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# Enhancing Early Childhood Social-Emotional Skills through Innovative Interactive Learning Media

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| KEYWORDS | ABSTRACT |
|---|---|
| interactive learning media, social-emotional skills, early childhood education, empathy, emotional regulation, communication, conflict resolution | This study evaluates the impact of innovative interactive learning media on social-emotional skill development in preschool-aged children. Using a mixed-methods approach, the research compared social-emotional growth between an experimental group that engaged with interactive media and a control group that used traditional storybooks. Six key social-emotional skills were assessed: empathy, emotional regulation, cooperation, communication, conflict resolution, and self-awareness. Results indicated significant improvements in the experimental group across all skill parameters, with the greatest gains in communication and conflict resolution. Independent t-tests revealed that the experimental group's progress was significantly greater than that of the control group, with large Cohen's d effect sizes underscoring the practical relevance of these outcomes. Qualitative feedback from educators and parents further supported these findings, emphasizing how interactive media fostered active engagement and offered opportunities for children to practice social skills in real-time scenarios. This study highlights the effectiveness of interactive media as a tool for early childhood social-emotional learning and recommends further exploration of its potential across varied educational settings. |

## Introduction

Social-emotional skills are crucial for the healthy development of young children, forming a foundational layer for future academic success and positive interpersonal relationships (Sabatino & Wiebe, 2022; Wang & Zhang, 2024). These competencies include the ability to recognize and manage emotions, develop empathy, and engage in constructive social interactions (Napolitano et al., 2021). Research underscores that early childhood education is pivotal in fostering these skills, especially during the formative years of 4-6. The abilities to regulate emotions, communicate effectively, and collaborate with peers are closely linked to cognitive development and social integration (Hosokawa et al., 2023). Furthermore, robust social-emotional skills in early childhood have been

associated with improved school readiness and enhanced academic performance (Näslund-Hadley et al., 2024), highlighting the need for effective educational tools focused on these critical aspects of child development.

Despite their importance, traditional educational methods, such as text-based storybooks, often fall short in fostering social-emotional skills. In an increasingly digital environment, the evolution of teaching strategies is necessary to engage young learners (Kaplan-Berkley, 2022; Kosmas et al., 2022). Innovative media, particularly interactive digital tools, offer dynamic ways to engage children and support the development of social-emotional competencies (Hagen et al., 2023). Early childhood education initiatives incorporating interactive games, digital storytelling, and animated videos have shown promising results in various contexts (Murphy et al., 2024). However, comprehensive studies are needed to compare the effectiveness of these new media tools in enhancing social-emotional skills, especially in culturally diverse settings like Jakarta's early childhood education institutions.

A central challenge in this area of study is the limited use of interactive, digital learning tools specifically tailored to enhancing social-emotional skills in early childhood education. While cognitive skill development through digital tools has received considerable attention, there is less research focused on the potential of innovative media to support social-emotional learning (SEL) in young children (Carroll et al., 2020; Colagrossi et al., 2024; Devlin et al., 2023). This gap in the literature highlights a need for research into how digital media can be leveraged not only for cognitive content but also for nurturing emotional intelligence, empathy, and social competence in early learners (Colagrossi et al., 2024).

To address this gap, this study proposes the development and implementation of interactive learning media specifically designed to promote social-emotional skills. By introducing tools such as emotion-detection games, digital stories, and animated videos, the study aims to compare the effectiveness of these media with more traditional, static educational tools like storybooks. It is hypothesized that such interactive tools will significantly enhance children's social-emotional competencies by providing engaging, context-sensitive learning experiences that are both educational and developmentally appropriate.

Recent studies illustrate how interactive media can support social-emotional development in young children. For instance, the Fun FRIENDS program in Japan utilized a structured curriculum with interactive activities, promoting self-control and cooperation among preschoolers and leading to notable improvements in emotional regulation and social behavior (Hosokawa et al., 2023). Similarly, the Think Equal program in Colombia combined in-person and remote instruction to teach empathy and self-awareness, demonstrating the potential for blended learning environments to foster prosocial behaviors through engaging, contextually relevant content (Näslund-Hadley et al., 2024).

The use of serious games and digital storytelling has also shown promise in supporting emotional learning. For example, the Emotion Detectives game, aimed at enhancing emotion recognition, proved effective in helping children with neurodevelopmental disorders develop emotional intelligence (Löytömäki et al., 2024). Additionally, video-based interventions have shown success in improving social skills, particularly in children with autism, by leveraging visual and interactive elements that engage children more effectively than traditional passive methods (McConnell et al., 2024).

While the results of various interactive media programs are promising, there is still a lack of research comparing different types of media (e.g., digital games versus video-based interventions) and assessing their impact on social-emotional skill development. Few studies systematically compare the effectiveness of interactive media with traditional approaches like text-based storybooks in promoting SEL (Yang, 2024). Additionally, many studies are limited to specific geographic or cultural contexts, restricting the generalizability of their findings. For example, while the PATHS curriculum has been effective in certain settings, it has not consistently shown significant improvements in academic outcomes, underscoring the role of context and implementation fidelity in the success of social-emotional programs (Hennessey & Humphrey, 2020).

