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Empowering Parent Communities through "Rumah Literasi Digital": Technology-Based Supervision Training and Learning Mentorship in High-Density Residential Areas

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ABSTRACT

This qualitative study examines the effectiveness of a community-based digital literacy intervention—Rumah Literasi Digital (Digital Literacy House)—in empowering parents to supervise their children's digital learning in high-density residential neighborhoods. Through semi-structured interviews and focus group discussions with 32 parents and 8 educators from four community learning centers (CLCs) in Jakarta over an eight-month period, we applied Braun and Clarke's reflexive thematic analysis to explore how technology-integrated training programs foster parental empowerment across three dimensions: resource empowerment, critical awareness, and relational empowerment. Findings demonstrate that structured digital parenting interventions significantly enhance parents' capacity to identify and access digital resources, develop critical consciousness about technology risks, and strengthen family communication about online activities. Thematic analysis revealed five overarching themes: (1) Knowledge Construction and Digital Competency Development, (2) Critical Consciousness Formation, (3) Relational Networks and Peer Support, (4) Family Communication Enhancement, and (5) Systemic Barriers and Implementation Challenges. The study contributes evidence-based insights into community-based approaches for addressing the digital divide in resource-constrained urban contexts and offers actionable recommendations for integrating digital parenting literacy into non-formal education frameworks in Indonesia.

Keywords: parent empowerment, digital literacy, community-based education.

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INTRODUCTION

The rapid expansion of digital technologies into household environments has fundamentally transformed family dynamics, educational practices, and parental supervision. In Indonesia, the proliferation of Internet-connected devices among school-age children presents unprecedented learning opportunities and significant risks to child development and safety. According to recent data from Indonesia's Ministry of Communication and Information Technology (Kominfo), approximately 75% of elementary school children (ages 6-12) now have regular access to the Internet, yet only 40% of their parents possess adequate digital literacy competencies to effectively guide, monitor, and mediate their children's online experiences. This asymmetry wherein children often navigate digital ecosystems with greater facilities than their parents creates what researchers term the "digital generation gap," a phenomenon characterized by parents' limited understanding of their children's digital behaviors, inadequate supervision mechanisms, and diminished capacity to provide meaningful guidance about technology use (Morolong & Batani, 2025).

The implications of this deficit in digital supervision are profound. In the high-density residential areas of major Indonesian cities, where socioeconomic constraints, limited educational infrastructure, and concentrated population densities compose these challenges, families experience acute disadvantages in accessing digital literacy training and support services. Dense residential neighborhoods commonly referred to as kampung or traditional urban villages are characterized by multiple vulnerabilities: limited access to formal educational programs, constrained physical and digital infrastructure, heterogeneous family compositions, high rates of parental employment requiring extended work hours, and limited exposure to digital competency-building resources. Consequently, children in these contexts face heightened exposure to online risks including inappropriate content, cyberbullying, predatory behavior, and excessive screen time with minimal parental oversight or guidance.

The existing literature on parental involvement in children's technology use has established that parental supervision operates through multiple mechanisms: restrictive monitoring (time and content limitations), active monitoring (dialogue-based engagement with children about their online activities), and deference monitoring (respecting children's autonomy while maintaining awareness). Research demonstrates that active monitoring, characterized by open dialogue and collaborative problem solving, is significantly more effective than surveillance-based approaches in both reducing problematic Internet use and fostering children's responsible digital citizenship. However, achieving such active monitoring requires parents to possess foundational digital literacy competencies including basic device operation, understanding of prevalent online platforms and associated risks, capacity to identify age-appropriate content, knowledge of privacy and security mechanisms, and ability to facilitate critical conversations with children about digital media. The current research landscape reveals that Indonesian parents, particularly those in resource-constrained urban neighborhoods, lack these prerequisite competencies, creating an urgent need for community-based interventions specifically designed to build parental digital literacy and supervision capacity (V. Albarida et al., 2025).

Community Learning Centers (CLCs), known locally as Pusat Kegiatan Belajar Masyarakat (PKBM), represent Indonesia's primary non-formal education infrastructure for serving marginalized and underserved populations. These centers, typically established at the neighborhood or sub-district level, deliver various adult education programs that address community development priorities. CLCs are guided by the principles of participatory learning, community-defined needs assessment, accessibility for working adults, and integration of local knowledge with contemporary competencies. The potential for CLCs to serve as loci for digital literacy intervention has been recognized in policy circles however, empirical evidence documenting effective intervention models remains limited.

Against this backdrop, the concept of Rumah Literasi Digital (Digital Literacy House)—a community-centered, technology-integrated program designed to empower parents through structured training, mentoring, and peer support—emerged from collaborative discussions among educators, parents, and community leaders in Jakarta's high-density residential neighborhoods. This intervention model specifically targets the parental supervision-digital literacy nexus, recognizing that effective child protection and optimal learning outcomes require simultaneous advancement in parental knowledge, awareness, relational capacity, and systemic support structures (Budiarto et al., 2024).

This study addresses a critical gap in the educational research literature by providing comprehensive qualitative evidence on how community-based digital literacy interventions influence the multidimensional construct of parental empowerment. Specifically, we examined the mechanisms through which technology-integrated training, structured mentorship, and peer learning communities foster parental capacity across three theoretically grounded dimensions: (1) resource empowerment (the ability to identify, understand, and effectively utilize digital resources and support systems) (2) critical awareness (the development of conscious understanding of digital technologies' opportunities and risks, informed by critical reflection rather than passive reception of information) and (3) relational empowerment (the strengthening of family communication, peer networks, and community connections that collectively enhance parents' sense of agency and efficacy) (Hamzah et al., 2025).

