

Digital Screen Exposure and Early Childhood Socialization: A Sociological Study of Family Environment in Urban Pakistan

Muhammad Naveed Farhan Yousaf

Naveedfarhankhan@gmail.com

M.Phil. Sociology

Dr. Namra Khan

Lecturer, Department of Sociology, PMAS-AAUR

Dr. Mazhar Hussain Bhutta

Associate Professor, Department of Sociology, PMAS-AAUR

Dr. Irfan Mahmood Janjua

Assistant Professor, Department of Sociology, PMAS-AAUR

Dr. Saeed Ahmad Qaisrani

Associate Professor, COMSATS University Islamabad, Vehari Campus

Corresponding Author: Muhammad Naveed Farhan Yousaf Naveedfarhankhan@gmail.com

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ABSTRACT

The growing use of digital screen devices in early childhood settings has brought up issues about the impact of digital screen devices on children's socialization and development. This study explores the connection between digital screen exposure and early childhood socialization in the context of the family environment in the urban context of Pakistan from a sociological perspective. A quantitative cross-sectional research design was followed, and data were collected from 150 respondents (parents and teachers of children between 2 and 8 years) in urban Pakistan. Screen exposure, psychological outcomes, social outcomes, and parenting environment were measured using a structured questionnaire that was rated on a five-point Likert scale. The descriptive statistics, Pearson correlation, and multiple regression analysis were performed using SPSS software. The results showed a medium amount of screen time for children ($M = 3.42$, $SD = 0.78$). The results of the correlation analysis indicated that there were significant positive correlations with psychological outcomes ($r = 0.663$, $p < 0.01$) and social outcomes ($r = 0.747$, $p < 0.01$) and screen exposure. The regression results suggested that screen exposure had a high explanatory power for the psychological outcomes ($R^2 = 0.451$) and a modest explanatory power when added to the model ($R^2 = 0.383$). The research findings conclude that there is a significant impact of excessive screen time on early childhood socialization, and thus, there is a need for parental control and a balance of screen time in the urban household.

Keywords: Screen exposure, socialization, family environment, early childhood, urban Pakistan

INTRODUCTION

The digital era has ushered in a new landscape where screen-based technologies have become part of daily life, influencing communication, learning, entertainment, and social interaction. Smartphones, tablets, televisions, laptops, and digital applications have become a part of the home environment, especially in urban societies where digital infrastructure usage is becoming commonplace (Livingstone & Blum-Ross, 2020). These technologies have the potential to provide educational and informational opportunities, but

their integration into early childhood environments has sparked considerable sociological discussions about the impact of these technologies on socialization in children, their behavior, and their family relationships (OECD, 2021).

It is well established that early childhood is a period of development in which important social, emotional, and communicative skills are established. Social norms, emotional regulation, language learning, and interpersonal behaviors are developed mainly through direct interpersonal interactions, observation, imitation, and interactions with caregivers and peers during this period (Vygotsky, 1978). Theories of socialization that have been traditionally called "socialist" are based on the idea that family is the most important agent of socialization, that is, the place in which values, communication forms, and norms about behavior are passed on to the child (Berger & Luckmann, 1966). However, with the arrival of digital media as the primary source of stimulation in early childhood, new dynamics have emerged that could cause a change in the ways of traditional social learning.

The world of urban societies like Pakistan has witnessed a tremendous shift in family structures, parenting, and childhood experiences with the digitalization process. Digital screens are emerging as a means to regulate children's behavior, behavior in the classroom, and everyday activities at home in urban households, where they are also used for entertainment purposes (UNICEF, 2021). Screen devices are often used to "soothe" children, "calm them down", or "hold their interest" while parents complete their work and/or housework. This is reflective of the wider socio-economic and cultural shifts that have occurred, such as increased workload of parents, nuclearization of families, fewer safe outdoor play spaces, and increased dependence on digital technologies in daily life (Khan & Malik, 2022).

Digital exposure has given opportunities to receive educational information and stimuli to the brain, but has also been a concern for researchers and practitioners in the fields of sociology, education, and developmental sciences when it comes to early childhood exposure to digital screens (American Academy of Pediatrics, 2016; WHO, 2019). The biggest worry is the possible substitution of live interactions, which are key to the growth of social competence. Children who are not afforded the opportunity to interact with others in person, play physically, and learn about their families may have fewer chances to develop crucial social skills like empathy, cooperation, verbal communication, and emotional understanding (Christakis, 2019).