Another gap in the literature is the inconsistency in measuring social-emotional outcomes across studies. Assessment methods vary widely, with some studies using structured observations and others relying on parent or teacher reports, resulting in variability in reported outcomes (Grøver et al., 2023). This inconsistency underscores the need for standardized assessment tools to evaluate the effectiveness of social-emotional learning interventions across diverse contexts.

This study introduces a unique integration of interactive learning media specifically tailored to enhance social-emotional skills in early childhood education, focusing on empathy, emotional regulation, communication, cooperation, conflict resolution, and self-awareness. Unlike previous research that predominantly explores cognitive outcomes of digital tools, this study uniquely highlights the role of interactive, scenario-based media in fostering practical social-emotional competencies. By combining real-time feedback mechanisms, choice-driven storylines, and engaging multimedia features, this research bridges a critical gap between traditional educational methods and the increasing demand for dynamic, technology-driven learning environments. Furthermore, this study contextualizes its findings within culturally diverse settings, such as Jakarta's early childhood education institutions, providing insights into the adaptability and effectiveness of interactive media across different socio-cultural backgrounds.

Additionally, while early interventions have shown significant potential in enhancing social-emotional skills, research is limited on how these programs can be scaled and sustained. The roles of socioeconomic factors and the involvement of educators and caregivers in ensuring the success of these interventions are underexplored. The EASEL approach in Singapore, which emphasizes improving educators' practices to support social-emotional outcomes, highlights the importance of teacher training and support, though this aspect remains underemphasized in many studies (Tan et al., 2023).

The primary objective of this study is to develop and assess the effectiveness of innovative interactive learning media in enhancing social-emotional skills in early childhood education. This research aims to create interactive tools, such as emotion-regulation games, digital stories, and animated videos, targeting essential social-emotional competencies like empathy, emotional regulation, and communication skills. By comparing these tools with traditional educational media, such as text-based storybooks, the study seeks to identify which approach more effectively fosters social-emotional development in young children.

This study offers a unique contribution by focusing on the intersection of interactive media and social-emotional learning in early childhood—a relatively underexplored area. While prior studies have documented the benefits of interactive tools,

few have specifically examined their impact on social-emotional outcomes. Moreover, this research addresses gaps in the literature by evaluating the comparative effectiveness of different types of interactive media and examining how these tools can be adapted for diverse cultural contexts, such as those in Jakarta's early childhood education institutions.

The scope of this study is limited to children aged 4-6 in Jakarta's early childhood education institutions and will use a randomized controlled trial design. An experimental group will engage with interactive media, while a control group will use traditional storybooks. The impact of these media on social-emotional skills will be measured through pre- and post-intervention assessments focusing on empathy, emotional regulation, and prosocial behavior. This research aims to provide insights into the effective use of innovative media to enhance social-emotional development in early childhood education.
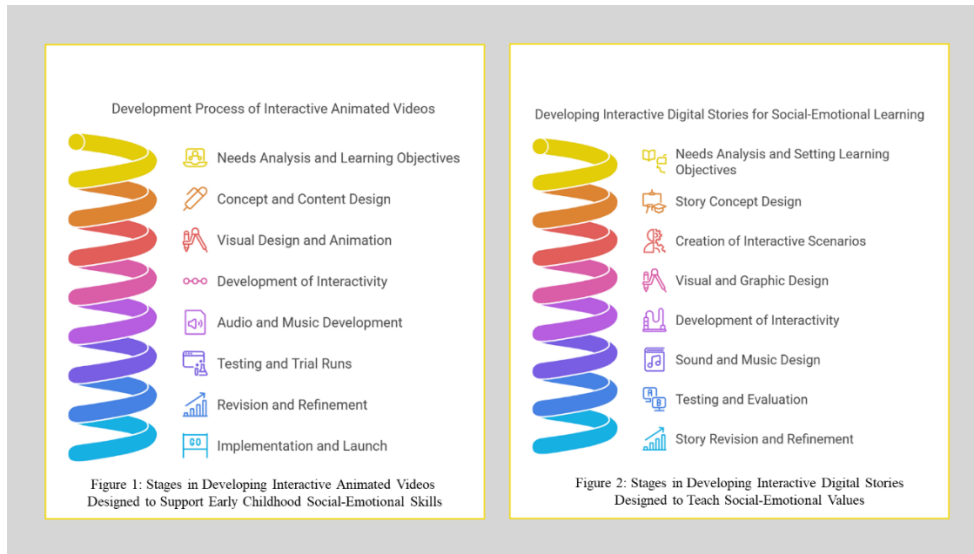
## Research Methods

The study employed a combination of quantitative and qualitative tools designed to assess social-emotional skill development in preschool-aged children. A structured observational checklist was the primary quantitative tool, measuring six core parameters: empathy, emotional regulation, cooperation, communication, conflict resolution, and self-awareness. Each checklist item was scored on a Likert scale (1–5) to capture behavioral changes across the intervention period (Anjaria, 2022). In addition to quantitative data, qualitative insights were gathered via open-ended feedback forms for teachers and parents, providing a more nuanced perspective on children's behavioral shifts. Observers used structured notes to document specific incidents that demonstrated social-emotional skills, such as acts of empathy, negotiation, or self-regulation, to enhance the depth of qualitative analysis (Stephens, 2022). These tools were carefully chosen to align with the study's approach, supporting both detailed qualitative exploration and rigorous statistical evaluation of pre- and post-intervention outcomes.

