Indonesian Journal of Early Childhood Educational Research, 4(1) - June 2025 173-189

Indonesian Journal of Early Childhood Educational Research

ISSN : 2963-6760 (Online)
ISSN : 2962-1364 (Print)

Development of the GIMALONG Interactive Video to Promote Prosocial Behavior and Digital Literacy in Early Childhood

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Received: May 12, 2025	Revised: May 13, 2025	Accepted: March 15, 2025	Online: June 03, 2025

ABSTRACT
Prosocial behavior and digital literacy are critical domains in early childhood development but remain under-stimulated due to limited instructional media. This study evaluates the feasibility and effectiveness of the GIMALONG interactive video, designed to foster sharing, collaboration, and helping behaviors while enhancing digital literacy in children aged 5–6 years. Using a Research and Development (R&D) approach with the ADDIE model, the product underwent expert validation and was tested through individual (2 children), small group (8 children), and large group (25 children) trials. Data were collected via observation, questionnaires, and pretest-posttest instruments, then analyzed using the N-Gain formula. The results showed high effectiveness, with N-Gain scores for prosocial behavior and digital literacy consistently in the high category across all phases—individual (0.8617; 0.8574), small group (0.8853; 0.8376), and large group (0.8394; 0.8142). These findings support the use of GIMALONG as a feasible and impactful tool to support character and digital competency development in early learning environments.

Keywords: *GIMALONG, Prosocial Behavior, Digital Literacy, Early Childhood Education, Interactive Video*

Journal Homepage https://ejournaluinmybsk.ecampus.id/index.php/ijecer/index

How to cite: Haniya, H., Lasarus Malaikosa, Y. M., Saroinsong, W. P., Kristanto, A., Fitri, R., & Dewi, U. (2025). Development of the GIMALONG Interactive Video to Promote Prosocial Behavior and Digital Literacy in Early Childhood. *Indonesian Journal of Early Childhood Educational Research (IJECER), 4(1),* 173-189. https://doi.org/10.31958/ijecer.v3i1.15291
Published by: Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

INTRODUCTION

One of the major challenges in contemporary early childhood education is the decline in children's learning motivation (Jelita et al., 2022; Latifa et al., 2023; Nuha & Munawaroh, 2022). A key contributing factor is the inappropriate use of smartphones, where many children spend excessive time engaging in non-educational activities such as playing games, watching entertainment content, and accessing social media platforms (Fadlillah et al., 2022). Motivation is a fundamental driver in the learning process, and its absence presents significant barriers for both educators and learners in achieving optimal learning outcomes (Atmojo et al., 2021).

Early childhood represents a foundational phase of human development, during which children require consistent stimulation to support their holistic growth (Kristiana, 2024). From birth, children begin to learn by observing and interacting with their immediate

environment. These early experiences shaped by both genetic and environmental factors—lay the groundwork for cognitive, emotional, and behavioral development (Rosdiani & Warmansyah, 2021; Warmansyah et al., 2023). In the digital era, technology has become an inseparable component of daily life. Both adults and children increasingly rely on technological tools for communication, entertainment, and information retrieval. According to the Indonesian Internet Service Providers Association (APJII), more than 100 million Indonesians are smartphone users, with 55% of the population categorized as active users (Nisa', 2020).

In addition to its widespread use in daily life, technology also holds transformative potential for educational practices, including in early childhood settings (Nisa, 2012). While digital tools can facilitate the introduction of basic concepts such as numbers and reasoning, many educators particularly in rural areas still face challenges in effectively integrating technology into the learning environment (Haleem et al., 2022; Kurniawan S. Djibran et al., 2024; Warmansyah et al., 2024). Educational media such as televisions and VCD players are often used merely for entertainment purposes, rather than as interactive and meaningful learning resources (Handayani et al., 2017; Priyanti & Warmansyah, 2021). Children in the early years, often referred to as the golden age of development, possess considerable capacity to develop a range of essential skills, including prosocial behavior and digital literacy. Prosocial behavior such as sharing, cooperating, and helping others is a vital component of character education (Annisa & Djamas, 2021; Armanila et al., 2024; Febriana & Muhammad, 2023). However, cultivating these values has become increasingly complex in a digital context that often exposes children to media content inconsistent with prosocial principles.