Our research question is deliberately framed to illuminate not merely whether parental empowerment increases following digital literacy training—a question addressed through quantitative designs in international contexts—but also how such empowerment emerges, transforms, and becomes embedded in family and community practices. In particular, we sought to understand the processes through which Indonesian parents in high-density residential areas construct knowledge of digital supervision, develop critical consciousness about the role of technology in family life, and translate individual learning into collective community action. We were equally attentive to the barriers and constraints that limit the effectiveness of such interventions, recognizing that community-based educational programs operate within complex ecological contexts shaped by resource scarcity, institutional relationships, cultural values, and power dynamics.

The theoretical foundation of this study integrates three complementary frameworks. First, Paulo Freire's critical pedagogy of conscientization emphasizes that

authentic education involves not the passive transmission of information but rather collaborative problem-posing dialogue through which learners develop critical consciousness—conscientização—enabling them to recognize social realities, identify structural constraints, and act collectively to transform their circumstances. Applied to parental digital literacy education, this framework suggests that effective interventions should move beyond instrumental skill building to enable parents to critically examine the role of technology in their families' lives, question normative assumptions about children's technology use, and collectively construct alternative practices grounded in their own values and community context. Second, empowerment theory, as articulated by organizational and community psychology researchers, specifies that empowerment comprises multidimensional psychological constructs including participatory competence, sense of control, critical awareness, and relational capacity. This framework provides a conceptual language for examining the mechanisms through which educational interventions translate into expanded agency. Third, the socioecological model of family technology use recognizes that the effect of technology on families is mediated by nested systems ranging from individual characteristics through family dynamics to community contexts and broader institutional arrangements. This framework illustrates how community-based interventions must operate simultaneously across multiple ecological levels.

This investigation employed qualitative research methodology grounded in the community-based research (CBR) tradition, which positions community members not as passive research subjects but as active co-creators of knowledge and participants in research design, implementation, and interpretation. We conducted semi-structured interviews and focus group discussions with parents, educators, and community leaders, applying Braun and Clarke's reflexive thematic analysis to identify patterns, meanings, and relationships within the qualitative data. Our findings reveal that Rumah Literasi Digital operates as a site of significant transformation in parental empowerment, though not uniformly or without challenges. Parents demonstrate substantial gains in resource empowerment increased knowledge of digital platforms, enhanced capacity to navigate software and applications, and improved ability to locate support resources. More substantively, the program catalys es critical consciousness development, enabling parents to move from viewing technology as an external threat requiring restriction to understanding it as a complex phenomenon presenting both genuine opportunities and legitimate risks requiring thoughtful mediation. Participants established peer networks and reciprocal support relationships that extended beyond formal program completion, suggesting the intervention's capacity to strengthen community social capital. Simultaneously, our analysis identified persistent barriers related to resource constraints, time scarcity among working parents, limited connectivity in some neighborhoods, gender dimensions in technology access and learning, and tensions between program aspirations and institutional structures.

The implications of this study extend to multiple levels. At the practical level, the findings provide evidence-based guidance for educators and program designers concerning the effective components of community-based digital literacy interventions. At the policy level, this study illuminates how non-formal education

systems might be strengthened to address contemporary challenges in the nexus of technology, family, and child development. At the theoretical level, this work contributes to the growing body of international scholarship examining parental roles in children's technology use while advancing the understanding of how critical pedagogy principles translate into educational practice in resource-constrained Indonesian contexts.

The remainder of this paper is organized as follows. We begin with a literature review that situates this work within international research on parental involvement in children's technology use, community-based adult education, and critical pedagogy. Subsequently, we detailed our research methodology, including the community-based research framework, participant recruitment, data collection procedures, and analytical approaches. The results section presents the findings organized by thematic categories, illustrated with representative participant quotations and descriptive qualitative data. We then discuss the implications of these findings, connect them to theoretical frameworks and the existing literature, and examine their limitations. Finally, we offer our conclusions and recommendations for future research and practice.

METODE

This study employed aqualitative research methodology grounded in the community-based research (CBR) tradition and utilized reflexive thematic analysis for data interpretation. The qualitative approach was deliberately selected to address research questions concerning how processes of learning, consciousness development, and empowerment unfold within community-based educational settings—questions fundamentally concerned with meaning-making, interpretation, and contextualized understanding rather than quantifiable outcomes. CBR principles shaped the research design to ensure that community members participated as co-investigators the study findings remained accessible and actionable for community members, and that research contributed to program improvement and community empowerment rather than solely serving academic purposes (Sugiyono, 2019).

The theoretical framework integrating Freire's critical pedagogy, empowerment theory, and socioecological models of family technology uses guided research questions, data collection, and analytical interpretations. This framework focuses on (1) mechanisms of consciousness development through dialogue and reflection (2) the multidimensional nature of empowerment spanning knowledge, awareness, and relationships and (3) the nested ecological contexts within which family technology practices emerge and develop.

The study was conducted within four Community Learning Centers (CLCs) located in high-density residential neighborhoods (kampung) in Jakarta, Indonesia specifically in the Penjaringan, Koja, Kemayoran, and Tebet sub districts, each of which serves low-to-moderate income populations characterized by limited formal educational attainment, high rates of parental employment in informal economic sectors, and limited access to digital literacy programming. These CLCs all participated in the initial planning phases of the Rumah Literasi Digital program, and

their leadership expressed interest in research evaluation. The CLCs ranged in size from 15 to 40 regular program participants and operated with 2-4 staff members, typically including a primary coordinator and volunteers with backgrounds in education, social welfare, or community organization (Creswell, 2021).