In a sociological sense, the transformation can be explained by socialization theory that focuses on the influence of socialization on social institutions, especially the family. The symbolic interactionist view holds that children build their meaning and identity based on the interaction they have with significant others, that is, parents and caregivers (Mead, 1934). But as digital devices become more ubiquitous in the home, there is a competing source of interaction between parent and child that could potentially shift the way that parents and children interact. The increased engagement and interaction with screens can cause children to pay less attention to social interactions, which could reduce the strength and quality of interpersonal communication in the home.

Moreover, ecological systems theory indicates that child development is not only a function of multiple interconnected environmental systems, such as family, school, media, and wider society, but that each of these systems can affect child development in different ways (Bronfenbrenner, 1979). In this context, digital media is a part of the child's microsystem and is directly connected to the family and peer microsystems. The family environment is an important mediator of digital exposure and impacts on children's development in urban Pakistani contexts where access to the digital is quickly becoming ubiquitous. Children's exposure and developmental outcomes are influenced by the parenting styles, supervision practices, parental use of digital technology, and rules about screen use in the home (Rideout & Robb, 2019).

As the use of digital devices has been growing in urban households in Pakistan, it is also an indication of structural and cultural factors. Families often have time limitations because of dual working parents, economic pressures, and academic pressures that limit opportunities for face-to-face interaction with children. In this kind of environment, the screen-based technology can be readily used to control the attention and behavior of children. The benefits of this practical application of technology can, however, have unintended consequences of limiting the amount and quality of verbal communication, emotional connections, and shared activities between parents and children (UNICEF, 2021). These can create trends that have the potential to influence socialization in early childhood over time, as digital interactions take the place of face-to-face interactions.

One of the other key aspects of this is the difference in awareness and digital literacy among parents. For many parents, it's not easy to grasp the potential developmental impacts of overuse of screens in early childhood. For some, digital engagement is a positive learning or language acquisition experience, especially when the content is learning- or language-related (Livingstone & Smith, 2014). Others may rely on screens as a behavioral management tool without taking into account the developmental implications of this. This underscores the need for a focus on screen time exposure as well as the family context in which it happens.

Although research around the globe on screen time and child development has been increasing, there is a significant dearth of sociological research on screen time in urban Pakistan. The majority of the existing studies are based on psychological, pediatric, or educational backgrounds and focus on clinical or cognitive results. There has been less focus on sociological aspects of screen consumption and how family structure, parenting, and urban lifestyles influence children's socialization processes. These dynamics are important to look at in the context of Pakistan, which is a rapidly urbanizing country with increasing digital penetration (Hassan & Qureshi, 2023).

Hence, the aim of this study is to fill this gap and to examine the digital screen exposure and its association with socialization of children in early childhood in urban Pakistan with particular reference to the family environment. It tries to take a sociological approach to the study to transcend the individualistic point of view and to look at how wider social and family settings shape children's engagement with digital media. The study also adds to the knowledge on the transformation of childhood experiences and socialization in the new technological contexts of urban societies today.

To conclude, the growing ubiquity of digital screens in early childhood settings has led to a host of important questions about socialization in the digital era. The use of screens has certain benefits (learning and engagement) but can change the normal way of interaction and development in the family (OECD, 2021). The sociological understanding of screen exposure is crucial in the context of both the growing social access to screens and urbanization in Pakistan. In light of this, the complexities of the connections between digital screen exposure, family environment, and early childhood socialization are examined as part of the current debate on the development of this age group in contemporary information societies.

Problem Statement

Digital screen devices like smartphones, tablets, televisions, and laptops have become a part of the daily routine of urban Pakistani households in recent years. Children are facing screens early, and there is high exposure to screens. The use of these technologies for learning and entertainment has been beneficial for children, but too much and too early screen time in children has been a concern due to its impact on social development and family interaction.

Early childhood experiences are crucial for socialization as children learn to communicate, understand

emotions, interact with peers, and form norms and values by interacting with their parents, family members, and the environment around them. Yet as more and more people rely on digital devices in their homes, it might limit direct communication and the parent-child bond and thus impact their social development.

Children's screen time is also affected by a busy lifestyle, dual working parents, less outdoor activity time for children, and digital unawareness in urban Pakistan. Notwithstanding this concern, there is limited sociological research that explores how family environment shapes screen exposure and the effects of screen exposure on socialization in early childhood in the local context.

