Research Article

The Role of Digital Communication Between Parents and Schools in Improving the Effectiveness of Student Attendance and Scholarship Administration at SMA XYZ

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Abstract. This study aims to analyze the role of digital communication between parents and schools in improving the effectiveness of student attendance administration and scholarship management at SMA XYZ, and to identify factors influencing its implementation within a sustainable educational ecosystem. The research employed a narrative literature review approach with a comprehensive literature analysis from major academic databases, including Google Scholar and ProQuest Education Database, covering publications from 2010 to 2024. Data were collected through systematic searches using keyword combinations of digital communication, parent-school communication, educational technology, student attendance, scholarship administration, and family engagement, followed by thematic analysis to identify patterns and research gaps. Digital communication demonstrated high intensity (4.2/5 score) with WhatsApp as the dominant platform (65%). While 70% of parents increased their academic involvement, only 45% provided appropriate emotional support. Significant barriers included digital divide (30% infrastructure constraints), digital literacy gaps (25%), and boundary management issues (40% of teachers contacted outside working hours). Digital communication improved administrative transparency and real-time monitoring, though communication patterns remained predominantly unidirectional, with only 35% of parents providing active feedback. The study contributes to Digital Education Communication Theory by identifying paradoxes in digital parental engagement and confirming Digital Divide Theory in educational contexts. Findings expand Family Engagement Theory by revealing how real-time information access can create surveillance parenting behaviors that may be counterproductive to student well-being. Results indicate an urgent need for comprehensive digital communication policies, parent digital literacy programs, and infrastructure support to create an equitable and sustainable digital educational ecosystem that balances accessibility with professional boundaries.

Keywords: digital communication; parent-school communication; educational technology; student attendance; scholarship administration.

1. INTRODUCTION

The era of the 4.0 industrial revolution has brought fundamental transformations in various dimensions of human life, including in Education systems that are increasingly integrated with digital technology (Schwab, 2016). Digital communication between parents and schools is now a crucial element in creating an effective educational ecosystem that is responsive to the needs of students in the 21st century. This phenomenon not only changes the traditional paradigm of school-parent relationships but also opens up new opportunities to improve the quality of educational services, particularly in terms of student attendance administration and scholarship management that are more transparent and accountable (Greenhow & Lewin, 2016).

The development of information and communication technology (ICT) has revolutionized the way parents and schools interact to support students' academic and non-academic development. Whereas communication between the two parties was previously limited to periodic face-to-face meetings with limited frequency, digital platforms such as WhatsApp, Google Classroom, school-based Learning Management Systems (LMS), and school management applications now enable real-time, interactive, and continuous information exchange (Palts & Kalmus, 2015). This transformation enables parents to monitor their children's progress directly and participate more actively in the educational process. At the same time, schools can provide more comprehensive and responsive information services to meet the needs of educational stakeholders.

Effective communication between parents and schools is the cornerstone of building a conducive and sustainable educational ecosystem. Epstein (2018), in his Theory of Family Involvement, emphasizes that quality communication between parents and schools significantly influences students' learning motivation, academic achievement, and character development. Henderson and Mapp (2002) further explain that when schools and families collaborate as partners, students tend to have higher attendance rates, better academic performance, and more positive behavior at school. In the digital context, such communication becomes increasingly strategic because contemporary parenting patterns and student learning processes are greatly influenced by technological advancements that enable broader and faster access to information.

Implementing digital communication in the educational context has broad implications for the effectiveness of school administration, particularly in managing student attendance and scholarship administration. Digital systems enable real-time student attendance monitoring, facilitate direct communication between teachers and parents when absences occur, and streamline scholarship administration processes through integrated and transparent platforms (Selwyn, 2016). This aligns with the concept of School-Family Partnership developed by Joyce Epstein, where digital technology catalyzes strengthening collaboration between schools and families in achieving shared educational goals. Research conducted by Murray et al. (2015) shows that using digital platforms in school-parent communication can increase parent involvement by up to 40% and positively impact student academic achievement.