Participants were recruited through purposive sampling designed to achieve diversity across the demographic and program engagement dimensions. Inclusion criteria for parent participants were: (1) being a parent or primary caregiver for at least one school-age child (ages 6-12), (2) residing in the study neighborhoods, (3) participation in at least four4 of the eight Rumah Literasi Digital training sessions over the 8-month program period, and (4) willingness to participate in interviews and/or focus group discussions. We intentionally recruited participants across gender (seeking gender parity in the sample despite anticipated lower male participation), age ranges (from parents in their late 20s to early 60s), household composition (single parent families, extended family households, nuclear families), and children's school performance levels. Participants included parents of children experiencing academic difficulties (potentially more concerned about the effects of technology on learning), children with strong academic performance (potentially facing different risks related to technology use), and children with varying levels of special educational needs.

Educator and community leader participants included program coordinators at each CLC (n=4), teachers from schools in neighborhoods who participated in program advisory roles (n=4), and community health workers and religious leaders who engaged in the program (n=3). These participants provided perspectives on program implementation, community dynamics, institutional relationships, and the linkages between the digital literacy program and broader community development efforts.

The final sample comprised 32 parents (22 mothers and 10 fathers), four4 program coordinators, four4 teachers, and three community leaders, for a total of 43 participants. Demographic characteristics of parent participants: average age of 38 years (range 26-62), educational attainment ranging from primary school completion to secondary school with a small number (n=3) holding post-secondary credentials, household sizes averaging five persons (range 3-9), and annual household income estimates of 20-40 million Indonesian Rupiah (approximately USD $1,300-$2,600). The parent sample approximated neighborhood-level demographics for education and income, al though participants may have been somewhat more engaged in community activities than non-participants.

The program studied represents a community-developed intervention designed through participatory processes involving parents, educators, and CLC staff beginning in 2022. The program operates during two consecutive 4-month cycles annually, with cohorts of 8-15 parents per CLC participating in weekly 2-hour sessions conducted by trained facilitators typically educators with additional digital literacy training provided through the program. Program modules address: (1) Digital Foundations (understanding basic device operations, Internet connectivity, prevalent platforms and applications), (2) Digital Risks and Opportunities (comprehensive examination of online safety, data privacy, inappropriate content, predatory behavior, gaming and social media dynamics), (3) Supporting Children's learning (digital tools and resources for homework support, understanding online educational platforms, establishing productive technology routines), (4) Critical Conversations (communication strategies

for discussing technology with children, conflict resolution around device use, modeling responsible technology use), and (5) Community Networks (connecting with other parents, accessing resources, advocacy opportunities).

Each module employs multiple pedagogical approaches: facilitator-led discussions grounded in participant experience and questions, video materials demonstrating concepts and strategies, small group activities and skill-building exercises, and action planning through which participants identify specific intentions for applying learning within their families. Facilitators explicitly employ dialogical pedagogy principles, positioning participants as possessing expertise regarding their families' situations and inviting collective problem solving rather than top-down instruction. Sessions explicitly address community resources and local context rather than presenting abstract models. The program is freely available and intentionally scheduled at times and locations to maximize accessibility for working parents; some CLCs offer childcare during sessions and evening sessions in addition to daytime options.

Data collection employed multiple qualitative methods enabling triangulation and richness of understanding: semi-structured individual interviews, focus group discussions, and documentary analysis.

Semi-structured interviews with parent participants (n=32) were conducted in Indonesia, audio-recorded (with consent), and lasted 45-90 minutes. The interview protocols followed a flexible guide addressing learning experiences and perceived knowledge gains, the development of awareness regarding digital technology and family dynamics, changes in communication with children around technology, perceptions of peer relationships and support networks formed through the program, perceptions of program strengths and limitations, and recommendations for improvement. Interviews were designed to invite narrative responses allowing participants to elaborate on their experiences in their own terms rather than responding to predetermined categories.

Focus group discussions (FGDs) were conducted with subsets of participants (to 3-4 groups, to 6-8 participants each) organized by CLC. FGDs enable the exploration of collective meanings and social processes, examination of diversity of opinions, and identification of community-level impacts. Focus groups addressed program experiences, changes in family dynamics and parenting practices, emergence of peer support relationships, barriers to the implementation of learning, and recommendations for program evolution. FGD discussions were audio-recorded and conducted in Indonesia.

Interviews with educators and community leaders (n=11) using similar semi-structured protocols addressed program implementation processes, participant engagement patterns, community partnerships, perceived changes in parent behaviors and family outcomes, and institutional factors facilitating or constraining the program.

Document reviews included program curricula and materials, attendance records, facilitator reflection notes, and documentation from community advisory meetings. These materials provide context regarding program design intentions, documented implementation activities, and supplementary perspectives on processes and outcomes.

Data were collected across three time points: (1) baseline interviews in month 1 of program implementation addressing prior knowledge, experiences, and expectations;

(2) mid-program focus group discussions in month 4 capturing emerging learning and experiences; and (3) post-program interviews and focus groups in month 8 upon program completion. The longitudinal design allowed the documentation of changes over time while acknowledging the processual nature of learning and empowerment.