Prosocial behavior is generally understood as voluntary actions intended to benefit others, encompassing attitudes such as empathy, helpfulness, generosity, and cooperation (Haque & Rahmasari, 2013; Khasanah & Fauziah, 2020a; Munajat, 2022; Nurhayati et al., 2023). These behaviors are significantly shaped by parenting practices, parental sensitivity, and early social interactions (Khasanah & Fauziah, 2020b; Matondang, 2017). Isnaningsih & Rohman (2019) argue that children tend to experience more social engagement within the family context than at school, making family members, particularly parents and siblings, key influencers in the development of prosocial tendencies.

Several researchers define prosocial behavior as intentional acts such as helping, sharing, and comforting others without the expectation of external rewards (Eisenberg et al., 1998, 2010). Ardhiani & Darsinah, (2023)emphasize that prosocial tendencies are integral to social competence and typically emerge during the early childhood years. Despite its importance, Nugraha et al. (2023) point out the lack of digital media specifically developed to promote prosocial behavior in early childhood education. Children with well-developed prosocial behaviors are more likely to demonstrate collaboration, empathy, and supportive behavior in social contexts (Wijayanti & Katoningsih, 2022). Thus, there is a growing need for innovative pedagogical approaches that engage young learners in meaningful social learning experiences.

One promising medium is the interactive video, which integrates sound, motion, images, text, and graphics to create an engaging and participatory learning environment (Muris et al., 2023; Rahmanto et al., 2023). Interactive videos allow learners to receive

audiovisual guidance and provide opportunities for independent learning (Niswa, 2012). Unlike passive media, interactive content enables reciprocal interaction between the user and the system, thereby fostering deeper engagement (Pradipta, 2017).

Digital literacy has also become a central focus in early childhood education. Digitally literate children are better equipped to navigate technology responsibly and effectively. Incorporating digital literacy with prosocial learning through interactive videos is a strategic approach to address contemporary educational challenges. Digital literacy entails the ability to locate, evaluate, and utilize information effectively using digital tools and networks (Mallillin et al., 2020; Pujasari & Ruslan, 2021). In early childhood, it involves a combination of cognitive, motor, emotional, and sociocultural competencies that support responsible technology use (Kazakoff, 2014).

According to the National Education Association (NEA) educational media are tools designed to convey messages that stimulate thought, feeling, attention, and interest, thereby facilitating effective learning (Chotimah et al., 2021). Unfortunately, digital literacy among young children remains limited due to the dominant use of digital devices for entertainment rather than for educational purposes (Bisma et al., 2023; Maureen et al., 2020; Muris et al., 2023). To address this issue, there is a pressing need to create educational content that enhances children's interaction with technology in constructive ways.

Several prior studies have reinforced the effectiveness of digital media in early education (Artha et al., 2020; Mauludiyah et al., 2023; Zaini & Soenarto, 2019). For instance, Hikmah et al. (2023) developed an interactive animated video to teach empathy, while Aliyah & Nurlaila (2023) created an animated digital literacy video aimed at enhancing language development. These studies affirm that well-designed digital media can significantly contribute to the development of both prosocial behavior and digital literacy in early learners.

Preliminary observations at Nada Ashobah Integrated Islamic Kindergarten, Wiyung Surabaya indicate that children often exhibit low levels of prosocial behavior, such as reluctance to share, difficulty collaborating, and a tendency toward individualism. Additionally, digital media use at the institution remains limited to passive content such as animated videos without interactive components, reducing their effectiveness in fostering digital literacy. These findings underscore the urgent need for educational tools that are interactive, engaging, and developmentally appropriate. The GIMALONG interactive video—based on the themes of Sharing, Collaborating, and Helping has been specifically designed to address this need. The video not only introduces prosocial values but also engages children actively through its interactive features, thereby enhancing comprehension and behavioral practice.

While earlier studies have explored interactive media for either prosocial or digital literacy objectives, few have examined an integrated approach targeting both domains simultaneously in early childhood education. This research seeks to fill that gap by offering a unified solution through the GIMALONG interactive video, providing a dual-focus learning experience that is both character-building and technologically enriching.

Accordingly, this study aims to develop the GIMALONG interactive video as an educational digital tool designed to support early childhood prosocial behavior and digital literacy. It specifically seeks to examine the feasibility and analyze the effectiveness of this

media in stimulating both aspects among children aged 5 to 6 years. Through this integrated development, the study contributes an innovative and practical resource for educators aiming to strengthen character education and digital competence in early learners.