The intervention materials included interactive, scenario-based activities inspired by successful social-emotional learning (SEL) programs (San Martín et al., 2024). Role-playing resources and visual aids, such as story cards depicting emotional expressions and cooperative scenarios, were used to engage children in the learning process (Veraksa et al., 2022). Group activities incorporated shared play items to encourage cooperation and turn-taking, fostering practical engagement with social-emotional learning objectives. Observers were trained to identify and document specific behaviors associated with each parameter, using real-time feedback tools that allowed children to connect their actions to social outcomes, in line with prior research on active SEL engagement (Allen et al., 2020).

## Results and Discussions
### Development of Interactive Learning Media for Social-Emotional Skills

The initial development and testing of interactive learning media for early childhood education yielded positive outcomes, especially in fostering social-emotional skills. The development process, as illustrated in Figure 1 and Figure 2, began with a preliminary study including data collection through classroom observations and interviews with educators and parents to identify key needs.

Figure 1: Stages in Developing Interactive Animated Videos Designed to Support Early Childhood Social-Emotional Skills

Figure 2: Stages in Developing Interactive Digital Stories Designed to Teach Social-Emotional Values

The subsequent analysis guided the design of two primary interactive media formats: animated video stories and digital narratives, both structured to simulate real-life social scenarios. These media, shown in Figure 3 and Figure 4, aim to teach empathy, cooperation, emotional regulation, communication, conflict resolution, and self-awareness through engaging, age-appropriate content.
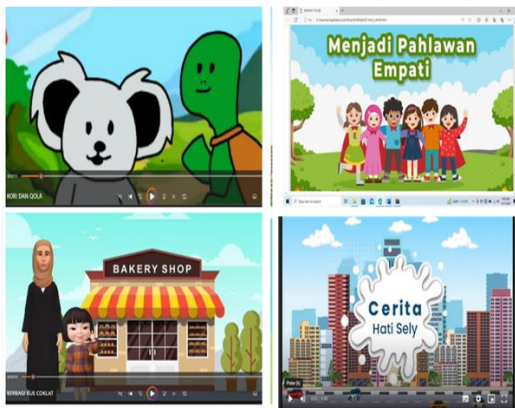


Figure 3: Interactive Animation Video Media Products

Figure 4: Interactive Digital Story Media Products

The design process intentionally integrated features such as interactive choices and feedback mechanisms (Table 1), providing young children with direct involvement in the storyline, which mirrors real-world social dynamics.

Enhancing Early Childhood Social-Emotional Skills through Innovative Interactive
Learning Media

**Table 1. Characteristics of Interactive Learning Media Product Features**

| Feature | Description | Objective | Application Example |
|---|---|---|---|
| **A.    Visual Elements** | | | |
| Expressive Characters | Characters with clear facial expressions (smiling, angry, sad) to represent various emotions. | Helps children recognize and understand emotional expressions in social interactions. | Animated character showing anger in a debate or happiness when helping a friend. |
| Bright    Color Illustrations | Use of bright colors and attractive design to capture children's attention. | Makes learning more engaging and easier for children to follow. | Blue for calmness, red for anger, green for joy or cooperation. |
| Interactive Animation | Animation that responds to children's choices, like characters moving or speaking based on decisions. | Provides a dynamic experience, teaching the consequences of social choices made. | Character speaks after the child chooses how to resolve a conflict. |
| **Audio Elements** | | | |
| Voice Narration | Clear and friendly narration that guides children through the story using easy-to-understand language. | Enhances comprehension and provides easily followed instructions. | Narration explaining a social situation, e.g., "What should we do to help a sad friend?" |
| Emotional    Sound Effects | Sound effects matching the emotional context of the story (e.g., laughter, crying, or nature sounds). | Strengthens understanding of feelings and appropriate reactions to various social situations. | Laughter when a character interacts with a friend, or gentle sounds to calm an anxious character. |
| Engaging Background Music | Background music that creates a mood, like cheerful music for cooperation or calming music for self-soothing. | Increases children's emotional engagement with the social situations faced by characters. | Cheerful music when characters work together, melancholic music when a character feels sad or angry. |
| **Interactivity** | | | |
| Responsive Choices | Allows children to influence the story's direction, such as choosing ways to resolve conflict or help a friend. | Teaches children about the consequences of their actions in social situations. | Options to choose how to settle a dispute: "Apologize" or "Argue it out." |
| Self-Reflection | Provides reflective feedback after each choice, explaining the social-emotional | Encourages children to think about their feelings and actions in social interactions. | "How did you feel when you shared your toy with your |

