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Digital Resilience among Early Adolescents: An Exploratory Study of Communication Patterns and Digital Literacy in Social Media

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Abstract

The rapid proliferation of social media has fundamentally reshaped how early adolescents engage in communication, identity construction, and social learning. Despite growing scholarly attention to adolescents' digital practices, limited research has examined how communication patterns within closed messaging platforms, such as WhatsApp, function as mechanisms for developing digital resilience among early adolescents aged 10–13 years. This gap is critical, given their heightened vulnerability to online risks due to still-developing emotional regulation and digital awareness. This study aims to address this gap by examining how digital resilience is shaped through everyday communication practices in a semi-urban context in Klaten, Indonesia. Employing a qualitative exploratory design, data were collected from 26 participants through demographic surveys, in-depth interviews, and digital ethnography. The findings reveal that digital resilience is an emergent, relational process shaped by the interplay of self-regulation, evolving privacy awareness, informal behavioural norms, and sustained external mediation from parents and teachers. Notably, WhatsApp group interactions function as micro-social ecosystems where emotional regulation, empathy, and adaptive communication strategies are negotiated and practised. This study advances the conceptualisation of digital resilience as a communication-driven developmental competence and underscores the importance of dialogic digital parenting and context-sensitive literacy interventions in fostering adaptive digital engagement.

Keyword: Digital Resilience, Early Adolescents, Communication Patterns, Digital Literacy, Social Media

Abstrak

Perkembangan pesat media sosial telah secara fundamental mengubah cara remaja awal berinteraksi, membangun identitas, dan belajar secara sosial. Meskipun perhatian akademik terhadap praktik digital remaja semakin meningkat, penelitian yang secara khusus mengkaji bagaimana pola komunikasi dalam platform pesan tertutup seperti WhatsApp berfungsi sebagai mekanisme pembentukan resiliensi digital pada remaja awal usia 10-13 tahun masih terbatas. Kesenjangan ini menjadi krusial mengingat tingginya kerentanan kelompok usia ini terhadap risiko daring akibat regulasi emosi dan kesadaran digital yang masih berkembang. Penelitian ini bertujuan untuk mengisi kesenjangan dengan mengeksplorasi bagaimana resiliensi digital terbentuk melalui praktik komunikasi sehari-hari dalam konteks

semiperkotaan di Klaten, Indonesia. Menggunakan pendekatan kualitatif eksploratif, data dikumpulkan dari 26 partisipan melalui survei demografis, wawancara mendalam, dan etnografi digital. Hasil penelitian menunjukkan bahwa resiliensi digital merupakan proses yang bersifat berkembang dan relasional, dibentuk melalui interaksi antara regulasi diri, kesadaran privasi yang bertahap, norma perilaku informal, serta mediasi eksternal yang berkelanjutan dari orang tua dan guru. Interaksi dalam grup WhatsApp berfungsi sebagai ekosistem mikrososial, di mana regulasi emosi, empati, dan strategi komunikasi adaptif dinegosiasikan dan dipraktikkan. Penelitian ini memperluas konseptualisasi resiliensi digital sebagai kompetensi perkembangan berbasis komunikasi, serta menegaskan pentingnya pengasuhan digital dialogis dan intervensi literasi yang kontekstual dalam membentuk keterlibatan digital yang adaptif.

Kata Kunci: Literasi Digital, Media Sosial, Pola Komunikasi, Remaja Awal, Resiliensi Digital,

Introduction

The rapid development of digital transformation and social media has fundamentally reshaped the patterns of interaction and the way adolescents' access and process information (Amalin et al., 2019). For the younger generation, social media functions not only as a of communication tools, but also as a critical space for identity construction, social networking, and informal learning (Mahanani, 2014; Susanti, 2024). The phenomenon is particularly significant among early adolescents aged 10-13 years, a developmental stage characterized by psychological transitions, emerging self-awareness, and evolving peer relationships (Antheunis et al., 2016; Candrasari, 2020; Danuri, 2019). At this stage, adolescents remain highly vulnerable to digital influences due to their understanding of privacy, data security, and media ethics is relatively limited (Kalina Asparouhova, 2015; Putri et al., 2025).

Recent global data indicate that social media functions as a multidimensional communicative and informational ecosystem (Yan et al., 2021; Yang et al., 2021). According to the Global Web Index as reported in the Global Social Media Statistics Report by We Are Social and Meltwater (Data Reportal, 2025) presented in the Figure 1, the primary motivation for social media use among users aged 16 and above is maintaining contact with friends and family (50.5%), underscoring the enduring role of digital platforms in

sustaining social connectedness. The pattern highlights the multifunctional role of social media as a communication and information ecosystem. When compared to the Indonesian context, particularly among early adolescents, similar trends are observed but with notable differences. Previous research findings indicate that 93.8% of adolescents aged 10–13 primarily rely on WhatsApp as their main communication platform, with an average usage of three hours per day (Shovmayanti et al., 2024).

