# Video-Based Finger Puppet Making Training for ECE Parents: A Technology-Enhanced Approach to Home–School Partnership

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## ABSTRACT

Parental engagement is a key determinant of early childhood development, yet many families face practical and psychological barriers to meaningful involvement in their children's education. This study addresses this gap by rigorously exploring the impact of a video-based finger puppet-making training initiative on parental engagement within early childhood education (ECE) contexts. The study involved five parents from a semi-urban ECE center in Indonesia, each with varying levels of education and digital literacy, providing insight into the program's accessibility and relevance across diverse backgrounds. Employing a qualitative case study methodology, the research drew on semi-structured interviews, direct observations, and analysis of participant-produced artifacts. Thematic analysis revealed four principal outcomes: First, participants reported heightened self-efficacy in crafting practices, with video-based scaffolding enabling skill development at an individualized pace. Second, the finger puppet activity fostered emotionally resonant storytelling and strengthened literacy practices at home. Third, the training led to increased and more substantive engagement with educators, suggesting an emergent co-educator role among caregivers. Lastly, the asynchronous video format was effective in accommodating diverse schedules and technological capacities, although minor digital access limitations were noted. This study's findings corroborate and extend scholarship on adult learning theory, symbolic interactionism, and digital pedagogy. Practically, the low-cost, flexible nature of the intervention demonstrates significant potential for broader adoption in diverse ECE contexts, supporting inclusive parent engagement policies. The results offer actionable insights for educators and policymakers seeking to implement scalable, culturally responsive strategies to bridge home–school learning.

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## 1.  INTRODUCTION

Parental engagement in early childhood education (ECE) is widely acknowledged as a critical determinant in shaping the multidimensional development of young children. When parents actively participate in educational processes, they forge essential linkages between the domestic and institutional learning environments, thereby cultivating a cohesive, developmentally supportive ecology. Substantial empirical research has established positive associations between parental involvement and children's performance in domains such as early literacy, numeracy,

and social-emotional competence (Kim & Riley, 2021; Nurhayati, 2021; Nurhayati et al., 2023; Rey-Guerra et al., 2022). Moreover, practices like dialogic reading and collaborative, craft-based activities provide continuity between school pedagogy and familial learning, reinforcing children's intrinsic motivation, secure attachment, and academic preparedness (Ghofur & Nurhayati, 2023; Herrera & Lorenzo, 2024; Nurhayati & Rumsari, 2020).

Despite its empirical validation, parental engagement remains unevenly distributed across populations, particularly within socioeconomically disadvantaged or culturally diverse communities. A constellation of interrelated psychological, structural, and sociocultural barriers continues to circumscribe meaningful parent-school collaboration (Kambona, 2025; Latif et al., 2023). These constraints are often more acute among families with limited formal education or negative historical experiences with schooling, resulting in diminished self-efficacy and a pervasive sense of exclusion (Al-walah et al., 2024; Gedfie et al., 2021). Of these barriers, psychological and economic dimensions are especially salient. Parents with limited educational attainment often express discomfort or perceived inadequacy in interacting with educational institutions and supporting their children's academic tasks (Gedfie et al., 2021). Financial hardship further compounds this disengagement: both tangible costs (e.g., school supplies) and intangible costs (e.g., missed income due to participation) reduce the feasibility of parental involvement (Beatson et al., 2022). These dynamics are particularly burdensome for single caregivers managing multiple roles.

Educational researchers have thus underscored the need for inclusive, adaptable, and culturally responsive engagement strategies that transcend the limitations of conventional, school-centered models. Technology-enhanced engagement such as asynchronous video content, mobile communication applications, and digital task platforms has shown promise in mitigating logistical and temporal constraints (Snell et al., 2020). These innovations are congruent with adult learning theory, which emphasizes flexibility, autonomy, and relevance to learners' real-world contexts (Musa et al., 2025; Nurhayati, Tersta, et al., 2024). Additionally, behaviorally informed mechanisms, such as personalized prompts and structured digital reminders, have demonstrated efficacy in enhancing parental engagement in early learning settings (Gennetian et al., 2019). In parallel, craft-based learning offers a promising, yet underleveraged, approach to strengthening parent–child interaction and facilitating educational participation. The sensory, creative, and culturally adaptable nature of crafts positions them as non-intimidating conduits for informal learning and parent involvement. Empirical findings suggest that engagement in home-based crafts can transform parents from passive observers to active co-educators, thereby fostering intergenerational bonding and reinforcing key developmental competencies (Herrera & Lorenzo, 2024). Finger puppet making, in particular, represents a culturally flexible modality for supporting narrative development and symbolic play, while simultaneously bridging home and school learning cultures (Acker & Nyland, 2024). Despite this potential, few structured, scalable programs have successfully integrated craft pedagogy and digital delivery within the context of ECE.