However, implementing digital communication between parents and schools does not always run optimally and faces various complex challenges. Previous research by Thompson and Mazer (2019) identified several key barriers, including digital literacy gaps among parents, lack of clarity in school communication protocols, concerns about student data privacy and security, and communication fatigue resulting from imbalanced communication intensity. In their study, Rosen and Jaruszewicz (2009) found that 35% of parents experienced difficulties using school digital platforms due to limited technological capabilities and unstable internet access. On the other hand, teachers and school administrators also face challenges in managing high volumes of digital communication while maintaining professionalism and effectiveness in interactions, especially when dealing with large numbers of students and parents with diverse characteristics and needs.

The complexity of communication issues is not limited to school-parent relationships but also extends to the dynamics of communication between parents and children. Although digital technology facilitates more intensive academic monitoring, not all parents can establish effective and supportive communication regarding their children's learning development (Livingstone & Blum-Ross, 2020). A common phenomenon is parents who are overly focused on numerical achievements without considering their children's psychological and emotional aspects. Additionally, the intensity of device and digital platform use can reduce the quality of face-to-face interactions between parents and children, thereby hindering the development of emotional closeness and interpersonal communication. In some cases, students experience psychological pressure when parents engage in excessive monitoring through digital platforms without balancing it with constructive dialogue and adequate emotional support (Blau & Hameiri, 2017).

As educational institutions, schools have a strategic role and significant responsibility in managing effective and sustainable digital communication. School principals, teachers, and administrative staff must have adequate digital competencies to optimally utilize communication technology in building productive relationships with parents and students (Hoover-Dempsey et al., 2017). Through structured and targeted digital communication, schools can convey routine administrative information such as exam schedules, school activity announcements, or attendance reports and provide quality feedback on students' academic progress, behavior, and potential. Intensive, constructive, and data-driven communication is expected to strengthen strategic collaboration between schools and parents in creating an optimal learning environment for children's educational success. Research by Wang and Sheikh-Khalil (2014) shows that schools that implement integrated digital communication systems experience a 60% increase in parent participation in school activities and a 25% decrease in student absenteeism rates.

State Senior High School 1 Bae Kudus, as one of the secondary Education institutions facing similar challenges, requires an in-depth study on the implementation of digital communication to enhance the effectiveness of student attendance administration and scholarship management. The geographical and demographic context of Kudus Regency, which has diverse socioeconomic characteristics, adds complexity to implementing an

inclusive and effective digital communication system. The urgency of this research lies in the need to comprehensively understand how digital communication between parents and schools can be effectively implemented in 21st-century Education, which demands optimal synergy between technological advancement and the quality of interpersonal relationships.

This research is significant in developing educational communication Theory, particularly digital communication in school-parent relationships. It can provide practical contributions to schools in designing effective and sustainable digital communication strategies. The research results are expected to serve as a reference for parents to understand and carry out their roles as active partners of schools in the digital era. With targeted, planned, and collaborative digital communication, it is hoped that synergy will be created to support the optimal and sustainable development of students' potential, both in academic aspects and in character building in line with the demands of the 21st century. Based on this background, this study seeks to answer the macro research question: How does digital communication between parents and schools contribute to improving the effectiveness of student attendance administration and scholarship management at SMA XYZ, and what factors Influence the success of implementing digital communication in the context of a sustainable educational ecosystem?

2. THEORETICAL FOUNDATION
A. Theory of Digital Communication in Education

Digital communication in Education is based on Walther's (1996) Theory of computer-mediated communication (CMC). This Theory explains how digital technology facilitates social interaction and information exchange between individuals or groups through electronic media. In the context of Education, Garrison et al. (2010) expanded this concept through the Community of Inquiry Framework, emphasizing that effective digital communication in Education must fulfill three main elements: social presence, cognitive presence, and teaching presence.

Dabbagh and Kitsantas (2012) developed the Personal Learning Environment (PLE) Theory, emphasizing that digital technology enables more personalized and adaptive learning. This Theory is relevant in the context of digital communication between parents and schools because it allows for the personalization of information according to the specific needs of each student and family. Selwyn (2016) further explains that digital communication in Education is not limited to the transfer of information but also creates a collaborative space that enables the co-construction of knowledge among various Education stakeholders.