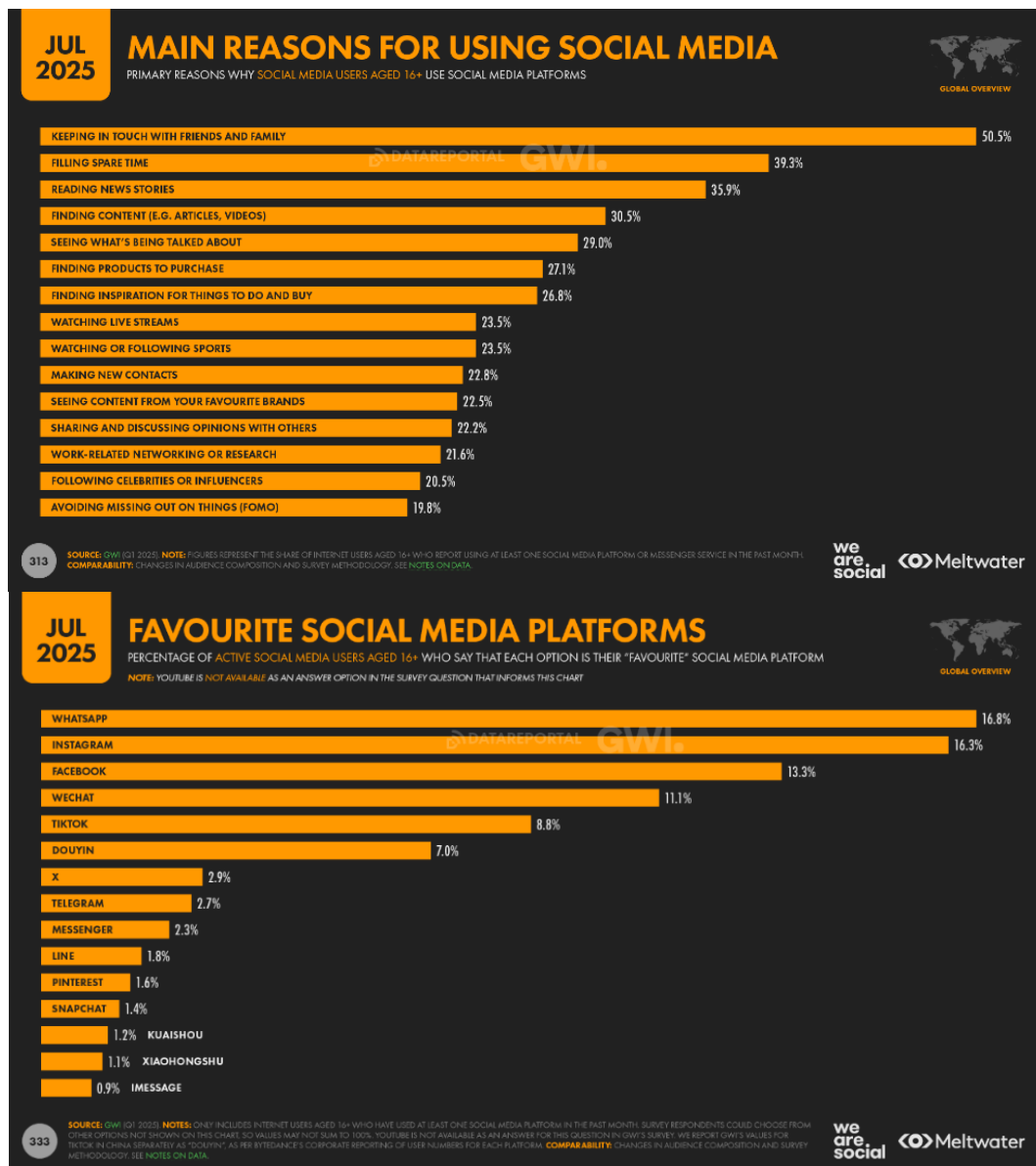


Figure 1. Social Media Usage Report
 Source: datareportal.com

Social media presents a dual reality for early adolescents. On the one hand, platforms such as WhatsApp, Instagram, and TikTok provide opportunities to develop communication skills, digital literacy, and access to information (Tartari, 2015). On the other hand, exposure to digital risks, including cyberbullying, misinformation, inappropriate content, and social pressure, can lead to serious psychological consequences, including anxiety, depression, low self-esteem, and sleep disturbances (Cataldo et al., 2021; Ellithorpe et al., 2025; Roma Doni, 2017; Swain, 2024). Such divergence reflects both developmental and contextual factors, as early adolescents are situated in a transitional phase marked by heightened socio-emotional needs, limited cognitive control, and strong reliance on peer validation (Magis-Weinberg et al., 2021; Meeus et al., 2021).