| Feature | Description | Objective | Application Example |
|---|---|---|---|
| | impact of those choices. | | friend? How did your friend feel?" |
| Positive Reinforcement System | Provides positive reinforcement after prosocial actions, like cooperating or sharing. | Boosts motivation and reinforces positive behavior in social interactions. | Praise or thank you after the child chooses to share or help another character. |
| **Social-Emotional Education Features** | | | |
| Emotion Management | Tools to recognize and manage emotions within the story, like choosing how to calm down or talk to a friend when angry. | Teaches children to identify and manage their emotions in social settings. | Options to deepen emotional understanding, like "I feel angry; how can I calm down?" |
| Empathy and Cooperation | Provides scenarios where characters need to show empathy or cooperate to solve problems. | Teaches children the importance of empathy and teamwork in social relationships. | Offers choices to listen and understand a friend's feelings or to collaborate on a shared task. |
| Conflict Resolution | Presents conflict situations that allow children to choose constructive solutions, like negotiating or compromising. | Teaches children the importance of positive conflict resolution in social relationships. | Options to talk with a friend, propose a solution, or acknowledge mistakes and apologize. |

Table 1 above illustrates the key features in interactive learning media products designed to support the development of early childhood social-emotional skills. The visual, audio, and interactivity elements in this product are designed to help children learn to recognize, understand, and manage their emotions, as well as reinforce social skills such as empathy, cooperation, and conflict resolution.

During the limited trial phase, held at three early childhood institutions with ten participating educators, the interactive media products—such as the specific digital and video story prototypes depicted in Figure 3 and Figure 4—were highly effective in engaging children. Educators observed that children were more inclined to participate actively and demonstrated enthusiasm when interacting with characters in various social situations. Children were able to make decisions within the stories, experiencing the immediate impact of their choices, which enhanced their understanding of concepts like empathy and collaborative decision-making. The trial data, supported by Table 2 on media needs, indicated that this interactive approach not only captured the children's attention but also helped them internalize social behaviors more effectively than traditional methods.

**Table 2. Comparison of Learning Media Needs in Early Childhood Education
Centers**

| Aspect of Need | Educators | Parents | Conclusion | Aspect of Need |
|---|---|---|---|---|
| Type of Learning Media | Prefer technology-based learning media (e.g., apps and interactive videos) that capture children's attention and introduce new concepts. | Prefer more traditional learning media, such as storybooks or pictures, that are easy to use at home. | Educators tend to prefer technology-based media, while parents are more familiar with traditional media. A balance between the two types of media is needed. | Type of Learning Media |
| Visual Features | Preference for media with animated visuals and engaging images, featuring bright colors and easily recognizable characters. | Prefer simple yet clear visuals, with images that support the story or narrative and are easy for children to understand. | Engaging and easy-to-understand visuals are important for both groups, with a slight difference in the complexity of images preferred. | Visual Features |
| Audio Features | Audio that supports narration and emphasizes intonation, character voices, and sound effects that enrich the learning experience. | Prefer clear audio with minimal sound effects, to make it easier for children to listen to and understand instructions or stories. | Audio that supports teaching with clear sound and attention-grabbing effects is important, but it should not interfere with the child's understanding. | Audio Features |
| Interactivity | Interactive media allowing children to choose options, participate in the story, and receive immediate feedback to enhance engagement. | Support interactivity that is easy for children to understand and use, with minimal parental guidance needed. | The need for interactive media that enhances children's engagement is important for both parties, with a focus on ease of use. | Interactivity |
| Alignment with Social-Emotional Values | Educators want media that can teach social skills such as empathy, | Parents want media that helps children develop social skills, like communicating | Both parties agree that learning media should support the development | Alignment with Social-Emotional Values |

| | sharing, and managing emotions through simulated situations. | with friends or family. | of social-emotional skills, though the focus may vary. | |
|---|---|---|---|---|
| Use at Home vs. School | Need media that can be used collectively in class, supporting group activities or discussions. | Need media that can be used at home without professional assistance, offering greater flexibility. | Media that can be used both at home and school, with features suitable for different learning environments, is essential. | Use at Home vs. School |
| Duration of Use | Prefer media that can be used for short but intensive durations to maintain children's focus. | Prefer media with flexible duration that fits the child's home activity schedule, with longer, comfortable usage time. | Flexible duration that aligns with children's daily activities is key to designing effective media for both settings. | Duration of Use |
| Availability of Positive Reinforcement | Need media that provides rewards or positive feedback for children's participation or achievements in learning. | Parents also want features that give praise or virtual rewards when children successfully complete tasks. | Positive reinforcement in the form of praise or rewards is highly desired to increase children's motivation and self-confidence. | Availability of Positive Reinforcement |
| Cost and Accessibility | Seek easily accessible media that does not require expensive devices, with options for group use. | Need affordable media that can be accessed using household devices (e.g., phone or tablet). | Affordability and accessibility are essential to ensure media use by all parties, with consideration of available household devices. | Cost and Accessibility |

Table 2 above shows a comparison of the needs of learning media in Early Childhood Education Centers based on need analysis from educators and parents. The results show that there is a complementary need between educators who prioritize technology-based media and interactivity, and parents who tend to choose more traditional and easy-to-use media at home. Both parties agreed that the media should support the development of early childhood social-emotional skills, and be accessible at an affordable cost.

