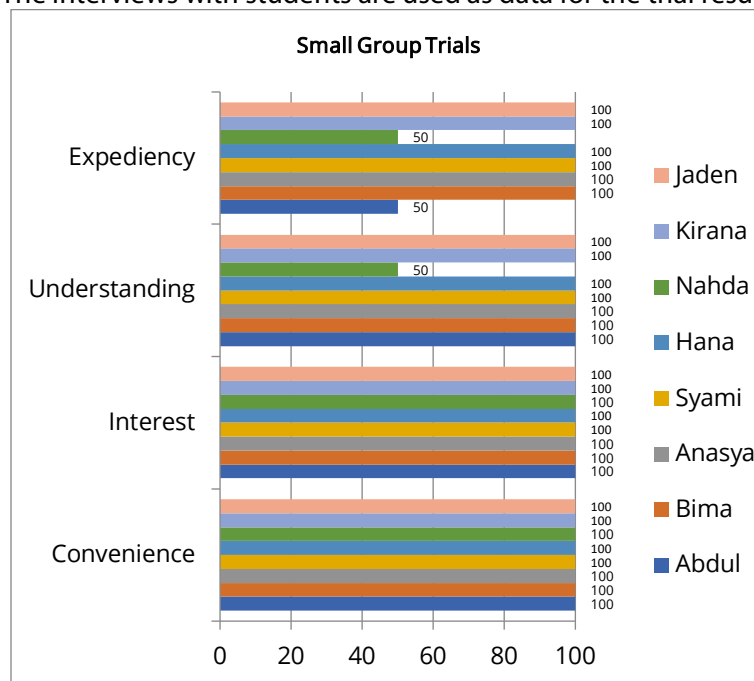

Diagram 11. Small Group Trial Results

The results of the field trial of interactive multimedia from eight students received a percentage of 92.5% with the criteria "Very Good." Thus, the acquisition of the value of interactive multimedia is declared very feasible for implementation in schools.

Multimedia Evaluation Results

After the students were tested using multimedia, the researchers made observations about improving students' discipline towards school rules. This was done to determine changes in student discipline after being introduced to school rules with multimedia.
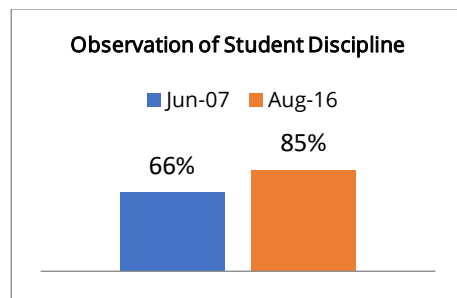
Diagram 12. Average Discipline Score

The table above shows increased children's discipline before and after using interactive multimedia "ABBD." Before using multimedia, students' discipline level was 66%, while it was 85% after using multimedia.

The evaluation was done by analyzing the scores from the assessments of media experts, material experts, principals, class teachers, and students. The score is used to determine the feasibility of the multimedia made. If multimedia is feasible, it must at least get a 61%—80% score, according to good criteria. Evaluation is also carried out by improving the product until it can produce interactive multimedia that is feasible to implement at school.

Discussion

This study aimed to address the low levels of student discipline in schools by leveraging technological advancements to develop interactive multimedia entitled "ABBD: *Aku Bisa Belajar Disiplin*." Previous studies have consistently emphasized the potential of interactive multimedia to enhance learning experiences by combining multiple media formats, fostering user engagement, and aligning content with user needs (Patel, 2013; Phillips, 2014; Zelazo & Lyons, 2012). Interactive multimedia has been particularly effective in motivating learners and increasing their understanding of complex concepts through active engagement and personalized feedback (Alsadhan et al., 2014; Hede, 2002). In early childhood education, such technological interventions can promote behavioral improvements by providing structured guidance and immediate feedback (Clements et al., 2024; Mustafa, 2023). Thus, developing multimedia tools that integrate pedagogical and technological innovations was considered an appropriate strategy to address the student discipline problem in this study.