In Indonesia, where 84.37% of adolescents use the internet primarily for social media (Muhamad, 2024; Unicef, 2021), concerns regarding adolescents' digital engagement have become increasingly urgent. Preliminary findings from this study indicate that 93.8% of early adolescents rely on WhatsApp as their primary communication platform, underscoring its central role in shaping daily digital interactions (Putri et al., 2024). At this developmental stage, early adolescents experience an imbalance between rapidly evolving socio-emotional processes and still-maturing cognitive control, which influences how they interpret and respond to online communication. As a result, they are more prone to impulsive behavior, heightened peer susceptibility, and limited emotional regulation in digital environments (Meeus et al., 2021; Speyer et al., 2022; Burnell et al., 2023; Magis-Weinberg et al., 2021; Qi & Yang, 2024).

These developmental vulnerabilities are further intensified by various digital risks. Cyberbullying, for instance, has been consistently associated with increased anxiety, depression, and reduced academic engagement among adolescents (Giumetti & Kowalski, 2022; Halliday et al., 2023; Li et al., 2024). In addition, social pressure and the need for online validation shape

adolescents' self-concept and emotional well-being, often exacerbating self-comparison and internalizing problems (Nesi et al., 2020; Shovmayanti, et al., 2024). Privacy risks also remain a critical concern, as adolescents frequently underestimate the consequences of sharing personal information, exposing themselves to potential exploitation (Livingstone et al., 2019; Setyaningsih et al., 2024). Taken together, these conditions highlight the urgent need to better understand digital communication dynamics and to strengthen digital literacy and resilience among early adolescents.

Taken together, these conditions highlight the urgent need to better understand digital communication dynamics and to strengthen digital literacy and resilience among early adolescents. In this regard, digital resilience can be conceptualized as a developmental and adaptive capacity that enables individuals to navigate, cope with, and recover from risks encountered in digital environments (Livingstone et al., 2019; Sun et al., 2022). Rather than being a fixed or fully acquired competence, digital resilience is increasingly understood as an emergent and relational process, shaped through the interaction between individual capabilities- such as self-regulation, critical awareness, and decision-making-and broader social contexts, including parental mediation, peer interaction, and educational support (Giletta et al., 2021; Purboningsih et al., 2025). Within this framework, communication plays a central role in the development of digital resilience. Digital environments, particularly closed messaging platforms such as WhatsApp, function as micro-social spaces where adolescents engage in meaning-making, negotiate social norms, and regulate emotional responses through everyday interaction (Kozinets & Gretzel, 2024; Shovmayanti, Putri, et al., 2024; Shovmayanti & Ardiansyah, 2025). These communication practices not only mediate adolescents' exposure to digital risks but also provide opportunities for learning adaptive strategies, thereby positioning digital resilience as a communication-driven process of learning and adaptation rather than merely

a protective response to online threats (Lloyd-Jones, 2025; Wisniewski & Park, 2025).

In response to growing concerns about adolescents' digital vulnerability, recent studies have increasingly examined the psychosocial and contextual factors that shape digital resilience. Prior research highlights the role of peer support, social cohesion, and digital citizenship literacy in strengthening adolescents' adaptive capacities (McLaughlin et al., 2021; Harris & Johns, 2020). Other studies emphasize the importance of empathetic communication and digital literacy in mitigating cyberbullying and online gender-based violence (Lestari et al., 2024; Setyaningsih et al., 2024) as well as the role of family mediation in supporting adolescents' adjustment in digital environments (Rubyanti, 2022). Additionally, media literacy has been identified as a key factor in addressing misinformation (Festl, 2021; Soetekouw & Angelopoulos, 2024), while research on social media use highlights its complex relationship with adolescents' mental health (Orben, 2020). In educational contexts, digital resilience has been linked to adaptive learning strategies and the integration of cognitive, emotional, and technological competencies (Eri et al., 2021; Naeem & Mushibwe, 2025). Collectively, these studies suggest that digital resilience is a multidimensional construct shaped by digital literacy, communication practices, and social support.

Despite the growing body of research on digital resilience, several critical gaps remain. First, existing studies predominantly focus on general adolescent populations or older age groups, with limited attention to early adolescents aged 10–13 years, who are in a distinct developmental stage. Second, prior research has largely overlooked communication patterns within closed messaging platforms such as WhatsApp, which serve as primary yet underexamined spaces for adolescents' daily interactions. Third, the integration of communication practices and digital resilience as interconnected processes remains insufficiently theorized, particularly in

relation to how everyday communication contributes to the development of adaptive capacities in digital environments. To address these gaps, this study examines how early adolescents develop digital resilience through their daily communication on WhatsApp. By employing a qualitative exploratory approach that combines in-depth interviews and digital ethnography, this research provides a process-oriented understanding of how communication practices contribute to the development of adaptive strategies and digital literacy. This study contributes to the literature by positioning digital resilience as an emergent process grounded in communication, thereby offering insights for building a safer and more inclusive digital ecosystem for early adolescents.