Qualitative data analysis followed Braun and Clarke's six-phase reflexive thematic analysis approach adapted to the specific study context. Thematic analysis is a flexible qualitative method that enables identification of patterns, meanings, and relationships within qualitative data through systematic coding and theme development. The reflexive approach emphasizes researcher subjectivity as a resource rather than problematic bias, explicitly attending to how researcher backgrounds, perspectives, and experiences shape interpretations and recognizes analysis as interpretive rather than purely descriptive.

Phase 1: Data Familiarization involved immersion in the data through careful reading and re-reading of all interviews and focus group transcripts. The initial transcription from audio recordings occurred through professional transcription services and researcher verification. Notes Captured impressions, preliminary observations, and emerging patterns.

Phase 2: Initial Coding involved the systematic identification of meaningful segments of text and assignment of descriptive or interpretive code labels. Coding was conducted independently across the dataset rather than line-by-line, allowing flexibility in code granularity matching the conceptual significance of the segments. Codes ranged from descriptive labels capturing concrete content (e.g., "learning about social media risks," "time management for device use") to more interpretive codes reflecting underlying processes (e.g., "consciousness development," "relational agency").

Phase 3: Generating Initial Themes involved collating codes into candidate themes that represented broader patterns and meanings within the data. This process involved examining the relationships among codes, identifying clusters of related codes, and proposing overarching theme labels encompassing multiple codes. Candidate themes emerged through both deductive processes (applying theoretical constructs of empowerment dimensions and pedagogy) and inductive discovery (identifying the patterns inherent in the data).

Phase 4: Reviewing and Refining Themes involved a detailed examination of each candidate theme, considering its coherence, distinctiveness from other themes, grounding in data, and relevance to research questions. This iterative phase involved moving backward and forward between coded data and developing themes, refining theme definitions, and determining whether themes required subdivision or merging. A coding manual was developed to provide precise definitions for each theme, decision rules for theme assignment, and illustrative quotations exemplifying the themes.

Phase 5: Defining and Naming Themes involved developing clear, precise definitions for each final theme and capturing its essential meaning and relationship to the research questions and theoretical framework. Theme names have evolved from initial labels to a more precise language reflecting analytical insights.

Phase 6: Writing up involved composing the research report with the integration of theme descriptions and illustrative quotations supporting analytical claims.

Quality assurance procedures included: (1) researcher triangulation (two independent researchers conducted coding on 25% of transcripts with comparison of code assignments and consensus building regarding disagreements) (2) member checking through which preliminary findings were reviewed with community research partners and a subset of participants for verification and feedback (3) detailed documentation of analytical decisions and reasoning and (4) reflexivity through which researchers explicitly examined their own backgrounds, assumptions, and potential biases influencing interpretation.

RESULTS AND DISCUSSION

Analysis of program attendance records documented that 32 parents participated in at least four4 sessions across the 8-month program period, with an average attendance of 5.8 sessions (range 4-8). Attendance patterns reflected anticipated challenges in resource-constrained communities approximately 35% of initial enrollees (estimated 50-55 total participants initiating the program) completed the requisite attendance threshold. Barriers to completion include work schedule conflicts (particularly for informal sector workers with unpredictable schedules), childcare limitations, and transportation constraints. Among the 32 participants who completed the interviews, the average self-reported baseline digital literacy (prior to program participation) was rated as low to very low, with most parents (n=26, 81%) reporting very limited comfort with digital devices and platforms, primarily limited to basic phone calls and occasionally viewing content shared by family members.

Thematic Analysis Findings

Analysis of interview and focus group discussion data identified five overarching themes representing the dimensions through which the Rumah Literasi Digital programme influenced parent participants: (1) Knowledge Construction and Digital Competency Development, (2) Critical Consciousness Formation About Technology and Family, (3) Relational Networks and Peer Support, (4) Family Communication Enhancement, and (5) Systemic Barriers and Implementation Challenges. These themes emerged from theoretical expectations grounded in empowerment theory and critical pedagogy (particularly the critical awareness and relational empowerment dimensions) and from the inductive discovery of patterns specific to the program context and participant experiences.

Theme 1: Knowledge Construction and Digital Competency Development

The most readily apparent impact of program participation concerned the acquisition of foundational digital knowledge and competency—the resource empowerment dimension of parental empowerment. The articipants consistently reported transformative learning experiences in understanding basic device operations, platform functions, and digital literacy concepts. Representative participant reflections capture this transformation

"Before the programme, when my child asked me about Instagram, I did not know what it was. I thought it was something from outside my life, not something I needed to understand. Now I can help my child set up the account, I know about

privacy settings, I even tried it myself to see what she is doing online. That is completely different from before." (mother, age 34 Koja CLC)

"I learned that the internet has places—like social media, gaming applications, educational sites. I thought it was all just 'the internet,' like a mysterious place. Now I understand that there are different apps and each one works differently. This helped me talk to my children about where they should and should not go online." (father, age 41 years Tebet CLC)

This dimension included participants' reported development of capacity to navigate basic smartphone and computer functions access and utilize specific applications and platforms evaluate whether content is age-appropriate understand privacy and security features locate online resources supporting children's learning and access community resources including social media groups and websites that disseminate digital literacy information.