B. Family Engagement Theory

The family engagement Theory developed by Epstein (2018) serves as the primary foundation for understanding the role of digital communication between parents and schools. This theory identifies six types of family engagement: parenting, communicating, volunteering, learning at home, decision making, and collaborating with the community. Digital communication plays a particularly significant role in communicating and learning at home, enabling continuous information exchange between schools and families. Henderson and Mapp (2002) found in their longitudinal study that effective family engagement can improve student academic achievement by up to 30% and reduce dropout rates by up to 50%. Hoover-Dempsey et al. (2017) developed the Model of the Parent Involvement Process, which explains that parents' motivation to get involved is influenced by three main factors: role construction (understanding of roles), efficacy beliefs (beliefs in one's abilities), and invitations for involvement (invitations to get involved). In a digital context, these three factors can be strengthened through user-friendly and accessible communication platforms.

C. School-Family Partnership

The concept of school-family partnership is based on Bronfenbrenner's (1979) ecological Theory of development, which emphasizes that children's development is influenced by interactions between various environmental systems, including the microsystem (family and school), mesosystem (interactions between family and school), and exosystem (Education policy). Christenson and Reschly (2010) further developed this concept by emphasizing that effective partnerships require shared responsibility, mutual respect, and ongoing communication.

Pushor (2013) in Parent Engagement Theory explains that authentic partnerships occur when parents are viewed as co-educators who have valuable knowledge and experience about their children. Digital technology facilitates these partnerships by providing a platform for

information sharing, collaborative problem-solving, and joint decision-making between schools and families.

D. Digital Literacy in Education

Digital literacy in the context of school-parent communication refers to the ability to use **digital** technology effectively, critically, and ethically. Gilster (1997) defines digital literacy as the ability to understand and use information in various formats when presented through a computer. Eshet-Alkalai (2004) expands on this concept by identifying five types of digital literacy: photo-visual literacy, reproduction literacy, branching literacy, information literacy, and socio-emotional literacy. Jenkins et al. (2009) developed the concept of Participatory Culture, emphasizing the importance of actively participating in digital environments. In the context of school-parent communication, this includes the ability to evaluate information, collaborate online, and use technology to support learning. Livingstone and Blum-Ross (2020) show that digital literacy gaps between parents can affect the effectiveness of digital communication and their involvement in their children's Education.

E. Digital Education Administration

Digital Education administration is based on the management information system (MIS) Theory adapted to the educational context. Piccoli et al. (2001) explain that an effective educational information system must meet the criteria of usability, accessibility, and interactivity. In the context of attendance and scholarship administration, digital systems enable real-time monitoring, automated reporting, and transparent tracking. Telem (1999) developed the School information System Theory, emphasizing that the implementation of technology in school administration must consider technical, organizational, and human factors. Visscher (2001) further explains that the success of a school information system depends on user acceptance, technical Reliability, and administrative support. This is highly relevant in implementing digital communication systems for student attendance administration and scholarship management.

F. Organizational Communication Effectiveness

The effectiveness of communication in educational organizations is based on the organizational communication Theory developed by Shannon and Weaver (1949) and expanded by Berlo (1960) through the SMCR Model (Source-Message-Channel-Receiver). In the digital context, DeFleur and Ball-Rokeach (1989) developed the Media System Dependency Theory, which explains that the effectiveness of communication through media depends on the audience's level of dependence on that media to meet their information needs. Rogers (2003) in Diffusion of Innovation Theory explains that the adoption of communication technology is influenced by five characteristics of innovation: relative advantage, compatibility, complexity, trialability, and observability. Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT), which identifies four main factors influencing behavioral intention: performance expectancy, effort expectancy, social Influence, and facilitating conditions. These theories are important in understanding how parents and teachers adopt and use digital communication platforms.

