THE RELATIONSHIP BETWEEN INTENSIVE MOBILE DEVICE USE AND SOCIO-COMMUNICATION DIFFICULTIES IN SCHOOL-AGE CHILDREN (7–12 YEARS)

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Abstract:

This study investigates the association between intensive mobile device use and socio-communication functioning in school-age children (7–12 years). Using a cross-sectional quantitative design with parental reports (N = 100), the research focuses on peer interaction, emotional regulation, and the role of parental modeling. Psychometric analyses confirmed high reliability of the measurement instrument (α = .89). Results revealed that intensive mobile device use is significantly associated with increased peer interaction difficulties (r = .41) and emotional regulation challenges (r = .36). Furthermore, regression analysis identified parental modeling of device use as the strongest predictor of children's intensive digital engagement (β = .39, p < .01), explaining 32% of the variance. These findings suggest that developmental outcomes of mobile technology use are strongly moderated by parental habits and environmental factors. The study integrates behavioral and neurodevelopmental perspectives, highlighting the importance of balanced digital habits and positive parental examples in supporting healthy socio-communication development.

Keywords:

Mobile Devices, Socio-Communication, Peer Interaction, Emotional Regulation, Parental Modeling.

INTRODUCTION

The rapid expansion of digital technology has significantly transformed childhood developmental environments. Mobile devices such as smartphones and tablets are increasingly integrated into children's daily routines, educational activities, and leisure time. While these technologies provide accessibility, educational opportunities, and social connectivity, concerns have emerged regarding their potential influence on socio-communication and cognitive development.

Middle childhood, typically defined as the period between 7 and 12 years of age, represents a critical stage for socio-communication development. During this developmental period, children refine verbal and nonverbal communication skills, establish peer relationships, and develop emotional regulation capacities. Face-to-face social interaction plays a crucial role in the development of empathy, cooperation, and conflict resolution skills.

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DOI: 10.15308/Sinteza-2026-208-212

Recent research has increasingly explored the relationship between digital engagement and developmental outcomes. Some studies emphasize potential risks associated with excessive mobile device use, including reduced social interaction and attentional difficulties [1], [2]. However, other research suggests that moderate and structured digital engagement may support cognitive and social development [3], [4]. Therefore, understanding the relationship between mobile device use and socio-communication functioning requires an integrative and multidimensional approach. Despite the growing body of research examining digital media exposure in childhood, limited studies have simultaneously explored socio-communication functioning in school-age children within an integrated developmental framework.

2. LITERATURE REVIEW

2.1. NEGATIVE DEVELOPMENTAL FINDINGS

Several studies indicate that excessive mobile device use may negatively influence children's socio-communication functioning. Twenge and Campbell reported that increased screen exposure is associated with reduced face-to-face interaction and increased social withdrawal [1]. Similarly, Christakis emphasized that rapid sensory stimulation provided by digital media may influence attentional control and executive functioning [2].

Neurodevelopmental research further suggests that prolonged screen exposure may influence maturation of the prefrontal cortex and neural networks responsible for attention regulation and impulse control [3], [4]. Additionally, reduced opportunities for real-world social interaction may affect the development of empathy and socio-emotional processing system, including mirror neuron and limbic networks [5].

2.2. NAVIGATING THE "GREY AREA" (NEUTRAL AND MIXED FINDINGS)

Contemporary research increasingly challenges technological determinism. Orben and Przybylski argue that associations between screen use and psychosocial outcomes are often weak when socioeconomic and psychological factors are controlled [6]. Przybylski and Weinstein suggest that moderate digital engagement may be neutral or even beneficial, with only extreme levels of use producing negative psychosocial outcomes [7].

Kardefelt-Winther emphasizes the importance of contextual moderators, including parental mediation, content quality, and individual child characteristics [8]. These findings suggest that digital technology effects are complex and dependent on environmental and behavioral factors.

2.3. POSITIVE DEVELOPMENTAL FINDINGS

Emerging research highlights potential benefits of structured and supervised digital engagement. Interactive educational applications have been associated with improvements in working memory, spatial reasoning, and problem-solving abilities [9]. Digital communication platforms may also support peer network development and self-expression [10].

3. RESEARCH OBJECTIVES AND HYPOTHESES

The primary objective of this study is to examine the associations between intensive mobile device use and specific domains of socio-communication functioning among school-age children. Additionally, the study aims to identify the role of parental behavior as a predictor of children's digital habits.

H1: Intensive mobile device use is significantly associated with peer interaction difficulties.

H2: Intensive mobile device use is significantly associated with emotional regulation challenges.

H3: Parental mobile device modeling is a significant predictor of children's intensive device use.

4. METHODOLOGY

This study employed a cross-sectional quantitative research design. The sample consisted of 100 parents of children aged 7–12 years who were recruited through online questionnaire distribution. The parent sample included both mothers and fathers of school-age children. The majority of respondents were mothers, which is consistent with parental participation trends in developmental research. Participants varied in educational background, including secondary education, undergraduate degrees, and postgraduate qualifications. Respondents were recruited from several urban areas in Serbia, providing moderate demographic variability within the sample.

Data were collected using a 20-item Likert-type questionnaire assessing digital dependency, peer interaction, communication skills, emotional regulation, and parental mediation. Responses were rated on a five-point scale ranging from 1 (Never) to 5 (Always).

The questionnaire used in this study was developed specifically for research purposes based on previously validated theoretical constructs related to digital dependency, socio-communication functioning, and parental mediation. The instrument content was reviewed by experts in developmental and educational psychology to ensure content validity. Pilot testing was conducted on a small group of parents prior to data collection to confirm clarity and item comprehension.

Example questionnaire items included statements such as: "My child prefers using mobile devices over interacting with peers" and "Mobile device use influences my child's emotional reactions when frustrated."