Feedback from educators and parents further confirmed the media's efficacy, noting that its interactive elements were instrumental in achieving educational goals. However, they suggested adding more structured guidance and supplementary media to enhance usability in classroom and home settings. These suggestions are crucial as they highlight the need for additional support materials to help educators and parents facilitate children's learning experiences, particularly in environments with varying resources. Overall, the findings affirm that interactive media can significantly aid early childhood social-emotional development, with room for refinement in accessibility and instructional support.

**Impact of Interactive Media on Social-Emotional Skill Development**

The findings from our quantitative analysis indicate substantial improvements in social-emotional skills among children in the experimental group who used interactive media compared to the control group, as seen in *Table 3*. In each of the six measured parameters—Empathy, Emotional Regulation, Cooperation, Communication, Conflict Resolution, and Self-Awareness—the experimental group exhibited significantly higher post-test score increases.

**Table 3. Average Score of Early Childhood Social-Emotional Skills Evaluation in Experimental and Control Groups**

| Social-Emotional Skill Parameter | Control Group - Average Pre-Test Score | Control Group - Average Post-Test Score | Difference (Post-Test - Pre-Test) | Experimental Group - Average Pre-Test Score | Experimental Group - Average Post-Test Score | Difference (Post-Test - Pre-Test) |
|---|---|---|---|---|---|---|
| Empathy | 18.2 | 19.0 | +0.8 | 18.5 | 24.0 | +5.5 |
| Emotional Regulation | 17.5 | 18.2 | +0.7 | 17.8 | 23.3 | +5.5 |
| Cooperation | 18.8 | 19.4 | +0.6 | 19.0 | 25.2 | +6.2 |
| Communication | 18.0 | 18.7 | +0.7 | 18.2 | 24.8 | +6.6 |
| Conflict Resolution | 17.0 | 17.8 | +0.8 | 16.9 | 23.1 | +6.2 |
| Self-Awareness | 18.1 | 18.9 | +0.8 | 18.4 | 24.5 | +6.1 |
| Total Average Achievement | 17.9 | 18.7 | +0.8 | 18.1 | 24.2 | +6.1 |

Specifically, the mean increases in the experimental group ranged from 5.5 to 6.6 points, while the control group showed minimal improvements between 0.6 and 0.8 points across the same parameters. This difference underscores the unique value of interactive media in enhancing social-emotional skills. The findings are visually represented in *Figure 5*, which clearly shows the disparity in skill improvements between the groups, with the experimental group reaching consistently higher post-intervention scores.
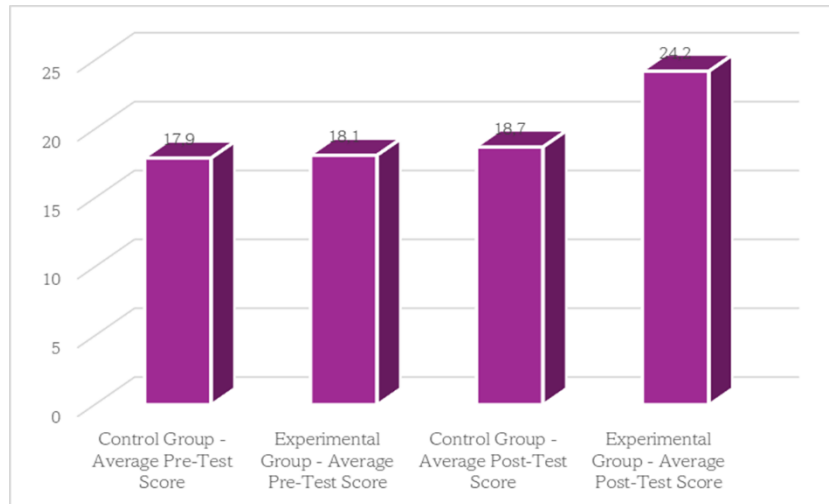
**Figure 5. Comparative graph of Social-Emotional Skills Improvement (Pre-test vs Post-test).**