Importantly, participants emphasized that this knowledge development was neither technical mastery (most participants remained modest users uncomfortable with complex functions) nor the passive reception of expert information. Rather, they described experiencing what might be termed "demystificationa process through which previously opaque technology became comprehensible and navigable. The program's emphasis on learning through trial, error, and peer support rather than intimidating expert lectures appeared to be crucial to this process. As one participant reflected

"In previous trainings I attended, the instructors used very technical language and went very fast. I felt more confused and stupid after the training. In [program name], the facilitators showed us on a real phone what they meant we tried it together, and when I did it wrong, they helped me fix it without making me feel bad. That was completely different." (mother, age 28, Penjaringan CLC)

However, the analysis also documented that knowledge gains were neither universal nor uniform. Parents with preexisting digital exposure (typically those with adult children or younger parents) demonstrated more substantial competency development. Several older participants (n=4, ages 55-62) reported that while they increased foundational knowledge and understanding, they remained hesitant to independently apply learning and expressed appreciation for continued guidance. This variation underscores that adult learning processes in digital literacy are mediated by prior experience, cognitive disposition, and confidence levels.

Theme 2: Critical Consciousness Formation About Technology and Family

Beyond instrumental knowledge development, the analysis revealed that program participation catalyzed what might be characterized as critical consciousness—developing parents' thoughtful understanding of technology's role in family life, the values and assumptions embedded in digital platforms, and the complexity of technology's impacts on children and families. This represents a critical awareness dimension of parental empowerment. This theme emerged through multiple related sub-themes.

Recognition of Technology's Ambivalent Character: Participants described moving from an initial orientation viewing technology primarily as a threat (an external force endangering children) toward amore nuanced understanding acknowledging both opportunities and risks. Representative Reflections

"At first, I thought the problem was the technology itself—if we could just keep my son away from phones and computers, he would be safe and focus on school. However through discussions in the program, I understood that technology is not good or bad in itself. It depends on how we use it, how we guide the children, and what values we teach. My role is not to prevent technology but to teach him to use it wisely." (mother, age 36, Kemayoran CLC)

"I used to think that if my child played games, it was wasted time, laziness. However one facilitator explained that games can develop problem-solving skills and strategy thinking. Now I understand that some games do not waste time. That does not mean unlimited gaming—I still set limits—but my understanding changed about whatis happening when he plays." (father, age 45 Koja CLC)

Examination of Cultural Values and Parenting Intentions: Program discussions appeared to catalyze reflection on parents' own technology use, the values they wanted to cultivate in their families, and how technology aligns with or contradicts those values. Several parents described intentional conversations with their children motivated by this reflection

"The program asked us to think about what's important to our family. I realized I was not being honest—I spent hours on WhatsApp and social media, but I told my children not to use phones. The programme helped me see this contradiction. Currently we are trying to establish family rules about technology that apply to everyone, parents and children. It is not perfect, but we are all thinking about it together." (mother, age 38, Tebet CLC)

"We started asking ourselves: why do we want our children to study? What kinds of people do we want them to become? The facilitator helped us think about whether the technology supported those goals or got in the way. This discussion changed how I think about my child's technology use." (mother, age 32, Penjaringan CLC)

Understanding Systemic Factors Influencing Family Technology Dynamics: Participants demonstrated developing an understanding that family technology practices are not purely individual choices but are shaped by social, economic, and institutional factors. Several parents reflected on how poverty and employment pressure influence their capacity for supervision

"I work from 6 AM until 8 PM. My children have neighbors or older siblings. Do I want them on the phone and the Internet all day? No. However I cannot afford childcare or after-school programmes. I can't be home. Thus the reality is that they have more access to devices than I would have preferred. Understanding this, I am less angry about myself not being a perfect supervisor. I focus on what I can do—like having talks with them about online safety even if I cannot prevent access." (mother, age 42 Koja CLC)

This consciousness of structural constraints appeared significant psychologically, reducing self-blame and motivating advocacy for community solutions and policy changes. One parent reflected:

"I realized that this problem isn't just individual parents being careless. Many of us are poor, we work long hours, and we do not have resources for safe after-school activities. Our community needs digital literacy support for adults, safe community spaces for children, and reliable Internet access. I started thinking about what we could ask the government to provide." (father, age 48 years Kemayoran CLC)

Deeper Understanding of Child Development in the Digital Era: Several parents described developing a more sophisticated understanding of age-appropriate technology use, developmental changes in children's needs and vulnerabilities, and how digital experiences intersect with child development. One mother explained:

"Before, I thought my 7-year-old could use whatever my 13-year-old uses if I just watched. By learning about child development, I understood that they needed completely different things. My younger child should not see content that might be fine for my older cild. Now I think more carefully about what each child is ready for at their age." (mother, age 40 years, Tebet CLC)

Theme 3: Relational Networks and Peer Support

A significant emergent finding concerned the development of social relationships and collective efficacy among program participants the relational empowerment dimension. While the program's explicit design included peer learning activities, the depth and sustainability of relationships that emerged appeared to exceed the initial program expectations and proved consequential for participants' empowerment beyond the formal program period.

Peer Learning and Mutual Support: Focus group discussions and interviews documented that participants developed friendships and mutual support relationships that extended beyond program activities. The parents described how peer interactions reduced isolation and provided practical assistance

"I was surprised that other mothers had the same fears and questions as me. I thought I was the only person who struggled. Knowing that we all have these problems and helping each other think through solutions made me feel less alone. Even now, after the program ended, several of us still occasionally meet to talk about how our families are managing technology." (mother, age 31, Penjaringan CLC)

"One mother in the group worked in IT. She explained social media algorithms and how apps try to keep children watched. That explanation from someone like me—not an expert but someone who understands these things—helped more than when the facilitator explained it." (mother, age 35 Koja CLC)

Community Resource Creation and Information Sharing: Several program groups have spontaneously created informal mechanisms for ongoing information sharing and resource distribution among members. One CLC documented that program participants established a WhatsApp group (named "Orangtua Bijak Digital"—"Digitally Wise Parents") through which they shared articles, asked questions, and provided mutual support. Members reported that this informal network sustained engagement beyond the formal program and extended to non-program community members as parents shared learning with neighbors and extended families.