Methods

The research is grounded in a qualitative paradigm that emphasizes contextual and interpretive understanding of social phenomena. A qualitative exploratory study was adopted as the most appropriate design to investigate underexplored issues related to digital resilience among early adolescents, particularly within informal and closed communication environments such as WhatsApp groups (Iskandar & Irawati, 2023; Harris & Johns, 2020). This approach enables an in-depth exploration of the processes of meaning-making, emotional experiences, and adaptive strategies embedded in everyday digital interactions.

The research conducted in Klaten Regency, Central Java, Indonesia, a semi-urban area characterized by strong community ties and increasing access to mobile technology among school-aged children. This socio-cultural context provides a relevant setting to examine the intersection of digital communication, peer relationships, and resilience. The participant consisted of 26 early adolescents aged 10-13 years who actively use WhatsApp, selected through purposive sampling based on their relevance to the research objectives with a diversity of socioeconomic backgrounds. Additional

perspectives were obtained from parents and teachers to enrich contextual understanding and strengthen data triangulation.

Data were collected through three complementary techniques: demographic surveys, semi-structured in-depth interviews, and digital ethnography (netnography). The demographic survey gathered baseline information on mobile phone ownership, frequency and duration of internet access, generating a socio-technological profile of participants (Silverman & Patterson, 2021). In-depth interviews with adolescents, as well as parents and teachers, explored subjective experiences and meaning-making processes (Creswell & Poth, 2016). Netnographic observation of WhatsApp group interactions enabled the examination of natural communication patterns, message exchanges, and group norms without researcher intervention, thereby ensuring ecological validity (Caliandro, 2018; Kozinets, 2019).

Data were analyzed using thematic analysis following Braun and Clarke (2006), involving a systematic process of data familiarization through repeated readings of interview transcripts and netnographic field notes, followed by inductive coding to identify meaningful units related to communication practices, emotional responses, and coping strategies. These codes were iteratively refined and organized into broader categories to facilitate theme development, where patterns of meaning were identified across the dataset. The resulting themes were then reviewed and refined to ensure coherence and alignment with the research objectives, and subsequently interpreted within the framework of digital resilience and communication practices. To ensure the credibility and reliability of the findings, data triangulation was applied by comparing multiple data sources - surveys, interviews, and netnographic observations - as well as perspectives from different participant groups, including adolescents, parents, and teachers, thereby strengthening the validity and depth of the analysis. The integration of these three techniques provides a solid multi-method design, which not only enriches the depth and credibility of the findings but also aligns

with contemporary methodological appeals to combine surveys, interviews, and digital ethnography to generate context-grounded insights in youth and media research (Lowis, 2025; Pink et al., 2015).

Result

The research encompassed a total of 26 respondents within the age range of 11 to 13 years. The majority of respondents were 11 years old, representing 42.3% of the sample, followed by those aged 12 years (34.6%) and 13 years old (7.6%). In terms of gender distribution, the sample consisted of 60% females and 40% males, indicating a slight predominance of female participants. The demographic distribution provides a relevant context for interpreting the research results, particularly in relation to age-related developmental variations and gender differences. All participants reported active use of smartphones, with daily internet access primarily used for communication and social media. Most participants indicated that WhatsApp is their primary communication platform, with an average usage duration of approximately three hours per day. This highlights the centrality of WhatsApp in shaping adolescents' daily digital interactions.

Table 1. Demographic Characteristics of Participants

Age	11 years old	42.3%
	12 years old	34.6%
	13 years old	7.6%
Gender	Males	40%
	Females	60%

The descriptive data indicate that the majority of participants were already integrated into digital communication practices through personal device ownership. Specifically, 80% of participants reported owning a mobile phone, while 20% did not possess one. This high rate of ownership suggests that access to digital communication technologies is widespread among the sampled adolescents, thereby facilitating their participation in online social interactions and messaging platforms. In terms of communication habits, the duration of WhatsApp usage per day varied notably across participants.

Regarding confidence in managing online interactions, the majority of participants (around 22 people) stated that were confident in managing and regulating digital communication effectively. Only a small number stated uncertainty ('maybe') or lack of confidence ('no'). Overall, the findings highlight a technologically active group of adolescents, characterized by high mobile accessibility, moderate use of digital communication platforms, and strong confidence in managing online social interactions, as illustrated in Figure 2.