Further analysis reveals that certain skills, particularly Communication and Conflict Resolution, saw the most substantial gains. As detailed in *Table 3*, Communication in the experimental group increased by 6.6 points compared to only 0.7 points in the control group. Similarly, Conflict Resolution improved by 6.2 points in the experimental group and only 0.8 in the control group. *Figure 6* visually reinforces these findings, presenting each skill's score change and indicating that interactive media has a particularly strong impact on skills that require active engagement and situational response. This indicates that the dynamic, responsive features of interactive media, which offer immediate feedback and personalized scenarios, are particularly effective for fostering skills that involve interpersonal interactions and problem-solving.
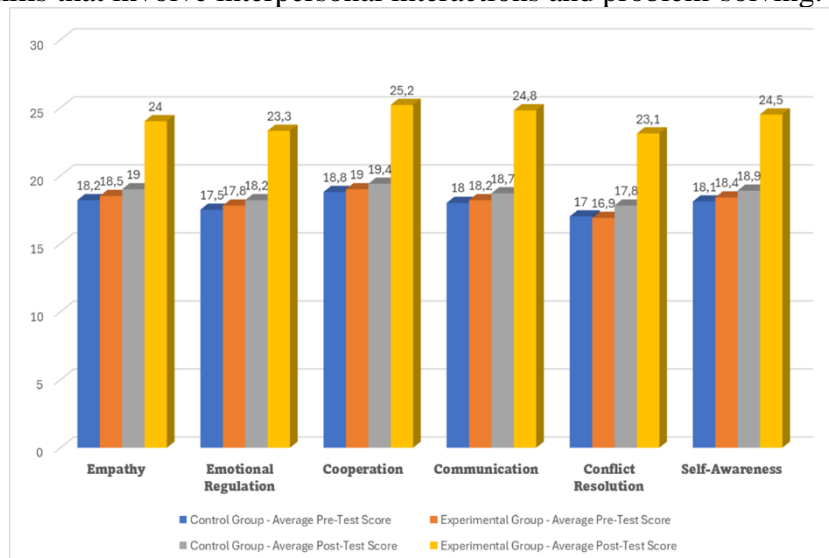


**Figure 6**. **Impact Evaluation Graph by Social-Emotional Skills Category**

The development of these social-emotional skills was facilitated by the structured yet engaging format of the interactive media. *Figure 7* provides an overview of the testing impact assessment flow, illustrating the sequence from pre-test to intervention to post-test evaluation. This structured approach ensured that both groups had equal opportunity for growth, yet the interactive media allowed for an immersive experience that traditional

methods could not replicate. The model highlights the iterative process where children in the experimental group engaged with responsive media elements, thereby experiencing practical scenarios that reinforced their learning.
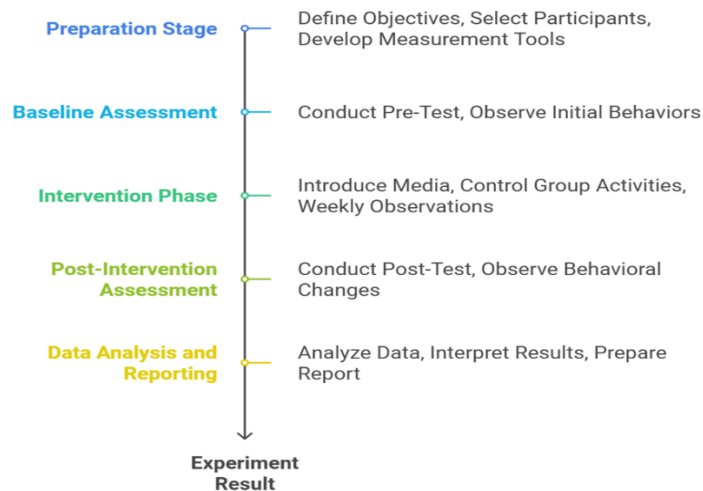


**Figure 7. Flow Chart Testing the Impact of the Use of Interactive Learning Media**

Additionally, *Figure 8* analyzes the level of engagement children exhibited with the interactive media, showing higher levels of attention and active participation in the experimental group. Children were observed interacting with the media's characters and making choices that influenced story outcomes. The interactive media's use of character-driven scenarios and instant feedback mechanisms appears to have engaged children more effectively than passive storytelling, as demonstrated by the increased score differences across each parameter. These higher engagement levels not only fostered a more enjoyable learning experience but also facilitated deeper social-emotional skill acquisition.
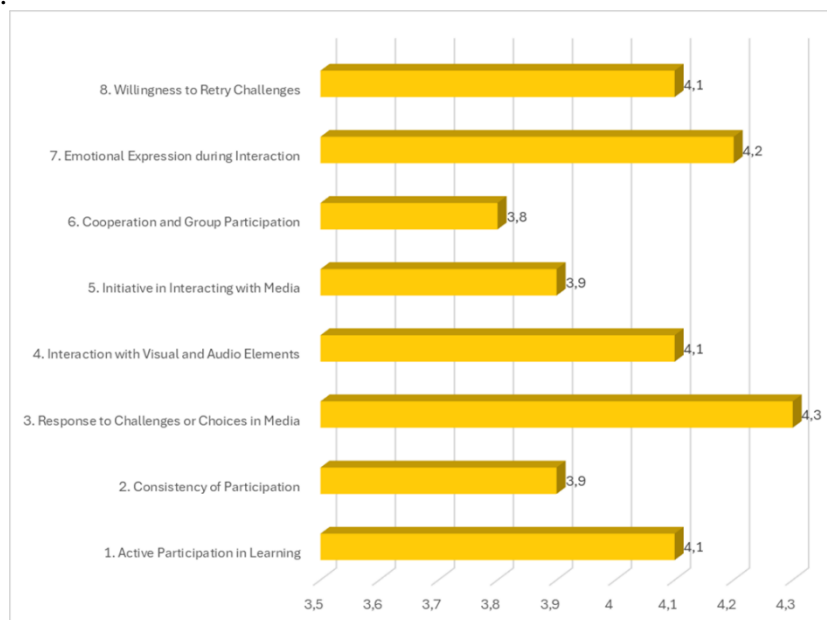