RESEARCH METHODOLOGY

Research Design

This study employed a Research and Development (R&D) method using the ADDIE development model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The research aimed to produce an interactive video—GIMALONG (Sharing, Collaborating, and Helping)—to enhance prosocial behavior and digital literacy among children aged 5–6 years.

ADDIE Development Procedure

In the Analysis stage, the researcher identified children's needs and examined curriculum content, instructional methods, and learning challenges related to prosocial behavior and digital literacy. Observations were conducted in early childhood institutions to gain contextual understanding.

The Design stage included formulating specific objectives, creating content outlines, and preparing storyboards aligned with prosocial themes. Digital illustration tools such as Ibis Paint, Canva, and PowerPoint were used in media planning. Instruments for validation and testing were also prepared.

During the Development stage, the interactive video was produced with multimedia components including animation, narration, and interactive features (e.g., quizzes and mini-games). Expert reviews were conducted by media and content specialists to assess the product's feasibility. Feedback was used for refinement.

In the Implementation phase, the revised video was tested through three levels of field trials: individual trials (2 children), small group trials (8 children), and large group trials (25 children). The product was applied in real classroom settings to assess engagement and comprehension.

The Evaluation stage involved assessing the product's effectiveness. Data were collected through pretest and posttest using validated instruments. Effectiveness was measured through N-Gain analysis. Both formative and summative assessments were used to evaluate learning outcomes.

Participants

The field trials involved children aged 5–6 years from Group B at TK Islam Terpadu Nada Ashobah. A total of 25 children participated in the large-group phase. Experts for validation included qualified lecturers in Early Childhood Education and Educational Technology with at least five years of experience and relevant academic backgrounds.

Instruments

Instruments used included expert validation questionnaires (for media, content, and guidebooks), teacher response questionnaires, and child observation sheets. Assessment

instruments for prosocial behavior included indicators of sharing, cooperation, and helping. Digital literacy instruments assessed children's technological understanding, navigation skills, and digital safety awareness.

Data Collection Techniques

Data were collected through observation, questionnaires, and testing. Observations captured children's behavior before and during video use. Questionnaires were administered to media/content experts and teachers. Pretests and posttests were conducted to measure effectiveness.

Data Analysis

Quantitative data were analyzed using SPSS 25. Validity was assessed using percentage scores and categorized accordingly. Instrument reliability was measured using Cronbach's Alpha. N-Gain was used to determine learning gains, supported by normality and homogeneity tests. Effectiveness was interpreted using mean gain scores and percentage criteria.

RESULTS AND DISCUSSION

Results

This research and development project produced the GIMALONG Interactive Video (Sharing, Collaborating, and Helping) designed to stimulate prosocial behavior and digital literacy in children aged 5–6 years at Nada Ashobah Integrated Islamic Kindergarten, Wiyung, Surabaya. The product development adopted the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. Each stage of development indicated that the interactive video effectively supported children's understanding of the concepts of sharing, collaboration, and helping through engaging digital media. This approach not only enhanced prosocial behavior but also fostered age-appropriate digital literacy skills. The product development results through each ADDIE stage are as follows:

Analysis

At this stage, the researchers identified and analyzed the learning needs and existing issues. The analysis focused on children aged 5–6 years regarding their knowledge of prosocial behaviors (sharing, cooperation, and helping) and their understanding of digital content, particularly in engaging with simple technology like interactive videos. Additionally, the curriculum, teaching modules, and instructional methods used at Nada Ashobah Integrated Islamic Kindergarten, Wiyung were reviewed to identify areas that required innovation. Interviews with teachers and parents, alongside direct classroom observation, provided insight into the actual learning environment and student needs.

From the initial survey, it was revealed that the school implemented the Merdeka Curriculum. Several challenges were identified, such as the absence of specific interactive learning media for promoting prosocial behavior and digital literacy, the predominance of verbal storytelling without visual aids limiting understanding, and the lack of developed GIMALONG video media focused on prosocial themes. Furthermore, it was noted that

learners required attractive, digital-based learning media equipped with animations, images, and real-life behavior examples. To address these challenges, the development of the GIMALONG interactive video was deemed necessary. The video integrates colorful animations, illustrations, and child-friendly explanations to improve children's understanding of prosocial values and digital competence.

Design

Based on the needs analysis, the design phase focused on determining the format and duration of the video—ideally 10–15 minutes—to retain the children's attention. The video was structured into three segments: an introductory section with a song and animated characters, a main storyline illustrating prosocial behaviors through the actions of the main character, and a concluding section summarizing the moral values and encouraging children to apply these behaviors in real life.