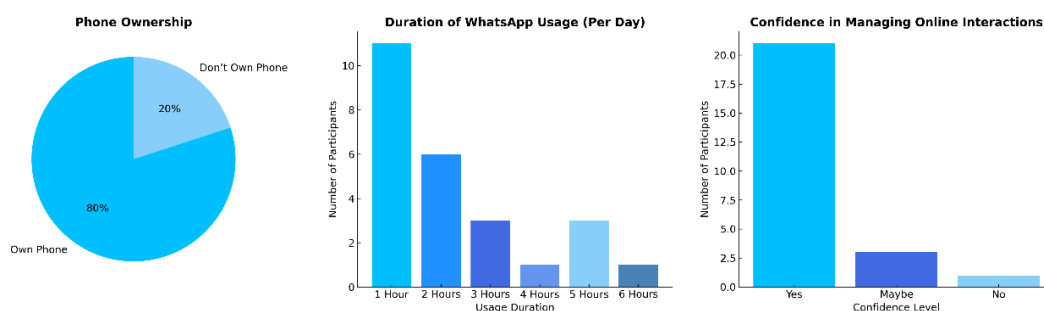


Figure 2. Participant Digital Behaviour Overview
Source: Research Result, Mei-Juli 2025

The findings show that adolescents primarily use WhatsApp for peer communication, group discussions, and sharing multimedia content. Interaction patterns tend to occur in short but intensive periods, particularly during evenings and weekends. Figure 3 illustrates daily distribution of messages transmitted within the observed WhatsApp group during the study period. The peaks likely correspond to academic events or important coordination that triggered increased interaction among participants. In summary, the figure highlights a dynamic yet irregular rhythm of communication that is characteristic of natural digital group interactions. The intensity of participation in these interactions fluctuates in response to contextual triggers and collective needs.

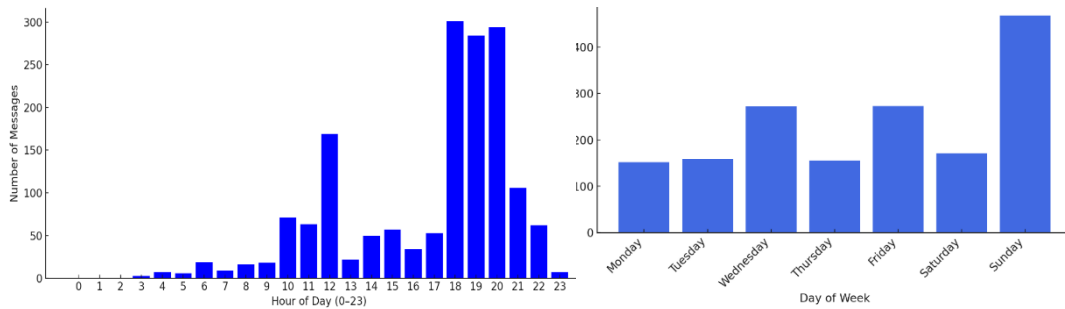


Figure 3. Messages per Day
Source: Research Result, Mei-Juli 2025

The findings presented in Table 2 demonstrate that digital resilience among early adolescents is characterized by a set of interrelated dimensions, including self-regulation, privacy awareness, personal rules, and external regulation. These dimensions collectively reflect an emerging and context-dependent form of resilience, shaped by both individual capacities and environmental influences. In terms of self-regulation, participants reported initial efforts to manage their screen time and control their engagement in WhatsApp interactions. However, these practices remain inconsistent and are often reinforced by external supervision, indicating that self-regulation has not yet developed into an autonomous competence. Similarly, the dimension of privacy awareness reveals that adolescents possess a basic ethical understanding of online behavior, such as avoiding inappropriate language or content. Nevertheless, their comprehension of broader issues related to data protection and digital privacy remains limited, suggesting that their awareness is still situational rather than critically informed.

Table 2. Summary of Thematic Mapping on Digital Resilience Dimensions

Category	Focus	Dominant Source	Observed Practices
Self-Regulation	Time management and positive distraction	Parents, teachers	Early adolescents follow externally imposed time limits and engage in alternative offline activities (e.g., family or school tasks) to reduce screen time.
Privacy Understanding	Ethics and digital awareness	Teachers, parents	Early adolescents show basic ethical awareness in online communication but have limited understanding of digital privacy, passwords,

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					and data safety. Guidance primarily comes from adults.
Simple Rules	Personal	Basic control and behavioral norms	self- and	Students	Early adolescents develop simple personal rules such as “not replying to insults,” “apologizing when wrong,” or “being careful with messages,” reflecting early forms of digital moral reasoning.
Parental/Teacher Dominance Time Control	in	External supervision and time restriction		Parents, teachers	Strong adult monitoring through time limits, content checks, and school rules restricting phone use; students’ independent regulation remains limited.