**Figure 8. Analysis of Children's Involvement in Learning with Interactive Media.**

In sum, the findings presented in the tables and figures underscore that interactive media provides a more engaging, impactful learning experience for early childhood social-emotional skills development compared to conventional methods. *Figure 9* presents a conceptual model outlining how interactive media facilitates these

developmental gains by actively involving children in scenarios that demand empathy, cooperation, and emotional regulation, highlighting its relevance in practical skill-building. This robust dataset supports the hypothesis that interactive media is a powerful tool for enhancing essential social-emotional skills in young learners.



**Figure 9**. **Model of the Impact of the Use of Interactive Media on Social-Emotional Development**

**Discussion**

**Comparative Effectiveness of Interactive Media vs. Conventional Methods**

The results of this study align with recent findings emphasizing the effectiveness of interactive digital tools in social-emotional learning (SEL) (LaMonica et al., 2024). The interactive media developed in this study are structured similarly to tools like the Thrive by Five app, which provides engaging, culturally relevant content to support social-emotional growth. Table 1, detailing product features, shows that elements such as feedback loops and interactive story choices mirror the design of interventions like the Emotion Detectives game, which improves emotion recognition in children by allowing them to practice real-time responses to social situations. The structured interactivity, combined with visual and audio engagement, allowed children to observe the consequences of their choices within controlled scenarios, supporting emotional growth and prosocial behavior.

Compared to conventional storybooks or static media, these interactive tools demonstrated several advantages in engaging young children more dynamically. Conventional methods, while valuable, tend to deliver information in a linear and passive way, which limits children's active participation in learning social skills. The interactive media developed for this study addressed this gap by embedding choices and responses within the storyline, thereby creating a feedback-rich environment that allowed children to observe the social impacts of their decisions immediately. As Figure 3 and Table 2 suggest, these interactive media align with the core requirements of early childhood education in supporting SEL by promoting active learning through meaningful engagement.

This real-time feedback mechanism is particularly beneficial as it enhances children's emotional regulation by making learning an immersive experience. For example, when faced with a choice to comfort a friend in distress, children immediately saw the impact of their actions, reinforcing empathy and understanding of social roles. The advantages noted in these results underscore the importance of using interactive media to meet the complex SEL needs of young children, offering them a more engaging and holistic learning experience that traditional methods often lack.

The study's findings demonstrate the significant potential of interactive media to support social-emotional learning in early childhood education. By providing immediate feedback and allowing children to actively shape story outcomes, the media encourage a

deeper understanding and practical application of key social-emotional skills, including empathy, cooperation, and emotional regulation (López-Faican & Jaen, 2021). This approach allows children to process and reflect on their emotional responses in a way that resembles real-life social interactions. Figures 4 and 5 showcase the specific prototypes— digital stories and animated videos—that facilitate this process by engaging children through age-appropriate, relatable scenarios.

Furthermore, the study's results highlight the broader implications for parental and educator involvement in children's learning experiences. With hyflex capabilities allowing access both at school and home, these media offer opportunities for adults to support children's social-emotional growth consistently across different settings. Educators found that guided discussions surrounding the media's interactive choices helped deepen children's understanding of social dynamics, while parents reported feeling more connected to their children's learning journey (Houck et al., 2022). Table 2 underscores this dual usability, indicating that both educators and parents viewed the media as accessible and valuable in fostering continuous social-emotional learning.

Overall, the findings suggest that interactive media, when thoughtfully designed and implemented, can serve as a powerful tool in early childhood education. The balance of active learning and adult-guided reinforcement can help bridge the gap between school-based learning and real-life social applications, preparing children for meaningful social interactions. This approach not only meets the educational needs identified in early childhood settings but also aligns with research emphasizing the importance of a balanced digital and physical learning environment for young children (Foulds, 2023).

**Implications for Early Childhood Education and Future Media Development**

The findings align with previous studies that underscore the advantages of interactive media in fostering social-emotional skills. Interactive media, which integrates feedback loops and scenario-based learning, has been shown to enhance social competencies, as seen in similar educational programs such as E-PLAYS and Emotion Detectives. In our study, the experimental group's score increases across parameters like empathy, cooperation, and conflict resolution reflect similar improvements, suggesting that interactive media's ability to simulate social situations allows children to practice social-emotional responses in a controlled yet engaging environment. These findings, particularly the significant improvements in Communication and Conflict Resolution seen in *Figure 3*, align closely with literature on interactive media, confirming that immediate feedback and scenario engagement facilitate a deeper learning experience.