Emerging research in adult learning further supports the efficacy of digital tools for facilitating informal and community-based education (Nurhayati et al., 2025; Nurhayati & Susanto, 2024; Susanto et al., 2025). Mobile-optimized, video-based learning environments accommodate diverse literacy levels, learning preferences, and technological proficiencies (Mahai, 2022). Asynchronous video formats, in particular, enable caregivers to engage with content on flexible schedules, revisiting materials as needed to reinforce understanding (Tabuenca et al., 2014; Väätäjä et al., 2024). In under-resourced contexts, these affordances reduce participation barriers

and promote learner autonomy, making educational engagement more accessible for time-constrained adult learners (Boateng et al., 2023; Ratnawulan et al., 2025). By synthesizing digital and craft-based modalities, educators can design multidimensional interventions that address both the cognitive and structural barriers to parental involvement. This hybrid approach equips parents with practical, relevant skills; fosters a sense of agency and competence; and facilitates more effective home–school communication. Precedent for such approaches exists in the form of dialogic reading programs and collaborative storytelling initiatives, which have demonstrated success in enhancing both learning outcomes and parent–educator partnerships (Dinham, 2023). However, scholarly attention to integrative frameworks combining technology, craft pedagogy, and parental engagement remains limited.

To address this gap, the present study investigates a video-based finger puppet-making training program implemented at KB Al *Hidayah Insan Mandiri*, a community-oriented early childhood education center in Indonesia. Specifically, the research examines how parental participation in this technology-enhanced, craft-based intervention influences parents' skill development, self-confidence in supporting home learning, and engagement with the school community. Employing a qualitative case study approach, the study draws on data from semi-structured interviews, participant observations, and artifact documentation to provide a comprehensive account of program outcomes.

This research aims to advance both theoretical and practical understandings of how a technology-enhanced, craft-based training program can foster stronger home–school partnerships in ECE. The central research question is: How does participation in a video-based finger puppet making training program affect parents' engagement with their children's learning and collaboration with the school? The study's key contributions include (1) empirically demonstrating the value of integrating digital and craft-based modalities in parental training, (2) offering a scalable, culturally responsive model for inclusive parent involvement, and (3) clarifying the intervention's position within and advancement of current literature. Ultimately, this work highlights the novelty and practical significance of combining digital and craft pedagogies to promote equitable parent engagement, and provides actionable implications for educators, program developers, and policymakers committed to strengthening ECE ecosystems.

## 2. METHODS

This study adopted a qualitative case study methodology to critically examine the implementation and outcomes of a video-based finger puppet making training program targeting parents in an early childhood education (ECE) context. A case study approach was selected based on its appropriateness for exploring complex, bounded systems where contextual variables are deeply intertwined with the phenomena under investigation (Iswahyudi et al., 2023). This design was particularly well-suited to address the central research question, which focuses on understanding how a technology-mediated, craft-based educational intervention influences parental engagement and facilitates home–school partnerships. The qualitative paradigm allowed for the in-depth capture of subjective perspectives, interactional dynamics, and socio-cultural nuances that would be difficult to quantify, thereby enriching the interpretation of program impact (Creswell, 2017). Participants were recruited through purposive sampling, a non-probabilistic technique widely used in qualitative inquiry for selecting cases that are information-rich and relevant to the research aims (Nurhayati, Kurnianta, et al., 2024). The sample consisted of five parents affiliated with KB Al Hidayah Insan Mandiri, a semi-urban ECE center in Indonesia. Selection criteria included: (1) current enrollment of their child in the institution, (2) expressed

interest in participating in the training program, and (3) basic digital access, particularly to a smartphone or tablet capable of video streaming. This sampling strategy enabled the inclusion of participants with heterogeneous backgrounds in terms of education level, caregiving roles, and prior exposure to digital or craft-based pedagogies. The diversity within the sample was critical in eliciting varied experiential insights and enhancing the transferability of the findings to similar community-based ECE contexts.

Data collection was conducted over a four-week implementation period and triangulated across three primary modalities: (1) semi-structured interviews, (2) participant observation, and (3) artifact/document analysis. This multi-method approach facilitated both breadth and depth in data capture while enhancing credibility through methodological triangulation. In-depth interviews were carried out with each of the five parent participants and one teacher-facilitator from the ECE institution. Interview guides were developed to probe participants' experiences with the training platform, perceived usefulness of the instructional materials, and emergent changes in engagement with their child's learning process. Interviews were conducted in the participants' preferred language to ensure clarity and comfort, audio-recorded with consent, and transcribed verbatim for analysis. The protocol was culturally responsive and informed by established practices in qualitative education research.