Collective Efficacy and Advocacy: In at least two communities, program participants began collectively articulating concerns about community technology infrastructure and children's access to devices in public spaces (Internet cafes and phone shops). This collective consciousness motivated participation in community forums and meetings that addressed technology and youth. One community leader reported the following

"The program parents started asking questions about internet access in our community at the monthly community meetings. They want better policies for Internet cafes they want digital literacy programs for all adults, not just parents of

school-age children. They are not just thinking about their individual families—they're thinking about the community." (Community leader, Tebet)

Theme 4: Family Communication Enhancement

Participants consistently reported that program learning translated into changes in how they communicated with the children about technology. This theme encompasses changes in both the conversation content and communication processes.

Increased Dialogue About Technology Use: The vast majority of participants (n=28, 87.5%) reported initiating conversations with children about technology that was substantively different from pre-program patterns. Pre-program communication often consisted of prohibitions ("no phones during dinner," "don't watch bad things") without explanation. Post-program, participants described conversations exploring children's interests, understanding the appeal of digital activities, and collaboratively establishing guidelines:

"Before, I would just say 'stop playing games, go do your homework.' Now I ask my son why he likes certain games, what his friends are doing online, and what makes it fun for him. We then discuss the amount of time that is reasonable. He actually participates in deciding the rules instead of just resisting them." (father, age 44 years, Kemayoran CLC)

Reduction in Parent-Child Conflict about Technology Several participants reported that more informed, dialogue-based approaches reduced conflict

"My daughter and I used to fight constantly about her phone use. I would take it away, she would get angry, and we would yell. After learning more about what she actually does and why she wants to be online, and after trying to listen instead of just command, the tension decreases. We still have disagreements, but it feels different—more like we are working on a problem together rather than me fighting against her." (mother, age 37, Tebet CLC)

Modeling of Responsible Technology Use: Several parents described intentionally changing their own technology use as a way of modeling for their children:

"My children saw me on my phone constantly, checking messages and social media. I was telling them not to waste time on the screens while I was doing exactly that. I realized that I needed to change my behavior. Now I try to limit my social media time, especially when we are together as a family. My children noticed and commented on this. It's harder than I expected, but I think it's important." (mother, age 36 Koja CLC)

Theme 5: Systemic Barriers and Implementation Challenges

In addition to these positive developments, thematic analysis identified persistent barriers constraining program effectiveness and limiting the scope and sustainability of empowerment outcomes.

Resource Constraints and Program Accessibility: While program offered free participation, transportation costs (averaging 20,000-50,000 IDR per session), childcare needs, and opportunity costs of time away from paid work limited the participation. Several potential participants reported being unable to attend consistently despite their interest:

"I wanted to participate but my work schedule changes weekly. I never know in advance if I can complete a session. I attended three times but then could not come for

several weeks. After missing so much, I felt embarrassed to return." (mother, age 29, informal vendor)

Gender dimensions appeared significant: Fathers participation (n=10 of 32, or 31%) was substantially lower than mothers', with multiple fathers citing work schedule incompatibility. Some mothers noted that fathers were interested but "their work doesn't have flexible hours like some of our work." Male participants who attended described feeling somewhat marginal in groups composed predominantly of mothers.

Digital Infrastructure and Access Limitations: The program's emphasis on hands-on learning with actual devices sometimes proved challenging in community settings with limited technological access. Two CLCs had only to 2-3 functional devices available for participant practice, requiring rotation and limiting hands-on engagement opportunities. Several participants noted that learning abaut specific platforms in the program was challenging when they had limited home access

"The facilitator showed us how to adjust privacy settings on Facebook. I understood it at the time, but when I went home, I could not figure it out again because I did d not have a computer. I have only my old phones. I got frustrated and gave up." (mother, age 45, Penjaringan CLC)

Limited Connectivity and Digital Infrastructure at CLCs: Three of the four CLCs operated with unstable Internet connectivity, limiting the capacity to demonstrate online platforms and resources. One facilitator noted:

"We planned a session about educational websites and apps, but our internet went down. We attempted to use a mobile hotspo However the connection was weak. We were unable e to accomplish what we had planned. It's frustrating because the content is important but we can not deliver it properly without better Internet." (Program coordinator, Koja CLC)

Workplace and Family Pressures Limiting Implementation: While participants reported increased knowledge and awareness, translating this into sustained family practice changes proved challenging. Several parents described intentions to implement learning (establishing technology time limits and having regular family discussions) that were undermined by competing demands:

"I know I should establish a routine where we talk about online safety, but with work and household responsibilities and my children's homework and activities, I haven't actually created that routine. I understand the importance but I cannot seem to implement it consistently." (mother, age 40, Kemayoran CLC)

Tension Between Individual and Structural Solutions: Some participants articulated frustration with what they perceived as the individualization of problems better understood as structural

"The program taught us techniques for monitoring and talking to children, which is valuable. But it sometimes felt like the problem was framed as 'parents need to be more aware and more engaged. However many of us are working on two jobs to make ends meet. The real issue is that the government should provide safe spaces for children and quality after-school programs. It shounnot all rest on already exhausted parents." (father, 46 years Koja CLC).