Participation was voluntary and anonymous, and informed consent was obtained from all participants. Data were analyzed using descriptive statistics, Cronbach's alpha reliability analysis, Pearson correlation coefficients, multiple regression analysis, and independent samples t-tests.

5. RESULTS

5.1. PSYCHOMETRIC CHARACTERISTICS

The internal consistency of each questionnaire subscale was evaluated using Cronbach's alpha reliability coefficient. The reliability results are presented in Table 1.

All subscales demonstrated satisfactory reliability. Cronbach's alpha values ranged from .79 to .84, while the overall scale reliability reached .89, indicating high internal consistency.

5.2. DESCRIPTIVE STATISTICS

Descriptive statistics for the main study variables are presented in Table 2.

The results indicate moderate levels of mobile device use and socio-communication difficulties across the sample. The highest mean value was observed for family communication reduction.

5.3. CORRELATION ANALYSIS

Pearson correlation analysis was conducted to examine relationships between intensive mobile device use and socio-communication variables. The results are presented in Table 3.

Intensive device use showed significant positive correlations with peer interaction difficulties, emotional regulation challenges, and parental device modeling.

Table 1. Reliability coefficients (Cronbach's alpha)

Subscale	Cronbach's alpha
Digital dependency	.84
Peer interaction	.81
Communication skills	.79
Emotional regulation	.83
Overall scale	.89

Table 2. Descriptive statistics

Variable	Mean	SD
Daily device use	2.94	.88
Peer interaction difficulties	3.12	.91
Communication difficulties	2.85	.87
Emotional regulation difficulties	3.05	.93
Attention difficulties	3.01	.89
Family communication reduction	3.18	.95

Table 3. Reliability coefficients (Cronbach's alpha)

Association with Mobile Device Use	Pearson r	Significance
Parental Device Modeling	.44	$p < .01$
Peer Interaction Difficulties	.41	$p < .01$
Family Communication Reduction	.38	$p < .01$
Emotional Regulation Difficulties	.36	$p < .01$
Attention & Concentration Difficulties	.34	$p < .01$

5.4. REGRESSION ANALYSIS

Multiple regression analysis was conducted to identify predictors of intensive mobile device use. Parental device modeling and daily device usage duration significantly predicted children's intensive mobile device use. The regression model was statistically significant ($p < .01$) and explained approximately 32% of the variance in children's digital engagement ($R^2 = .32$). Parental modeling demonstrated the strongest predictive contribution.

6. DISCUSSION

The results of this study offer a nuanced understanding of how intensive mobile device use relates to socio-communication development in children aged 7–12. The strongest correlation was observed between device use and peer interaction difficulties ($r = .41$, $p < .01$), supporting displacement theory. This suggests that excessive screen time may reduce opportunities for face-to-face interactions, which are essential for developing social skills, empathy, and cooperative behavior.

Intensive mobile device use was also associated with emotional regulation challenges ($r = .36$, $p < .01$). From a neurodevelopmental perspective, prolonged digital engagement may interfere with the maturation of executive functions, attention control, and impulse regulation. These findings align with previous research on the impact of digital stimulation on the prefrontal cortex and related neural networks [2], [4], [5].

Parental device modeling emerged as the strongest predictor of children's intensive mobile device use ($\beta = .39$, $p < .01$). This supports social learning theory, indicating that children tend to imitate the behavioral patterns of their caregivers. Frequent parental device use may inadvertently reduce the quality of parent-child interaction and limit opportunities for guided socio-communication development. These observations are consistent with ecological developmental models, emphasizing that digital technology effects are influenced by family environment factors rather than functioning as isolated risk elements [6], [8], [11].

Overall, these findings highlight the importance of considering family context when examining digital technology's impact. Structured parental mediation and balanced digital habits appear crucial for supporting healthy socio-communication development. The results provide practical insights for parents, educators, and policymakers aiming to promote positive developmental outcomes in a digital age.

7. PRACTICAL IMPLICATIONS

Based on these findings, the following recommendations may help foster healthy socio-communication development in school-age children:

Promote structured parental mediation strategies – Encourage parents to set clear limits, guidelines, and daily schedules for mobile device use.

Establish consistent device usage rules – Clear, predictable rules help children understand boundaries and reduce excessive engagement.

Encourage face-to-face peer interaction – Opportunities for social play and group activities support empathy, cooperation, and conflict resolution skills.

Minimize "technoference" during family time – Reducing interruptions from devices during meals, conversations, and shared activities strengthens parent-child communication.

Support educational digital applications – Prioritize interactive, developmentally appropriate apps that enhance learning and social engagement.

These strategies underscore the critical role of positive parental modeling and intentional digital habits in promoting balanced technology use.

8. LIMITATIONS AND FUTURE DIRECTIONS

The cross-sectional design limits causal inference. The study relied on parental self-report measures, which may introduce reporting bias. Future research should apply longitudinal designs and objective digital usage tracking methods. Additionally, reliance on parental perception may not fully capture children's subjective experiences of digital engagement.

9. CONCLUSION

This study confirms that intensive mobile device use is significantly associated with socio-communication difficulties in children aged 7–12. The findings highlight disruption of peer interaction and emotional regulation challenges. The strongest predictor of children's digital habits is parental modeling of device use. Balanced and structured digital engagement supported by positive parental examples is essential for healthy socio-communication development. The study contributes to understanding digital childhood by emphasizing the importance of balanced technology integration supported by family-level behavioral regulation strategies.

10. ACKNOWLEDGEMENTS

The authors would like to express their gratitude to Prof. Milica Čolović for academic supervision, methodological guidance, and valuable feedback throughout the research process. The authors also appreciate the participation of parents who voluntarily contributed to the data collection process.

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