The visual elements were designed with cheerful and colorful animation to maintain interest. The storyboard and scenario were developed using a combination of creative software such as IBIS Paint for sketching, Canva for graphics, Clipchamp for audio editing, PowerPoint for layout assembly, and Microsoft Word for creating the instructional guide. The narration was selected to match the developmental stage of the children, featuring a cheerful and expressive tone. Furthermore, evaluation instruments were prepared for experts, teachers, and student representatives to assess media quality and effectiveness.

Development

The digital product was developed in accordance with the storyboard. This included producing the animation, recording narration, and incorporating interactive elements such as quizzes. Expert validation was conducted to assess various aspects such as content relevance, technical presentation, and alignment with learning goals.

The expert validation process yielded several specific comments. One suggestion highlighted the need for a wider base for the toy container depicted in one scene. Another suggestion emphasized improving the volume and clarity of the narrator's voice on certain slides. In the guidebook, experts recommended increasing the font size for better readability, enhancing image clarity, and citing references appropriately.

Table 1. Expert Validation (Before and After Revisions with Visual References)

Evaluation Aspect	Expert Comments (Before)	Adjusted Implementation (After)	Image Reference (Before–After)
Visual Design	Toy container surface too narrow	Enlarged base for better visual clarity	 Figure A1 → Figure A2

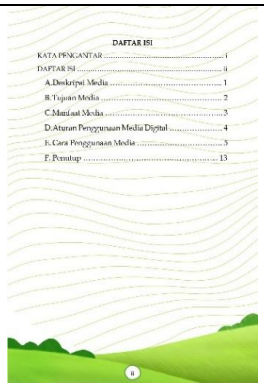
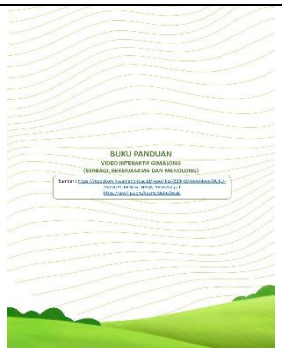
Audio Quality	Narrator voice too low and unclear on some slides	Increased volume and clarity of narration	  Figure B1 → Figure B2
Typography	Font size in TOC and instructions too small	Enlarged fonts for accessibility	  Figure C1 → Figure C2
Image Clarity	Several images not sharp enough	Enhanced resolution and contrast of visual elements	  Figure D1 → Figure D2
Reference Completeness	Guidebook lacked source references	Added citation and references in the instructional material	  Figure E1 → Figure E2

Table 2. Expert Validation

Evaluator	Score (%)	Category
Material Expert	95	Very Good
Media Expert	100	Very Good
Guidebook Expert	96	Very Good

The validation results for the GIMALONG interactive video show high levels of feasibility across all components. The content validation achieved a score of 95%, indicating strong relevance, clarity, and alignment with prosocial and digital literacy objectives. The media component received a perfect score of 100%, reflecting excellent visual design, audio quality, and child-friendly appeal. Meanwhile, the user guide scored 96%, demonstrating clear structure, instructional coherence, and ease of use. These results classify all components in the "Very Good" category, confirming that the GIMALONG media is highly suitable for use in early childhood learning.

Implementation

This stage was conducted after the GIMALONG interactive video (Sharing, Cooperating, and Helping) was declared feasible by expert validators in media and content. The video was introduced directly to children, and their responses were observed throughout the interaction. To evaluate the feasibility and effectiveness of the media, observation sheets were distributed to teachers. In addition, direct observations of children's prosocial behavior (sharing, cooperation, and helping) and digital literacy comprehension were carried out to measure the impact of using the media.

Prior to the trial phase, the researcher conducted instrument validation and reliability tests. The instrument validity results showed 100% for both prosocial behavior and digital literacy variables, while the reliability coefficients were 0.875 and 0.880, respectively. These results indicate that the instruments were both valid and reliable for use in this study. Following this, field testing was conducted in three stages: individual trials, small group trials, and large group trials. Once testing was complete, the prerequisite tests were performed to determine whether the data were normally distributed and homogeneous. The Shapiro–Wilk test confirmed normality for all samples ($p > 0.05$), and the Levene's test results also indicated homogeneity across the sample groups ($p > 0.05$).