Table 1. Qualitative Data Table: Thematic Coding Summary with Participant Frequency

Theme	Subtheme	Description	Participant Frequency (n=32)	Key Indicators
Knowledge Construction and Digital Competency Development	Basic Device Navigation	Learning smartphone/computer operations, app access	28 (87.5%)	Reports of demystification; increased confidence with devices
	Platform Understanding	Recognition of specific apps (social media, gaming, educational); their functions and uses	26 (81%)	Can identify platforms, discuss their purposes
	Digital Resource Identification	Locating online educational resources, community support networks	18 (56%)	More active in seeking online information; aware of available resources
	Age-Appropriate Content Recognition	Developing judgment about what content suits different ages	15 (47%)	Differential guidelines for children of different ages
Critical Consciousness Formation	Technology's Ambivalent Character	Understanding technology as neither inherently good nor bad; dependent on use context and values	22 (69%)	Shift from pure restriction mindset to intentional mediation
	Personal and Family Value Alignment	Reflection on own technology use and family values; congruence between stated and modeled values	19 (59%)	Intentional conversations about family technology norms
	Systemic Factor Recognition	Understanding structural constraints (poverty, employment, resources) shaping family technology practices	12 (38%)	Reduced self-blame; increased systems-thinking perspective
	Child Development in Digital Context	Age-appropriate development understanding;	14 (44%)	Differentiated parenting approaches by

Theme	Subtheme	Description	Participant Frequency (n=32)	Key Indicators
		recognizing how digital engagement intersects with developmental needs		child age/developmental stage
Relational Networks and Peer Support	Reduced Isolation; Peer Relationships	Developing friendships and discovering shared concerns with other parents	24 (75%)	Ongoing contact with program peers; mutual support
	Informal Resource Distribution	Creating informal mechanisms (WhatsApp groups, resource sharing) for continued peer support	8 (25%)	Documented informal networks sustaining beyond program
	Collective Efficacy and Advocacy	Beginning to think collectively about community problems; participation in community discussions	6 (19%)	Participation in community forums; collective problem-identification
Family Communication Enhancement	Increased Dialogue About Technology	More frequent, substantive conversations with children about technology use and interests	28 (87.5%)	Children's reports of more conversations; shift from prohibition to dialogue
	Reduced Parent-Child Conflict	Decreased tensions around technology use; more collaborative problem-solving	12 (38%)	Reports of reduced arguments; more collaborative decision-making
	Modeled Responsible Use	Parents intentionally changing own technology use to model for children	11 (34%)	Self-reported changes in parental technology habits
Systemic Barriers and Implementation Challenges	Accessibility Constraints	Transportation costs, work schedule conflicts, childcare limitations	14 (44%)	Attendance limitations; program dropout factors
	Gender Participation	Lower male participation; fathers'	--	31% male participation vs.

Theme	Subtheme	Description	Participant Frequency (n=32)	Key Indicators
	Gaps	work schedule incompatibility		69% female
	Device and Connectivity Access	Limited personal device access; unstable internet at CLCs	17 (53%)	Inability to practice learning at home; interrupted program sessions
	Implementation Challenges	Difficulty sustaining family practice changes despite knowledge and intentions	16 (50%)	Intentions not translated to routine practices
	Structural vs. Individual Framing	Tension between program emphasis on individual parenting behaviors and structural factors (poverty, employment, infrastructure)	9 (28%)	Calls for policy/systemic solutions alongside individual skills

The findings from this qualitative study provide empirically grounded evidence regarding how community-based digital literacy interventions influence parental empowerment across three theoreticall recognized dimensions: resource empowerment, critical awareness, and relational empowerment. Our findings align with and extend existing international research on parent training and family intervention efficacy while offering distinctive insights into how critical pedagogy principles translate into practice within resource-constrained Indonesian contexts (Obermaier et al., 2025).

The themes of Knowledge Construction and Digital Competency Development directly address the resource empowerment dimension—parents' ability to identify and effectively utilize digital resources and support systems. This finding corroborates international research documenting that structured parent training programs successfully enhance participant knowledge and perceived competency. The process of "demystification" described by participants—whereby previously opaque technology became comprehensible and navigable—reflects what Freire characterized as the transition from a culture of silence to a culture of participation, wherein formerly excluded individuals gain voice and agency within previously inaccessible domains. Importantly, participants emphasized that this competency development occurred not through intimidating expert lecturing but through dialogue, collaborative trial-and-error, and peer learning—pedagogical approaches consistent with critical pedagogy principles and with international evidence on effective adult education. The variation

in outcomes related to prior experience, age, and confidence levels aligns with research documenting that digital literacy development trajectories are mediated by baseline characteristics and exposure.

The Critical Consciousness Formation theme provides evidence for Freire's theory that authentic education catalyzes the development of critical awareness—not merely the passive reception of information but engaged thinking and reflection on one's circumstances and their systemic foundations. Participants' movement from viewing technology as an external threat requiring restriction toward understanding its ambivalent character (offering both opportunities and risks) and its embeddedness in values and systemic circumstances exemplifies what critical theorists term "conscientization." This consciousness development appeared consequential not merely as intellectual understanding but as a motivator for changed behavior: parents who recognized systemic constraints (poverty, employment pressures limiting supervision capacity) appeared to experience reduced guilt and shame while maintaining motivation for positive change. The observation that parents' reflections on their own technology use catalyzed empathy and understanding of children's experiences suggests that consciousness-raising about one's own circumstances constitutes an essential component of authentic parental education (Fatahillah et al., 2025).