The development of simple personal rules - such as avoiding conflict, refraining from responding to provocation, and apologizing when necessary- further indicates the early formation of moral self-regulation and digital empathy. However, these behavioral strategies remain at a foundational level and are not always consistently applied across contexts. At the same time, external regulation emerges as a dominant factor shaping adolescents’ digital practices. Parental and teacher involvement, particularly in controlling screen time, monitoring content, and enforcing school-related restrictions, plays a central role in guiding behavior. This strong reliance on adult mediation highlights that adolescents’ digital engagement is still largely structured by external authority rather than internalized self-control.

Analysis of participants' self-control strategies in social media use in Figure 4 shows that the most dominant approach is limiting use, which indicates an increased awareness of the importance of setting personal boundaries and maintaining balanced digital habits. The majority of participants were given schedules or timers, reflecting the influence of external regulation particularly parental guidance in encouraging responsible online behavior. Additionally, a number of respondents demonstrated conscious self-discipline and moderation while others used diversion strategies. The presence of parental controls and reminders further highlights

the vital role of family supervision in mediating young users' interactions with digital platforms. In contrast, a small proportion of participants admitted to having no specific control strategies, indicating a lack of self-regulation awareness that may require targeted digital literacy interventions.

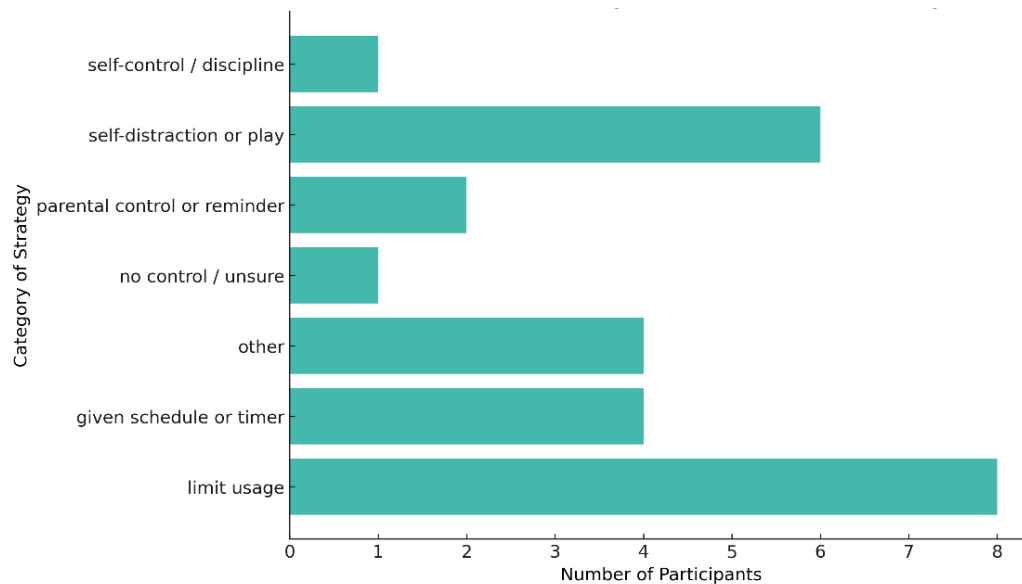


Figure 4. Self-Control Strategies in Social Media Usage
Source: Research Result, Mei-Juli 2025

Discussion

The findings indicate that early adolescents demonstrate a relatively high level of access to digital technology, which increases their early exposure to social media environments. The moderate duration of WhatsApp use, predominantly around one hour per day, suggests that digital engagement at this stage is primarily oriented toward maintaining social relationships rather than intensive content consumption. This pattern reflects a functional use of social media as a communication tool rather than a space for continuous immersion. From a developmental perspective, such engagement indicates that early adolescents are beginning to integrate digital platforms into their daily social routines, albeit in a controlled and context-dependent manner. This aligns with previous studies suggesting that messaging applications serve as primary channels for peer interaction in early adolescence (Candrasari, 2020; Danuri, 2019).

Digital resilience among early adolescents is still in an emerging and developmental stage, rather than a fully established competence. While adolescents demonstrate initial adaptive strategies, these abilities remain partial, inconsistent, and context-dependent. This condition reflects the developmental characteristics of early adolescence, particularly the imbalance between socio-emotional processes and cognitive control, which influences how individuals respond to digital environments (Meeus et al., 2021). Consistent with previous research, digital resilience should not be understood as a fixed skill but as a gradual process shaped by experience and social interaction (Naeem & Mushibwe, 2025). Although participants demonstrate attempts at self-regulation, the findings indicate that such regulation is largely externally scaffolded rather than internally driven. Adolescents rely heavily on parental control and teacher guidance in managing their digital behaviour. From a theoretical perspective, this aligns with socio-cultural approaches that emphasise the role of guided participation in learning processes. Self-regulation develops through interaction with more knowledgeable others, rather than emerging independently. This finding supports previous studies highlighting the importance of parental mediation in shaping adolescents' online behaviour (Harris & Johns, 2020; Rubyanti, 2022). However, this study extends the literature by showing how such guidance is enacted within everyday communication practices on WhatsApp.