Small Group Trial Results

The small group trial involved eight children from group B at Nada Ashobah Integrated Islamic Kindergarten, Wiyung, Surabaya. The trial showed consistent and significant improvements in both prosocial behavior and digital literacy following the implementation of the GIMALONG interactive video.

Table 3. Small Group Trial Results: Children's Digital Literacy Skills

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
N-Gain Score	8	0.77	0.87	0.8376	0.03086
N-Gain Percentage (%)	8	77.05	87.27	83.77	3.08564
Valid N (listwise)	8				

Source: SPSS Output

For prosocial behavior, all participants exhibited increased scores in posttest assessments compared to their pretest scores. The NGain scores ranged from 0.83 to 0.95, with an average of 0.8853, which falls within the "high" effectiveness category. Percentage-

wise, the NGain ranged from 82.81% to 95.08%, confirming the video's strong impact on behaviors such as sharing, cooperation, and helping others.

In terms of digital literacy, there was also a marked improvement among all children. The NGain scores for digital literacy ranged from 0.77 to 0.87, with an average of 0.8376, again categorized as "high." The percentage gains ranged from 77.05% to 87.27%, demonstrating that children not only grasped basic digital concepts but also improved in digital navigation and safety awareness. These results affirm that the GIMALONG interactive video is highly effective in simultaneously fostering prosocial behavior and digital literacy in early childhood education settings, even when applied on a small-group scale.

Large Group Trial Results

The large-scale trial was conducted on 25 children aged 5–6 years at Nada Ashobah Integrated Islamic Kindergarten, Wiyung Surabaya to evaluate the effectiveness of the GIMALONG interactive video in enhancing prosocial behavior and digital literacy. The analysis results indicated a significant improvement in both aspects after the intervention.

Table 4. Large Group Trial Results: Children's Digital Literacy Skills

Descriptive Statistics	N	Minimum	Maximum	Mean	Std. Deviation
N-Gain Score	25	0.64	0.96	0.8142	0.09050
N-Gain Percentage (%)	25	63.64	96.36	81.42	9.04991
Valid N (listwise)	25				

Source: SPSS Output

In terms of prosocial behavior, the average N-Gain score reached 0.8394 with a mean percentage of 83.94%, which falls under the "high" category. Meanwhile, for digital literacy, the average N-Gain score was 0.8142 with a mean percentage of 81.42%, also categorized as "high." The relatively low standard deviation in both variables suggests that the improvements were consistent across the entire sample.

These findings confirm that the GIMALONG interactive video is effective in fostering children's abilities to share, collaborate, and help, as well as in developing foundational digital skills among early childhood learners in a large group setting. The score increases also reflect that the visual and narrative approach used in the video successfully engaged children and encouraged their active participation in the learning process

Evaluation

The evaluation phase confirms that the GIMALONG Interactive Video (Sharing, Cooperation, and Helping), developed through the five stages of the ADDIE model, has met all criteria of feasibility and effectiveness. Effectiveness testing showed that the average N-Gain score for prosocial behavior was 0.84 and for digital literacy was 0.81, both falling within the "high" category in the large-group trial. These results are consistent with the high outcomes found in individual and small-group trials.

Expert validation results showed that the material expert assigned a score of 95%, the media expert assigned 100%, and the user guide received 96% all categorized as "excellent." The observation instruments were also found to be reliable, with Cronbach's alpha values of

0.875 for prosocial behavior and 0.880 for digital literacy. Statistical assumptions were fulfilled, as data distributions were normal and homogeneous ($p > 0.05$, Shapiro-Wilk & Levene tests). Stakeholder feedback highlighted appreciation for the video's visuals, storyline, and interactive quality. Minor revisions were made, particularly regarding narrator volume and the size of the play area, which were addressed in the final version. The main strength of the product lies in its integration of prosocial behavior and digital literacy values through engaging animated content.

However, some limitations were noted, including the narrow implementation scope limited to one school—and the absence of long-term impact monitoring. Therefore, follow-up research is recommended to replicate this study in diverse early childhood education contexts, involve families through home-based video assignments, develop a card-based version for low-tech environments, and conduct longitudinal studies to assess behavioral retention.

Discussion

Effectiveness of the GIMALONG Interactive Video in Enhancing Prosocial Behavior

The implementation of the GIMALONG interactive video proved effective in stimulating prosocial behavior among children aged 5–6 years. The video facilitated notable improvements in behaviors such as helping, sharing, and cooperating—key dimensions of prosocial development. The most prominent gains were observed in helping behaviors, which had previously been overlooked during pre-intervention assessments. This finding aligns with studies highlighting the capacity of visual and interactive media to capture attention and promote behavioral modeling in early learners (Hasanah & Agusta, 2024; Zhang, 2021).