The Relational Networks and Peer Support theme documents the relational empowerment dimension strengthening of relationships within families, among community members, and with institutions. The finding that participants developed sustained peer relationships extending beyond formal program activity suggests that program design successfully created conditions for "communities of practice"—groups of people united by genuine interest in a domain (parenting and child development), learning together through engagement in shared activities. The emergence of informal networks (WhatsApp groups for peer support) and collective advocacy around community technology issues indicate that relational empowerment extends beyond dyadic relationships to collective efficacy a finding with implications for community development and social capital formation. This finding aligns with feminist and community development scholarship emphasizing that transformative change emerges not through individual behavior modification alone but through collective consciousness development and collaborative action (Celedonia et al., 2025).

The Family Communication Enhancement theme documents the behavioral and relational changes that translate program learning into family practice. The movement from authoritarian communication ("stop playing games") toward collaborative dialogue reflects what relationship researchers term "coregulation"—mutual influence and decision making among family members. This shift appeared particularly significant given the research evidence that dialogue-based parental mediation of technology correlates with more positive outcomes than surveillance-based or purely restrictive approaches. However, the findings also revealed important limitations: changes in family communication patterns were not universal, and substantive implementation of new practices proved challenging for many participants despite their increased knowledge and intention (Bickmore et al., 2025).

Our findings suggest several mechanisms by which community-based digital literacy interventions generate empowerment outcomes. First, demystification and

knowledge development reduce the overwhelming sense that technology is incomprehensible and beyond one's capacity to understand or guide, which in turn appears to increase willingness to engage with technology and children's technology practices. This psychological shif from alienation to agency is a prerequisite for empowerment. Second, dialogue and peer learning create experiences of recognition and validation—participants discover that others share their concerns and that their experiences and perspectives hold value. This relational shift from isolation to community connection appears consequential both psychologically (reducing shame and isolation) and practically (generating mutual support and collective problem-solving). Third, critical reflection on one's circumstances and their systemic foundations—made possible through dialogue focused not only on individual behavior change but also on systemic factors shaping family life—enables participants to move from self-blame toward systems thinking and advocacy orientation. This consciousness development aligns with empowerment theory's emphasis that authentic empowerment involves understanding structural factors and developing agency at multiple levels (individual, relational, and collective).

Implications for Indonesian Educational Contexts and Community Development

The findings have particular significance for understanding how non-formal education systems can effectively address contemporary challenges in the Indonesian context. Indonesia's Community Learning Center model represents a significant investment in educational infrastructure reaching populations underserved by formal schooling; however, many CLCs struggle with limited resources, infrastructure constraints, and difficulty remaining responsive to emerging community priorities. This study demonstrates that CLCs can effectively deliver contemporary educational content that addresses pressing community concerns when provided with appropriate training, support, and curricular resources. The adaptation of critical pedagogy principles to Rumah Literasi Digital—grounding learning in participants' lived experiences, employing dialogue rather than top-down instruction, addressing systemic and individual factors, and facilitating peer learning—illustrates how Freirean principles translate into effective practice within specific Indonesian contexts. The integration of explicitly stated values and religious principles into program content (several sessions referenced Islamic teachings about family responsibility and the protection of children) exemplifies how critical pedagogy can be culturally grounded rather than imported wholesale from Western sources.

The findings also highligh the gendered dimensions of digital literacy and parental responsibility. The male participation rate (31%) substantially below female participation raises questions about whether digital parenting literacy is being framed and accessed as a "maternal" responsibility. While cultural norms regarding parenting roles are complex in Indonesia—particularly regarding responsibility for children's moral and emotional development versus practical daily care— low male engagement in this program suggests potential gender inequities in the opportunity for digital literacy development. Future interventions might deliberately address barriers to male participation and intentionally engage fathers, recognizing both men's legitimate roles in children's technology socialization and the risk that concentrating on digital literacy knowledge among mothers alone may limit household-level problem-solving capacity. The presence of several working mothers who described simultaneously managing

paid employment, household responsibilities, and attempting to implement new parenting practices raises questions about the unrealistic burden placed on individual parents to solve problems better addressed through systemic solutions a tension articulated by several participants themselves.

CONCLUSION

This qualitative study examined how a community-based digital literacy intervention Rumah Literasi Digital influenced parental empowerment in high-density urban residential neighborhoods in Jakarta. Through semi-structured interviews and focus group discussions with 32 parents, eight educators, and community leaders, analyzed using reflexive thematic analysis, the study documented significant empowerment outcomes spanning three dimensions: resource empowerment (increased digital knowledge and competency), critical awareness (developing a thoughtful understanding of technology's role in family life and systemic factors shaping family technology practices), and relational empowerment (strengthened peer relationships, community connections, and family communication). The findings provide evidence that community-based, dialogue-oriented digital literacy programming grounded in critical pedagogy principles can effectively address the digital literacy gap that constrains parental supervision capacity. The program's strength in creating conditions for genuine dialogue, peer learning, and critical reflection enabled participants to move beyond the passive reception of technical information toward the conscious development of their understanding and agency. The emergence of sustained peer networks and collective advocacy suggests the potential for community-based interventions to strengthen social capital and community efficacy beyond individual behavioral changes.

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