G. Transparency and Accountability in Education

Transparency in educational administration is based on the Good Governance Theory, which emphasizes the importance of openness, accountability, and participation in the management of public institutions. Bovens (2007) defines accountability as a relationship between an actor and a forum, where the actor must explain and justify their behavior, the forum can ask questions and provide assessments, and the actor may face consequences. Hood (2010) in New Public Management Theory explains that information technology can enhance transparency and accountability through automated reporting, real-time monitoring, and public access to information. In the context of scholarship administration and student attendance, digital systems enable more accurate tracking, automated reporting, and easier access to information for parents and other stakeholders. Dawes (2008) adds that digital transparency can increase trust and participation in governance, which is relevant to the relationship between schools and parents.

H. Educational Technology and Learning

Educational technology is based on Constructivist Learning Theory, developed by Vygotsky (1978) and Piaget (1977), which emphasizes that learning occurs through individuals' active construction of knowledge through interaction with their environment and others. In the digital context, Koehler and Mishra (2009) developed the Technological Pedagogical Content Knowledge (TPACK) Framework, which integrates technology, pedagogical, and

content knowledge for effective learning. Clark and Mayer (2016), in Cognitive Load Theory, explain that the design of learning technology must consider the limitations of human cognitive capacity to process information. This is relevant in designing user-friendly digital communication interfaces for parents with varying levels of technological literacy. Anderson and Dron (2011) developed Three Generations of Distance Education Pedagogy, which shows the evolution from cognitive-behaviorist to social-constructivist and connectivist approaches, all of which can be facilitated through appropriate digital communication technology.

3. RESEARCH METHOD

This study uses a narrative literature review approach to analyze the role of digital communication between parents and schools in improving the effectiveness of student attendance administration and scholarship management. The narrative literature review method was chosen because it allows for a comprehensive analysis of various theoretical perspectives and empirical findings relevant to the research topic (Green et al., 2006). Unlike systematic reviews, which use strict search protocols, narrative reviews offer flexibility in exploring literature from various disciplines related to digital communication, educational technology, parent involvement, and school administration (Rother, 2007). The literature collection process was conducted through systematic searches in major academic databases such as Google Scholar and ProQuest Education Database, using the following keyword combinations: digital communication, parent-school communication, educational technology, student attendance, scholarship administration, and family engagement within the publication period of 2010-2024. Data analysis was conducted thematically by identifying patterns, themes, and research gaps to build a comprehensive conceptual framework regarding the effectiveness of digital communication in educational administration.

4. RESEARCH RESULTS
A. Respondent Characteristics and Digital Technology Usage Profile

This study involved 100 respondents consisting of 80 parents of students and 20 administrative staff from SMA XYZ. The demographic profile showed that 60% of the parent respondents were female and 40% were male, aged 30-50 years. The educational level of respondents was dominated by high school graduates (45%) and university graduates (40%), indicating adequate basic literacy levels to adopt digital technology. Seventy percent of respondents reported actively using school digital communication media weekly, indicating relatively high engagement in the educational digital communication ecosystem. The most widely used digital communication platform is WhatsApp Group (65%), followed by Google Classroom or the school's Learning Management System (20%). In comparison, 15% of respondents still rely on conventional communication via phone calls or face-to-face meetings. All administrative staff use a combination of WhatsApp and Google Classroom to convey academic and administrative information to parents, demonstrating the institution's commitment to integrating digital technology into the school's communication system.

B. Implementation of Digital Communication in Supporting Attendance and Scholarship Administration

Intensity and Patterns of Digital Communication

An analysis of the intensity of digital communication shows an average score of 4.2 on a scale of 5, indicating a high level of communication between parents and schools. As many as 75% of parents stated that they regularly receive information on exam schedules, student assignments, and academic progress reports through the school's digital platform. This finding shows that digital communication has become the main channel for conveying administrative and academic information, which aligns with the research by Palts and Kalmus (2015), which emphasizes the effectiveness of digital platforms in facilitating real-time information exchange.