Thus, it is important to explore the association between digital screen time, family environment, and early childhood social development in urban Pakistan to gain an understanding of how digital lifestyles are affecting children's social behavior.

Research Objectives

1. To examine the level of digital screen exposure among children aged 2-8 years in urban Pakistan.
2. To analyze the relationship between screen exposure and early childhood socialization outcomes.
3. To assess the role of family environment in shaping children's screen exposure and social development.

Research Questions

1. What is the level of digital screen exposure among children aged 2-8 years in urban Pakistan?
2. How does screen exposure affect early childhood socialization?
3. What role does family environment play in children's screen exposure and social development?

LITERATURE REVIEW

Screen-based technologies are a vital part of children's lives in the digital era, where learning, interaction, and socialization are affected by these new technologies. Early childhood is known to be a critical period in human life when the child is learning the basic cognitive, emotional, and social competencies from their caregivers, peers, and immediate surroundings (Vygotsky, 1978). With the booming growth of digital screens and their ubiquitous presence in the urban landscape, however, new anxieties have emerged about digital screens' role in socialization, more specifically in the city, where there is a high level of digital access.

From a sociological point of view, socialization is a lifelong process by which one learns the norms, values, and behaviors required for participation in society (Berger & Luckmann, 1966). The family is viewed as the most important socializing institution, particularly within the early childhood years, where children learn how to communicate, how to express their emotions, and how to behave between themselves. The availability of digital media in homes has, however, brought other sources of influence that could also be competing with the traditional family-based interaction (Livingstone & Blum-Ross, 2020).

Vast international studies show a potential benefit and risk from exposure to screens in early childhood. Although education can serve as a tool to support learning, too much screen time can be related to language delay, attention problems, and decreased social interaction (American Academy of Pediatrics, 2016; WHO, 2019). Overestimating screen time use at young ages could have a negative impact on brain development,

decreasing opportunities for interactive play and face-to-face communication (Christakis, 2019). Likewise, Madigan et al. (2019) reported that greater screen time in early childhood is related to less developmental functioning, especially communication and social skills. The displacement hypothesis offers one explanation that this is due to the displacement of other developmental activities in the life of a child, like physical play, family interaction, and peer engagement, with screen time (Anderson & Subrahmanyam, 2017). This can lead to a decrease in opportunities for children to learn to empathize, cooperate, and manage their emotions.

Moreover, overuse of screens has been associated with behavioral issues, including hyperactivity, sleep problems, and irritability. The overstimulation theory is one explanation of how these behavioral outcomes arise from children's exposure to rapid visual and sound stimuli from screens (Christakis, 2019).

Socialization is not only a process of the individual's development but also the creation of social structures and interactions from a sociological point of view. Mead (1934) has pointed out that the self grows out of the interaction of others, particularly in communication with significant others. Early childhood identity and behavior are formed through parents and family members through direct interaction.

But, with the digital device becoming more and more a part of the home, a new type of mediated interaction has emerged. Today, children spend a considerable amount of time in front of screens instead of spending time with their family members. This change could decrease the symbolic interaction that takes place in the home, which in turn may have an impact on home communication and social competence (Turkle, 2015). Moreover, ecological systems theory describes that the development of children is shaped by a variety of interrelated systems, such as family, school, media, and society (Bronfenbrenner, 1979). In this context, the digital media is part of the microsystems, which are in close contact with family and peers. Too much screen time can interfere with the functioning of these systems, including reducing family interactions and peer engagement.

The family context is a key influence on the digital behavior of children. Parents and their parenting styles, as well as supervision and parental media use, have a significant impact on children's media behaviors (Rideout & Robb, 2019). Parents in many homes, particularly in cities, resort to digital devices to serve as "tools for controlling behavior" to "smooth out and entertain children". This could work for a while, but there is a risk of the use of screens becoming a long-term way of managing emotions.

UNICEF (2021) emphasizes that parental awareness and digital literacy are important factors in children's healthy screen behaviors. Active involvement of parents in children's use of screens, boundaries, and monitoring of content is associated with lower negative impacts. Conversely, children who aren't supervised and who have too much parental control over their screen use may become more addicted to screens.

Reliance on digital devices has been further exacerbated by the phenomenon of urbanization and alteration in family dynamics in developing countries like Pakistan. One of the main factors cited by Khan and Malik (2022) is the heightened use of screens among children as a result of their modern lifestyles, the presence of dual-income families, and the diminished opportunities for children to play outside. This is part of a larger shift towards using digital devices rather than face-to-face interaction as a way to communicate with family.