This study also adds to the literature by quantifying the impact of interactive media on social-emotional skills through high effect sizes, ranging from 2.90 to 3.22. These substantial values indicate that interactive media significantly accelerates the development of these skills, in line with findings from the E-PLAYS program and other interactive interventions that foster collaborative skills and communication (Murphy et al., 2024). Notably, the substantial gains in Conflict Resolution skills in our study parallel findings from Emotion Detectives, where children demonstrated improved emotional responses and conflict management through digital scenarios. The similarity between these results supports the hypothesis that interactive media provides a practical and impactful method for nurturing these skills.

Furthermore, *Table 3* and *Figure 5* highlight improvements in skills that are challenging to develop in traditional classroom settings, such as empathy and self-awareness. Our findings align with previous research emphasizing that interactive media, by creating immersive scenarios, encourages children to view situations from multiple

perspectives, fostering a greater understanding of others' emotions. The structured, context-rich interactions enabled by interactive media align with studies that have found structured digital platforms improve empathy by prompting children to recognize and respond to emotional cues in their peers (Wu et al., 2020).

This study also demonstrates the practical significance of interactive media as it supports skill development across diverse areas in early childhood. The broader implications are captured in *Figure 6*, which illustrates a theoretical framework of how interactive media impacts social-emotional growth by involving children in consistent practice of skills in real-time social contexts. This framework resonates with existing studies, confirming that interactive media, when carefully designed to balance guidance and child autonomy, is a powerful tool in early childhood education.

Finally, *Table 2*, which summarizes educator and parent feedback, corroborates the findings in the literature that interactive media offers advantages in engagement and learning retention. Educators and parents observed improvements in children's ability to handle social interactions and express emotions appropriately, findings consistent with literature that suggests parental involvement enhances the effectiveness of digital SEL interventions (Laranjeiro et al., 2023). This table underscores the supportive role of interactive media in early childhood learning, bridging home and school experiences and fostering a cohesive social-emotional learning environment.

The study's findings on the effectiveness of interactive media for social-emotional development carry significant implications for early childhood education practices. As evidenced by the score increases shown in *Table 1*, interactive media fosters essential skills like empathy, emotional regulation, and cooperation through real-time feedback and engaging scenarios that traditional methods may lack. The pronounced differences between the experimental and control groups indicate that interactive media can be a valuable tool for educators in promoting social-emotional skills within a structured, flexible framework that accommodates individual learning needs (Kotler, J. A., & Brooks, 2022). The immediate, scenario-based feedback that interactive media provides is a notable advantage over conventional methods, as it allows children to learn from the consequences of their choices in a safe, supportive environment.

Scientifically, the findings add to a growing body of evidence supporting digital interactive approaches for early childhood learning. High effect sizes, as detailed in the findings, demonstrate that interactive media has a meaningful, practical impact on social-emotional learning, suggesting that such tools can effectively complement traditional teaching methods (Shabur & Siddiki, 2024). *Figure 9* illustrates a conceptual model of how interactive media positively impacts social-emotional skill development, highlighting its role in providing responsive learning environments where children can actively engage with and practice these skills. The model serves as a basis for future studies to explore digital learning's broader applications in social-emotional education, especially in diverse educational settings.

The feedback from educators and parents, as presented in *Table 2*, further supports the practical relevance of these findings. By facilitating communication and consistent reinforcement across school and home settings, interactive media bridges the gap between classroom learning and everyday application of social skills, fostering a well-rounded approach to child development (Nobre et al., 2020). Parents and educators noted enhanced cooperation and communication skills, reflecting the lasting impact of media-based learning interventions when reinforced in multiple environments. This cross-context support system suggests that interactive media, when incorporated effectively, can

contribute to long-term skill retention and practical application of social-emotional competencies.

In conclusion, this study underscores the significant role that interactive media can play in early childhood education, particularly for fostering social-emotional growth. The quantitative and qualitative results suggest that interactive media, through its engaging, responsive features, is more effective than traditional methods at enhancing these foundational skills. As education increasingly incorporates digital elements, this study's findings affirm the value of interactive media in supporting holistic child development, preparing children not only for academic success but also for positive, socially-aware interactions in various settings.

## Conclusion

This study demonstrates that interactive learning media significantly enhance social-emotional skill development in early childhood, offering clear advantages over traditional methods. Children in the experimental group who used interactive media exhibited notable improvements in social-emotional parameters, particularly in communication and conflict resolution. The engaging features of interactive media—such as immediate feedback, responsive animations, and story-based interactivity—allowed children to practice empathy, cooperation, emotional regulation, and self-awareness in meaningful and enjoyable ways. By immersing children in scenarios that simulate real-life social interactions, interactive media fosters both emotional understanding and positive social behavior, making it a valuable tool in early childhood education. This research adds to the growing body of evidence that well-designed digital tools can positively impact foundational social-emotional skills crucial for children's personal and academic success. Future studies should examine the long-term effects of interactive media on social-emotional development in diverse and larger samples, while also exploring how parental involvement and teacher facilitation influence the effectiveness of these tools, to establish best practices for their integration into early childhood education.

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