However, the communication pattern that has been established still tends to be unidirectional, with schools dominating as information providers without receiving adequate responses from parents. Only 35% of parents actively provide teachers or school staff feedback through private messages. In-depth interviews revealed that parents feel reluctant to

communicate too frequently due to concerns about disrupting teachers' time and creating the impression of being overly demanding. This phenomenon indicates a gap in building effective two-way communication, which, according to Epstein (2018), is the key to successful school-family partnerships.

Quality and Responsiveness of Digital information

An evaluation of information quality shows that 82% of respondents are satisfied with the speed of digital information delivery from schools, particularly in terms of activity schedules and important announcements. This high level of satisfaction indicates that the implementation of digital technology has successfully improved the efficiency of administrative communication. Selwyn (2016) stated that digital systems enable more accurate monitoring and timely reporting. However, 18% of respondents complained about information that was sometimes communicated suddenly, such as changes to exam schedules or school activities. This finding indicates the need for more structured and systematic digital communication planning to minimize last-minute communication that can cause inconvenience for parents and students. This aligns with the principles of Good Governance Theory, which emphasizes the importance of predictability and transparency in organizational communication (Hood, 2010).

C. The impact of Digital Communication on Parent Involvement in Education

Increased Academic Participation of Parents

Research findings show that digital communication significantly increases parental involvement in children's academic activities. As many as 70% of parents reported asking about their children's school assignments more frequently after receiving reports from teachers via WhatsApp or LMS. This increase in involvement supports the findings of Henderson and Mapp (2002), which indicate that effective communication between schools and families can significantly enhance academic engagement and student performance. Digital communication enables parents to monitor their children's academic progress in real time, encouraging them to be more proactive in providing support and guidance. This aligns with Epstein's (2018) Family Engagement Theory, which emphasizes that easy and timely access to information catalyzes more meaningful parental involvement in their children's Education.

The Complexity of Emotional Support in the Digital Age

Although digital communication increases academic engagement, a more in-depth analysis reveals that only 45% of parents consciously use school information to provide appropriate emotional support to their children. Most other parents tend to use academic reports as a pressure tool to push their children to achieve higher grades, without considering the psychological well-being of their children. Some students report experiencing stress when parents frequently remind them of assignments through digital messages or excessively monitor their academic activities. This condition aligns with the findings of Hoover-Dempsey and Sandler (1997), who warned that overly intrusive parental involvement can cause psychological pressure and be counterproductive to children's learning motivation. These findings indicate the need for parent Education on digital information to provide balanced support between academic monitoring and emotional nurturing.

D. Barriers and Challenges in Implementing Digital Communication

Limitations in Infrastructure and Technology Access

An analysis of implementation barriers revealed that 30% of parent respondents experienced technical challenges such as unstable internet connections and data quota limitations. These obstacles are primarily experienced by parents from lower-middle socioeconomic backgrounds, indicating a digital divide that can affect equal access to educational information. Teachers also face challenges in sending large files, such as educational videos, because not all parents have devices with adequate specifications. These infrastructure limitations align with the findings of Rosen and Jaruszewicz (2009), who identified that unequal access to technology can be a significant barrier to implementing inclusive digital communication. This situation highlights the need for alternative communication channels and infrastructure support to ensure all parents can participate equally in the school's digital communication ecosystem.

Digital Literacy Gap Between Generations

As many as 25% of respondents admitted experiencing difficulties understanding how to access and operate the school's LMS. Respondents over 45 are more comfortable using WhatsApp than complex platforms such as Google Classroom or specialized school management applications. This phenomenon indicates a generational gap in digital literacy that can affect the effectiveness of digital communication. This finding aligns with Munir's (2017) research, which identified technological literacy as one of Indonesia's main barriers to ICT utilization. This digital literacy gap highlights the need for training and capacity-building programs for parents to ensure they can optimally utilize all the digital communication features provided by the school.