Structured observation was employed during on-site training access and video-viewing sessions. A detailed field journal was maintained to record behavioral cues, interactional patterns, and spontaneous peer-to-peer collaboration. This observational data served as an important cross-check against interview narratives and allowed the researcher to capture data on non-verbal engagement, affective responses, and task persistence. Participants submitted visual documentation, including photographs and short videos of their completed finger puppet products, alongside screenshots evidencing video engagement (e.g., playback duration, pause/resume activity). These artifacts were analyzed to assess skill acquisition, application of design concepts, and creativity. Such multimodal data enriched the empirical record and provided tangible markers of learning transfer.

Thematic analysis was employed as the principal analytic strategy, guided by Braun & Clarke's (2006) six-step framework: familiarization, coding, theme identification, theme refinement, theme naming, and final interpretation. Codes were iteratively grouped into categories reflecting salient constructs such as "craft-based learning confidence," "technology facilitation," "parent–child educational interaction," and "home–school engagement." Theme validation was conducted collaboratively by two independent coders, and discrepancies were resolved through critical dialogue to ensure consistency and analytical depth. This analytic process maintained a clear linkage between collected data and the study's central research questions, ensuring relevance and direction in the interpretation of findings.

## 3. RESULT AND DISCUSSION

This section presents the findings in response to the central research question: How does participation in a video-based finger puppet making training program influence early childhood education (ECE) parents' engagement with their children's learning and collaboration with the school? The discussion is organized thematically. Each theme begins with a description of empirical findings from interviews, observations, and artifacts, followed by theoretical interpretation and explicit connection to the study objectives.

### 3.1 Development of Craft-Related Skills and Creative Agency

All participants reported meaningful gains in their capacity to create finger puppets, with several highlighting a newfound sense of creative competence and self-efficacy. The pedagogical structure of the video-based instruction particularly its stepwise visual sequencing was consistently identified as enabling and accessible. "I never thought I could make something like this," noted Informant R. "The way the video shows each step, I could pause and repeat until I got it right. And when I finished the puppet, I felt proud of myself." Field notes corroborated these reflections, documenting progressive improvement in technical skill, comfort with tools, and individualized design choices. Several parents infused their puppets with culturally meaningful symbols or narratives, demonstrating contextual creativity.

These outcomes align with literature on tactile learning environments and their impact on parental self-efficacy and engagement (Leung et al., 2010; Zhou et al., 2017). The findings mirror the positive affective and behavioral outcomes observed in structured, hands-on programs such as HOPE, which enhance both skill and parenting confidence (Leung et al., 2010). These observations also resonate with research on the broader benefits of skills-based parental training programs. Studies such as those on the Parents Plus Early Years (PPEY) and Learning Through Play (LTP) initiatives indicate that structured learning experiences help parents internalize instructional roles, ultimately improving their perceived self-efficacy (Gerber et al., 2016; Kawser et al., 2024). Consistent with this literature, parents in the present study not only developed technical skills but also redefined their identities as capable contributors to their children's learning processes.

### 3.2 Enriched Parent–Child Interaction

The puppet making activity extended beyond skill development to enhance the relational fabric between parents and their children. Parents consistently described the activity as a collaborative experience in which their children actively contributed whether through material selection, character design, or co-narration. "My son helped me choose colours and told me what character to make," shared Informant N. "Now every night, he brings the puppet and wants us to make a story together." Such collaborative storytelling moments were described as opportunities for deepening emotional connection, stimulating creativity, and fostering routine literacy practices at home. Observational data and submitted photos captured moments of spontaneous child-led puppet play, further validating the integrative nature of the intervention.

These findings are consistent with extant research emphasizing the role of symbolic play and shared literacy activities in supporting socio-emotional development and emergent language skills (McCormick et al., 2020). Participants reported that puppetry created a safe, joyful medium for children to express feelings and ideas, consistent with scholarship highlighting puppets' value as pedagogical mediators in early learning (Guihot-Balcombe, 2024). These findings reinforce broader claims in the literature that shared learning activities enhance not only children's linguistic outcomes but also the relational quality between caregivers and children (Forssman & Gottwald, 2022). Furthermore, such interactions align with evidence that collaborative parent–child learning cultivates shared meaning-making, mutual responsiveness, and joint attention all critical developmental processes (Jacobson et al., 2024).