The use of animated storytelling and reflective questions in the video provided children with concrete examples of positive behavior, promoting imitation and internalization in real classroom contexts. This approach is consistent with Syafi'i et al. (2021), who emphasize the advantages of video-based learning in enhancing cognitive, emotional, and psychomotor integration. The digital format also addressed children's dominant visual learning style, creating a more accessible and engaging environment for developing social values (Widiastuti et al., 2019).

This study reinforces prior literature that identifies prosocial behavior as a fundamental aspect of social competence in early childhood (Junaedah et al., 2020; Nafisah et al., 2023). The integration of values such as empathy, cooperation, and generosity into media content plays a crucial role in shaping children's interpersonal skills (Puspitasari et al., 2023). The impact of digital media extends beyond knowledge transfer it fosters character formation when designed with intentional prosocial themes (Shanmugasundaram & Tamilarasu, 2023; Wulandari & Mudinillah, 2022). Moreover, researchers have shown that children exposed to prosocial video content are less likely to engage in aggressive behavior and more inclined to act altruistically (Abrams et al., 2015; Yu et al., 2020).

These findings suggest that digital learning environments can serve not only as instructional platforms but also as catalysts for character education. GIMALONG, as an interactive medium, has successfully addressed limitations in conventional teaching practices

where prosocial behavior is often taught through repetitive routines or passive storytelling by offering a dynamic and participatory learning experience.

Effectiveness of the GIMALONG Interactive Video in Enhancing Digital Literacy

The GIMALONG video also contributed meaningfully to the improvement of children's digital literacy. Children developed a better understanding of basic technological concepts, navigational skills, and digital safety awareness. Initially hesitant or unfamiliar with using digital tools, many children became confident in operating interactive features and recognizing the function of icons. These outcomes support the assertion by Putra & Pratama (2023) that audiovisual media can accelerate children's adaptation to digital environments.

Particularly significant was the growth in children's awareness of safe technology use, including practices such as maintaining proper viewing distance and asking for adult permission—skills fostered through visually embedded safety messages in the video. These observations corroborate the findings of Hayati et al. (2022) and Ismail et al. (2023), who found that integrating technology into learning fosters both understanding and responsible use. Moreover, digital media not only enhance technological competency but also support children's social-emotional development. Collaborative features embedded in interactive content, such as group activities and turn-taking games, cultivate teamwork, empathy, and emotional regulation (Aksenta et al., 2023; Sari & Salehudin, 2024). Through digital interaction, children learn to share roles, practice patience, and value peer contributions, reinforcing the social foundations necessary for positive classroom dynamics.

Given the increasing inevitability of digital exposure in children's lives, early intervention through guided digital media becomes critical. As Lindriany et al. (2022) emphasize, effective digital literacy education requires support from both teachers and parents. GIMALONG serves this purpose well by presenting content that is not only engaging but also pedagogically sound, ensuring that children are both entertained and educated in a structured and age-appropriate manner. Overall, the integration of prosocial and digital literacy elements in a single interactive media platform offers a holistic approach to early childhood education. The findings of this study affirm that GIMALONG is not only a feasible educational product but also a valuable tool for fostering two essential domains of 21st-century competencies in young learners.

CONCLUSION

The GIMALONG interactive video (Sharing, Collaborating, and Helping) proved both feasible and effective in enhancing prosocial behavior and digital literacy among children aged 5–6 years. Across individual, small group, and large group trials, children consistently showed increased tendencies to help, share, and collaborate, supported by interactive storytelling and reflective quizzes. At the same time, improvements in basic digital competencies—such as recognizing devices, navigating digital interfaces, and demonstrating safe online behavior—were evident. These outcomes position GIMALONG as a dual-purpose tool for early childhood character formation and digital preparedness. Its successful implementation suggests that integrating interactive video in early education can bridge the gap between traditional teaching and the digital experiences of today's learners. Wider

adoption of such media is recommended, particularly in classrooms seeking to strengthen prosocial values while building foundational digital skills.

ACKNOWLEDGEMENT

The author gratefully acknowledges the contributions of all participants, educators, and reviewers who supported the development, validation, and implementation of the GIMALONG interactive video. Their feedback, involvement, and cooperation were essential to the success of this research.

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