The findings indicate that adolescents possess basic or emerging awareness of privacy, but their understanding remains situational and limited. Decision-making is often influenced by trust in peers rather than a comprehensive understanding of digital risks. This supports the perspective that digital literacy develops progressively and is embedded within social contexts (Livingstone et al., 2019). Privacy management is therefore not purely cognitive but also shaped by interaction and group norms. Previous research similarly suggests that adolescents tend to underestimate privacy risks due to their orientation toward social belonging and peer acceptance

(Setyaningsih et al., 2024). This study adds nuance by demonstrating how such awareness is constructed through everyday communication practices.

Adolescents' digital resilience is shaped by three interconnected domains: self-regulation, social support, and external regulation (Naeem & Mushibwe, 2025). Self-regulation involves individual strategies such as avoiding online bullying (Williams et al., 2024), protecting personal privacy (Livingstone et al., 2019), and managing screen time effectively (Na & Choi, 2024). These behaviors reflect adolescents' capacity to control their digital actions and emotions, enabling to act responsibly and independently in online spaces (Hollenstein & Faulkner, 2024). Such self-regulatory capacities are foundational to fostering adaptive coping skills in response to digital risks and opportunities (Livingstone et al., 2019). Meanwhile, social support and external regulation provide essential relational and environmental resources that reinforce resilience (Schmuck, 2021). Peer support enhances positive digital engagement through empathy, collaboration, and shared problem-solving, while parental rules and teacher guidance establish ethical boundaries and behavioral consistency (Mitic et al., 2021; Prakosa et al., 2024). Together, these elements enable adolescents not only to manage online challenges but also to grow from them, developing a balanced sense of digital competence and well-being (Shovmayanti, et al., 2024). Thus, digital resilience is conceived as a developmental competence grounded in personal agency, social connection, and contextual guidance (Harris & Johns, 2020; McLaughlin et al., 2021; Na & Choi, 2024).

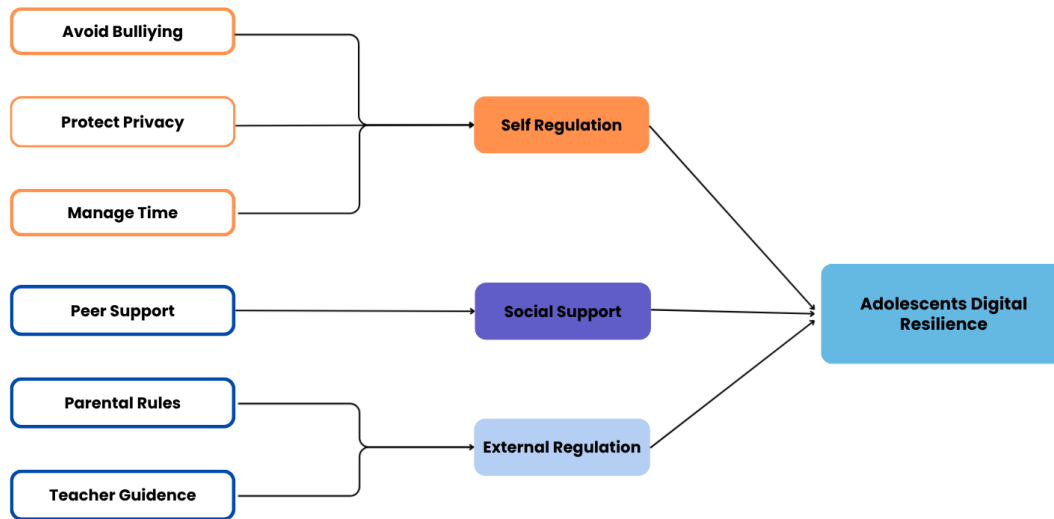


Figure 5. Concept Map of Digital Resilience Factors and Strategies
Source: Research Result, Mei-Juli 2025

This study proposes a conceptual model positioning digital resilience as an emerging and communication-driven process shaped by the interaction between individual capacities, social mediation, and digital communication environments. At the individual level, early adolescents demonstrate developing competencies, including self-regulation, privacy awareness, and the formation of basic behavioral rules. However, these capacities remain partial and context-dependent. These individual processes are embedded within a broader system of social mediation, where parents, teachers, and peers play a critical role in shaping digital behavior through guidance, monitoring, and social interaction. The communication environment, particularly WhatsApp as a closed messaging platform, functions as a micro-social space where adolescents engage in episodic interactions, negotiate meaning, and develop adaptive strategies. The interaction of these elements produces digital resilience as a developmental, relational, and contextually constructed competence, rather than a fixed individual trait.