### 3.3 Enhanced Communication with Educators

Another outcome of the training was the increased frequency and depth of parent–educator interaction. Parents shared that the training prompted them to engage teachers in conversations about classroom themes, suggesting a shift from passive observation to active collaboration. "I never used to talk much with the teacher," admitted Informant D. "But now I ask about what stories they use in class, so I can do something similar at home." ECE staff confirmed this trend, noting an increase in parental queries and the sharing of puppet-related artifacts. The communicative exchanges extended beyond logistical coordination to include pedagogical alignment, indicating an emergent co-educator role among parents.

These developments align with sociocultural frameworks that emphasize reciprocal, dialogic family–school engagement (Bird & Edwards, 2015), as well as findings from studies that link parent training to improved instructional continuity and mutual accountability (Snell et al., 2020). Further support for these outcomes is found in studies on technology-enhanced home–school communication. Programs utilizing digital content like the "Partnering with Parents" model show that training parents in content-relevant tasks improves their ability to initiate and sustain educational conversations with teachers (O. Petrovic, 2019). The current findings suggest that low-barrier, skill-oriented digital programs may facilitate similar improvements in communication quality, thereby enhancing the relational infrastructure between schools and families (Rueangprathum & Witosurapot, 2019).

### 3.4 Affordances and Limitations of the Video-Based Learning Modality

The video-based training format was generally well-received, with participants praising its flexibility and ease of use. Key features such as asynchronous access, segmented content, and the ability to pause and rewatch were cited as essential in enabling busy caregivers to learn at their own pace. "I watched the video three times," said Informant S. "The first time to see, the second to try, and the third to make sure I did it right." This self-directed, iterative engagement approach illustrates the compatibility of video-based instruction with adult learning needs and supports literature emphasizing the role of flexible multimedia tools in facilitating comprehension and retention (Boutell, 2017; Liu & Elms, 2019). Nonetheless, minor challenges were noted. Two participants reported difficulties related to intermittent internet access and mobile data usage. These limitations underscore broader concerns about the digital divide and the need for equitable infrastructure in community-based learning initiatives (Sakaruddin et al., 2023).

Several participants recommended design enhancements such as subtitles or printable guides to support diverse literacy levels and technological proficiencies. These suggestions reflect best practices in universal instructional design, particularly for underserved populations (Susanti & Nurhayati, 2024). These findings align with a growing body of literature affirming the accessibility benefits of asynchronous learning tools. Studies show that such tools increase parental agency by accommodating non-traditional learning schedules and providing opportunities for repeated content engagement (Indah et al., 2025; Malinovski et al., 2015; Sulkipani et al., 2024). The flexibility afforded by this format mirrors what others have termed a "time-place independence" in adult education, contributing to sustained learning even among highly time-constrained populations (Nurhayati, 2024; Nurhayati & Lahagu, 2024).

This study's results are broadly consistent with earlier work on hands-on, skills-based parent education (Gerber et al., 2016; Leung et al., 2010), collaborative literacy activities (Forssman & Gottwald, 2022), and technology-enhanced parent–school communication (Z. Petrovic et al., 2019). The novel contribution here is the demonstration that a low-cost, video-based craft

intervention can reproduce these positive effects even in resource-constrained and digitally diverse contexts. In contrast to some prior studies focused solely on face-to-face delivery, this research evidences the scalability and accessibility of blended approaches.

## 4. CONCLUSION AND SUGGESTIONS

This study evaluated a video-based finger puppet-making training program as an intervention to strengthen parental engagement in early childhood education (ECE) settings. The research focused on four main aspects: developing parents' craft skills, enriching parent–child relationships, improving home–school communication, and assessing the practical feasibility of asynchronous, digital learning. The findings show that the video-based program enabled parents to acquire practical craft skills and boosted their confidence in supporting children's learning. Parents reported stronger relationships with their children and more meaningful interactions with teachers. The use of finger puppets proved to be an engaging and effective tool for fostering literacy and creative expression at home. The results also demonstrate that low-cost, flexible digital programs can effectively support sustained parent involvement and home–school partnerships. Parents moved from passive recipients to active contributors, initiating educational conversations and aligning home activities with classroom learning. These outcomes extend prior research by confirming the value of digital, craft-based interventions for inclusive and empowering parent engagement in ECE. Future studies should use longitudinal designs to assess how parental skills and engagement are maintained over time. Research is also needed to adapt and test this model in a wider range of sociocultural, geographic, and linguistic settings to examine its broader applicability. Overall, this study highlights that thoughtfully designed, video-based craft interventions are a promising and adaptable strategy for building equitable, sustained parental involvement in early childhood education.

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