The study's findings demonstrated the effectiveness of the "ABBD" interactive multimedia in improving student discipline across multiple dimensions. Pre- and post-implementation observations revealed a significant increase in discipline, from 66% to 85%, indicating notable behavioral changes. Validation from media and material experts rated the multimedia as "Very Good," with 88.9% and 97.7%, respectively. Field practitioners, including principals and teachers, also provided high ratings, with scores reaching 95.3% and 100%. Additionally, field trials involving students indicated that the multimedia was user-friendly, engaging, and met their learning needs, with both one-to-one and small-group trials achieving "Very Good" feasibility ratings. These results align with the study's goal of creating an engaging and practical tool to foster discipline in school environments.

The findings of this study corroborate prior research highlighting the efficacy of interactive multimedia in fostering behavioral and educational outcomes. Similar to studies by Ninghardjanti and Dirgatama (2022) and Pramono et al. (2021), this study confirmed that multimedia-based learning solutions enhance motivation and behavioral outcomes among young learners. The observed improvements in student discipline align with the findings of

Wang et al. (2023), who demonstrated the capacity of digital tools to support cognitive and social engagement through interactive design elements. Additionally, this study extends the indings of Fleer (2018) and Peebles et al. (2018) by demonstrating the potential of multimedia tools to promote cognitive development and foster social behaviors such as discipline in a structured school setting. However, unlike Cojean and Jamet (2022), who noted limitations in multimedia's impact on comprehension, this study revealed substantial improvements in behavioral adherence, suggesting that tailored multimedia interventions can yield more targeted outcomes.

The effectiveness of the "ABBD" interactive multimedia can be attributed to its alignment with instructional design principles and age-appropriate content tailored to the developmental needs of young children. The multimedia successfully captured students' attention by incorporating elements such as animations, audio effects, and interactive scenarios and facilitated learning through multimodal engagement. Including clear navigation buttons and action scripts further enhanced usability, allowing students to interact with the content intuitively. Focusing on discipline-specific themes, such as school rules and time management, provided a contextually relevant framework for behavioral learning. This alignment with pedagogical best practices underscores the potential of multimedia tools to address specific educational challenges effectively.

The significant increase in student discipline observed in this study highlights the transformative potential of interactive multimedia in early childhood education. Interactive elements engage learners and create opportunities for repeated practice and reinforcement, which is critical for behavior change (Bear, 2010). Furthermore, the consultative process involving media and material experts ensured the quality and relevance of the content, aligning it with pedagogical standards and learner characteristics. Macromedia Flash 8 enabled the seamless integration of multimedia components, enhancing the interactivity and visual appeal of the tool. These findings align with previous studies emphasizing the importance of aligning technological interventions with pedagogical goals to maximize their impact (Courtiat et al., 2010; Martin & Klein, 2008).

The observed improvements in student discipline also reflect the effectiveness of the development process, which followed the ADDIE model (Analyze, Design, Development, Implementation, Evaluation). This structured approach ensured that the multimedia addressed key stakeholder needs identified during the preliminary research phase, including the need for more engaging and relevant teaching media in schools. The iterative testing and validation process allowed continuous refinement based on expert and user feedback, ensuring that the final product met high-quality standards. By incorporating suggestions such as gender inclusivity, game instructions, and discipline-focused content, the researchers ensured that the multimedia was both inclusive and educationally impactful. This comprehensive approach underscores the importance of user-centered design in educational technology development.

The findings of this study have important implications for educational practice and policy. First, the success of the "ABBD" multimedia demonstrates the viability of integrating technology into early childhood education to address behavioral and cognitive challenges. Schools can adopt similar multimedia tools to foster discipline, engagement, and other critical skills among students. Policymakers should consider supporting the development and dissemination of such tools by providing funding, training, and infrastructure to facilitate their implementation. Additionally, this study highlights the importance of collaboration between educators,

designers, and experts in developing educational technologies that are both effective and contextually appropriate. Future research should explore the long-term impacts of multimedia interventions on discipline and other behavioral outcomes, as well as their scalability across diverse educational settings.