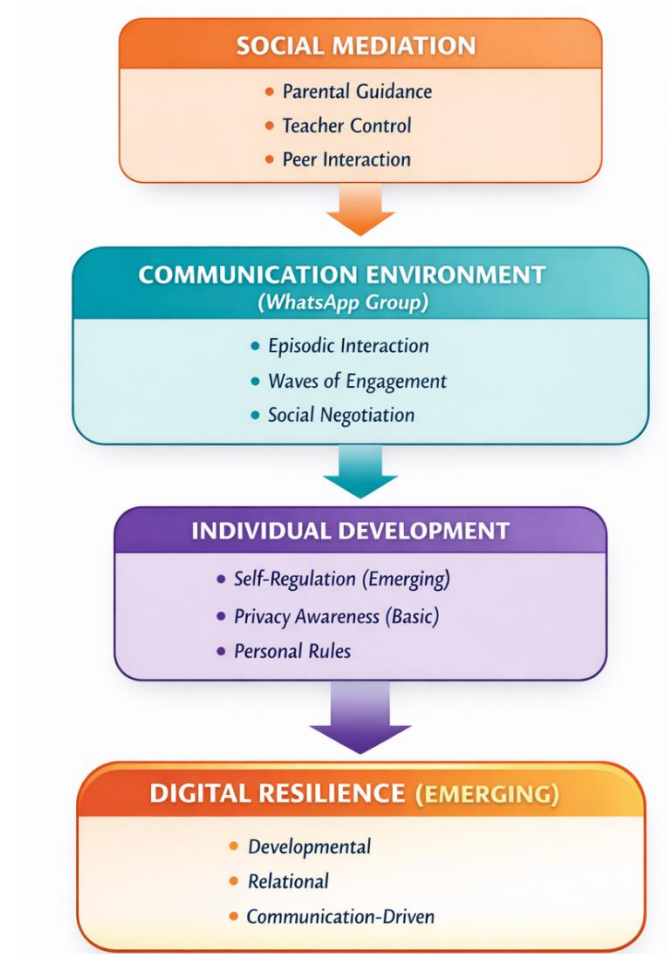


Figure 6. Conceptual Model of Digital Resilience among Early Adolescents
Source: Research Result, Mei-Juli 2025

This study demonstrates that digital resilience is closely linked to everyday communication practices. Rather than being an isolated competence, resilience emerges through continuous interaction, negotiation, and adaptation within digital communication environments. This finding addresses a critical gap in the literature by integrating communication patterns and resilience as interconnected processes. It highlights that WhatsApp, as a closed messaging platform, functions as a micro-social environment where adolescents develop adaptive strategies, emotional regulation, and social awareness.

Conclusion

This study demonstrates that digital resilience among early adolescents is best understood as an emerging, developmental, and relational process shaped through everyday communication practices in digital environments. Rather than reflecting fully developed competence, early adolescents exhibit basic and evolving adaptive capacities, including initial forms of self-regulation, situational privacy awareness, and the construction of simple behavioural rules. These capacities are not formed independently but are strongly mediated by social interactions, particularly through parental and teacher guidance. The findings highlight that WhatsApp, as a closed messaging platform, functions as a micro-social communication environment where adolescents actively negotiate meaning, regulate emotions, and develop adaptive communication strategies. This underscores the importance of viewing digital resilience not merely as an individual skill but as a communication-driven competence that emerges through interaction, participation, and social context.

Theoretically, this study contributes to the literature by integrating communication practices, digital literacy, and resilience into a unified analytical framework, particularly within the underexplored context of early adolescents aged 10–13 years. Practically, the findings emphasise the need for dialogic digital parenting and context-sensitive school-based digital literacy programs that move beyond control-oriented approaches toward fostering critical awareness, emotional regulation, and adaptive communication skills. This study has several limitations that should be acknowledged. First, the sample size is relatively small ($n = 26$) and limited to a single semi-urban area in Klaten, Indonesia, which may restrict the generalizability of the findings to broader populations. Second, the study focuses primarily on WhatsApp as a closed messaging platform, and therefore does not capture the dynamics of open social media platforms such as Instagram or TikTok, which may present different patterns of interaction and risk exposure. Third, although the study

employs multiple data collection methods, the reliance on qualitative self-reported experiences may be subject to social desirability bias.

Future research is recommended to expand the scope by including larger and more diverse samples across different socio-cultural contexts, as well as comparative studies across multiple social media platforms. Longitudinal research designs would also be valuable in capturing the developmental trajectory of digital resilience over time. Furthermore, integrating mixed-method approaches could provide a more comprehensive understanding of how communication practices, digital literacy, and resilience interact in shaping adolescents' adaptive capacities in evolving digital environments.

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