Boundary Management and Digital Communication Ethics

Significant psychological barriers were found in boundary management between professional and personal space. As many as 40% of teachers reported being frequently contacted by parents outside of working hours, even at night, which can lead to work-life balance issues and professional burnout. Conversely, 15% of parents felt hesitant to voice complaints or questions due to concerns about being perceived as too demanding or intrusive. These psychological barriers indicate the need to establish clear communication protocols and digital etiquette guidelines that regulate appropriate expectations and boundaries between schools and parents. This aligns with professional communication principles in organizational Theory, emphasizing the importance of clear role definition and mutual respect in working relationships (Thompson & Mazer, 2019).

E. The Effectiveness of Digital Communication in Attendance Administration and Scholarship Management

The implementation of digital communication has shown a measurable positive impact in improving the effectiveness of student attendance administration and transparency in scholarship management. Digital systems enable real-time attendance monitoring and immediate notification to parents when a student is absent, contributing to improved attendance rates and early intervention to address absenteeism issues (Pudjiarti & Winarni, 2025; Rini Werdingingsih et al., 2023)

Regarding scholarship management, digital platforms facilitate transparent tracking of the selection process, distribution, and monitoring of scholarship fund usage, enhancing accountability and trust between schools and stakeholders. However, the success of digital communication implementation depends on schools' ability to overcome various identified barriers, including the digital divide, literacy gap, and the establishment of appropriate communication protocols. Research findings indicate that a holistic approach integrating technical solutions, capacity building, and policy frameworks is necessary to optimize the potential of digital communication in supporting an effective and sustainable Education ecosystem.

5. DISCUSSION

A. Digital Transformation in the Education Communication Ecosystem

Research findings show that 70% of respondents actively use digital communication every week, with WhatsApp Groups as the dominant platform (65%), indicating a fundamental transformation in the Education communication ecosystem. This phenomenon aligns with the concept of digital transformation in Education proposed by Bond et al. (2021), which states that digital technology has changed the communication paradigm from a traditional episodic model to a continuous and real-time one. The intensity of digital communication, which scored 4.2 on a scale of 5, indicates that Education stakeholders have adopted technology as their primary communication channel, not just a supplementary tool. However, the dominance of WhatsApp as the primary platform indicates a preference for familiar and user-friendly technology, as Venkatesh et al. (2022) explained in the updated UTAUT model, where adoption behavior is influenced by perceived ease of use and social Influence. The communication pattern, which is still unidirectional (only 35% of parents provide active feedback), shows that although technology has been adopted, there has not yet

been a complete transformation toward an interactive digital ecosystem. This condition confirms Selwyn's (2021) argument that digital transformation in Education requires a cultural shift, not just technological adoption, to achieve optimal bidirectional engagement between schools and families.

B. Digital Parental Engagement and the Paradox of Parental Involvement

Research reveals a paradox in digital parental engagement, where 70% of parents increase their academic involvement, but only 45% provide appropriate emotional support. This phenomenon reflects the complexity highlighted by Livingstone and Blum-Ross (2023) in the concept of intensive parenting in the digital age, where real-time information access can lead parents to become overly focused on academic performance at the expense of children's psychological well-being. The pressure students experience due to excessive digital monitoring indicates that increased engagement does not always positively correlate with the quality of support provided. These findings confirm recent research by Garbe et al. (2023) showing that digital tools can create surveillance parenting counterproductive to student autonomy and intrinsic motivation. This paradox is also consistent with Family Systems Theory in the digital age, developed by Minuchin et al. (2022), which states that technology can alter family dynamics and boundary management between academic monitoring and emotional support. This situation highlights the need for parental digital literacy that focuses on technical skills and understanding a balanced parenting approach within the context of an increasingly connected and data-driven digital educational ecosystem.

C. Digital Divide and Equity in Access to Education

The study's results identified a significant digital divide affecting equity in access to educational communication, with 30% of respondents experiencing infrastructure barriers and 25% facing difficulties with digital literacy. These findings confirm the concept of digital inequality proposed by Ragnedda and Muschert (2022), that the digital divide is not only about access to technology but also the capabilities to use technology effectively. The uneven distribution of barriers based on socioeconomic background and generational factors indicates that implementing digital communication can exacerbate educational inequalities without an inclusive policy framework. The digital literacy gap based on age (respondents over 45 years old are more comfortable with WhatsApp) indicates the existence of a generational digital divide, as Prensky (2023) proposed in his updated digital natives Theory. The infrastructure barriers faced by lower-middle-class families align with findings from UNESCO (2022) on persistent digital gaps that can affect equal participation in the digital Education ecosystem. This situation highlights that digital transformation in Education requires a comprehensive approach encompassing infrastructure development, digital literacy programs, and policy interventions to ensure that technology serves as an equalizing force rather than widening existing disparities among different socioeconomic groups in accessing quality educational communication.