Conclusion

This study addressed the low utilization of technology and poor student discipline in schools by developing and implementing interactive multimedia titled "ABBD: *Aku Bisa Belajar Disiplin*" using the ADDIE model. The findings revealed that students are highly interested in and skilled at using technology, which supports multimedia integration into educational practices. Teachers and school administrators identified low discipline as a primary challenge, and existing teaching materials were found to need to be more engaging. The interactive multimedia "ABBD" effectively addressed these issues, providing an innovative and attractive learning resource that aligns with the educational needs of early childhood students. Validation results demonstrated the multimedia's exceptional quality, with high scores from media and material experts, practitioners, and students. Furthermore, its implementation significantly improved student discipline, as evidenced by increased discipline levels from 66% to 85%. The success of "ABBD" highlights the potential for integrating technology into early childhood education to address behavioral and cognitive challenges, suggesting that schools and policymakers should support such innovations through resources, training, and infrastructure. However, the study's focus on a limited population and short-term impacts limits the generalizability of its findings. Future research should explore multimedia interventions' long-term effects and scalability across diverse educational settings to maximize their applicability and effectiveness.

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Appendix

View of the interactive multimedia "ABBD: *Aku Bisa Belajar Disiplin*" after passing the product feasibility test and product revision.

Figure 1. Loading Scene

Figure 2. Menu Scene

Figure 3. Information Scene

Figure 4. Competency Scene

Figure 5. Materials Scene Scene
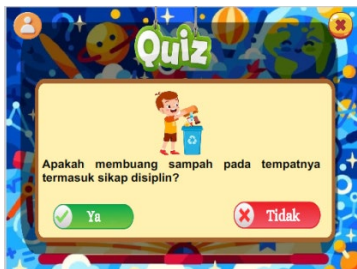

Figure 6. Evaluations
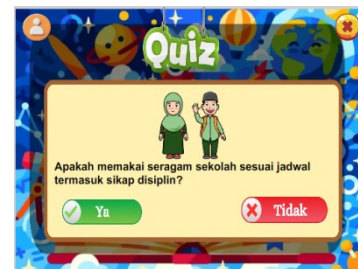

Figure 7. Quiz

Figure 8. Quiz

Figure 9. Quiz

Figure 10. Quiz

Figure 11. Quiz

Figure 12. Quiz

Aisyah, R. N. (2024). Development of Interactive Multimedia "ABBD: Aku Bisa Belajar Disiplin" …

Figure 13. Choosing Game

Figure 14. Choosing Game

Figure 15. Choosing Game

Figure 16. Choosing Game

Figure 17. Choosing Game

Figure 18. Choosing Game

Figure 19. Choosing Game

Figure 20. Choosing Game

Figure 21. Choosing Game

Figure 22. Choosing Game

Figure 23. Choosing Game

Figure 24. Choosing Game

Figure 25. Choosing Game

Figure 26. Choosing Game

Figure 27. Choosing Game

Figure 28. Choosing Game

Figure 29. Choosing Game

Figure 30. Choosing Game

Figure 31. Choosing Game

Figure 32. Choosing Game

Figure 33. Choosing Game

Figure 34. Choosing Game

Figure 35. Choosing Game

Figure 36. Choosing Game
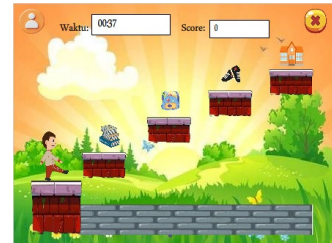

Figure 37. Adventure Game

Figure 38. Adventure Game

Figure 39. Adventure Game

Figure 40. Adventure Game

Figure 41. Adventure Game

Figure 42. Adventure Game

Figure 43. Profiles Scene

Figure 44. Exit Scene

Figure 45. End Scene

The Documentation Small Group Student Trial Results
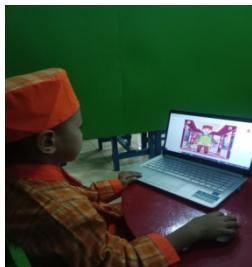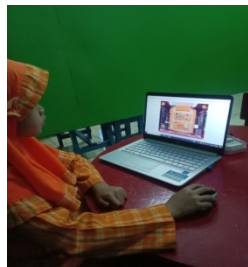

Figure 47. Abdul

Figure 48. Anasya

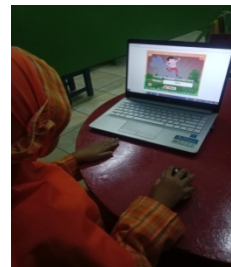
Figure 49. Bima

Figure 50. Hana

Figure 51. Syami

Figure 52. Nahda

Figure 53. Jaden

Figure 54. Ki