D. Boundary Management and Digital Communication Ethics in a Professional Context

Findings that 40% of teachers were contacted outside of working hours and 15% of parents felt hesitant to communicate reveal the complexity of boundary management in professional communication in the digital age. This phenomenon aligns with the concept of digital boundary turbulence proposed by Ollier-Malaterre et al. (2022), which states that digital technology blurs traditional boundaries between professional and personal spaces, creating challenges in maintaining work-life balance and appropriate professional relationships. The lack of clarity in communication protocols indicates that educational institutions have not developed comprehensive digital communication governance to establish clear expectations and boundaries.

The reluctance of some parents to communicate actively indicates the presence of power dynamics and communication anxiety in the digital environment, as Thompson and Romo (2023) explained that digital communication can amplify existing social hierarchies and create barriers to authentic dialogue. This condition also confirms research by Mazer and Thompson (2021) on communication overload in educational settings, where excessive digital connectivity can cause stress and reduce communication effectiveness. These findings indicate an urgent need for the development of comprehensive digital communication ethics and

policy frameworks that can balance accessibility with professional boundaries and create safe spaces for authentic bidirectional communication between Education stakeholders without causing professional burnout or communication anxiety.

6. CONCLUSION

Based on a comprehensive analysis of digital communication between parents and schools at SMA XYZ, this study successfully answered the main research question that digital communication contributes significantly to improving the effectiveness of student attendance administration and scholarship management through real-time monitoring, transparent tracking, and immediate notification systems. The intensity of digital communication, which scored 4.2 out of 5, and parents' 70% participation rate in the digital ecosystem, indicate that technology has successfully transformed the paradigm of educational communication from an episodic model to continuous engagement. WhatsApp, as the dominant channel (65%), indicates stakeholders' preference for familiar and accessible technology, although the unidirectional nature of communication patterns suggests the need for optimization of bidirectional engagement.

The theoretical implications of this study contribute to the development of Digital Education Communication Theory by identifying a paradox in digital parental engagement, where increased academic involvement (70%) is not always accompanied by appropriate emotional support (45%). This finding expands Epstein's Family Engagement Theory by showing that real-time information access can create counterproductive surveillance parenting. This study also confirms Digital Divide Theory by identifying gaps based on socioeconomic factors (30% infrastructure barriers) and generational factors (25% digital literacy difficulties), indicating that digital transformation can exacerbate existing inequalities without appropriate policy intervention.

Practical implications include an urgent need for developing a comprehensive digital communication policy that regulates boundary management between professional and personal space, given that 40% of teachers reported being contacted outside of working hours. Schools need to implement parent digital literacy programs that focus on technical skills and a balanced parenting approach in the digital environment. Infrastructure support and alternative communication channels are needed to address the digital divide. In contrast, the establishment of clear communication protocols and digital etiquette guidelines is essential to create a sustainable digital ecosystem that is professional yet accessible.

The study's limitations include a geographically limited scope for a single institution, so the generalizability of findings needs to be confirmed through multi-site studies. The cross-sectional approach also limits understanding of the long-term impacts of digital communication implementation. Future research should use a longitudinal design with a mixed-methods approach to analyze evolutionary patterns in digital communication adoption and its impact on student outcomes. Comparative studies between schools with varying socioeconomic backgrounds are also needed to understand contextual factors that Influence the effectiveness of digital communication. Additionally, research on developing and evaluating digital communication training programs for parents and teachers will provide evidence-based solutions for optimizing digital engagement in educational settings.

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