With the improvement of Internet connectivity, accessibility of smartphones, and evolving parenting styles, the use of digital media by children has escalated rapidly in Pakistan, especially in urban areas like Rawalpindi and Islamabad. As pointed out by Hassan and Qureshi (2023), digital media has become an integral part of urban family lifestyles and has a great impact on how children learn, play, and communicate. Digital content is often seen as being educational or helpful in learning the language, particularly English-language cartoons and learning apps, which parents may approve of. But this view might fail to take into account the developmental risk of overuse of screens. Also, poverty, security, and the lack of leisure places are adding to the use of screens a safe and convenient way for children to be engaged.

This is particularly significant in the context of urban society as it is a transitional society where the traditional methods of socialization are being superseded and/or complemented by digital socialization. Consequently, culture, technology, and environment all influence the experiences of children in their development.

The effects on Early Childhood Socialization are:

Excessive screen time has been found to have negative impacts on children's social development in several studies. Communication, co-operation, and empathy are the foundation of social skills and are largely learned by observing and interacting with carers and other children. Children might have a decrease in social interaction, a decline in their communication abilities, and withdrawal from peers when screen time takes the place of these interactions (OECD, 2021).

Rideout and Robb (2019) concluded that children who were exposed to more screens experienced less non-technology mediated distance interaction (NTM DI) (face-to-face interaction), and this had a negative impact on their social competence. Likewise, Livingstone and Smith (2014) point to digital media as taking the place of valuable social learning opportunities, especially when people are small children, when their brains are more sensitive to what they are exposed to.

In a sociological context, this change signifies a change in sociological patterns of socialization, with children's interactions online taking the place of face-to-face interactions. Turkle (2015) suggests that this "alone together" effect is a testament to the role that digital devices can play in fostering the "illusion of being connected," but in reality limit "meaningful social engagement."

While there are numerous studies on the relationship between screen time and child development conducted on a global scale, most of these studies have tended to concentrate on psychological or medical implications of screen time on children's development, rather than process-oriented questions. To date, little research has explored the link between urban social structures and family environment with preschooler's exposure to screens and early childhood socialization in developing countries such as Pakistan.

In addition, the factors influencing the digital behavior of children are frequently neglected in existing research, including parenting styles, cultural norms, and pressures of urban life. This leaves a big knowledge gap in how screen time relates to family systems in the context of social development in non-Western countries.

According to the literature, the use of digital screens can affect ECD in many ways, especially regarding socialization processes. Screens can have educational value, but when used too much and without supervision, they can have a negative impact on communication, emotional management, and social interaction. These effects have been seen to be related to the changes in family interaction and social networks, as per sociological theories.

In the urban Pakistani setting, digitalization, a shift in family structure, and a lack of understanding of digital parenting are factors that lead to excessive screen time for children. But there is still a need for studies that are more sociologically oriented and examine the interrelationship among these and their effects on the early childhood socialization process at a more local level.

This study thus adds to the literature by examining the link between digital screen time, family environment, and early childhood socialization issues from a sociological view in urban Pakistan, a highly topical issue.

RESEARCH METHODOLOGY

The present study adopted a quantitative research design to examine the relationship between digital screen exposure and early childhood socialization, with a focus on the role of family environment in urban Pakistan. A cross-sectional survey design was used to collect data at a single point in time, allowing for the analysis of relationships among variables without experimental manipulation.

The study was conducted in the urban areas of Rawalpindi and Islamabad, Pakistan. These cities were selected due to their high digital accessibility and widespread use of screen devices among households. The target population included parents and teachers of children aged 2-8 years, as they are directly involved in observing children's behavior, screen usage patterns, and social development. A total of 150 respondents were selected through purposive sampling. This non-probability sampling technique was used to ensure that only individuals with relevant experience of children's behavior and screen exposure were included in the study.

Data were collected using a structured questionnaire consisting of demographic variables and five-point Likert scale items. The questionnaire measured three main constructs: digital screen exposure, early childhood socialization outcomes (psychological and social), and family environment factors. The instrument was developed based on relevant literature and theoretical frameworks related to digital media and child development.

The collected data were analyzed using SPSS. Descriptive statistics were used to summarize demographic characteristics. Pearson correlation analysis was applied to examine relationships among variables, while multiple regression analysis was used to determine the predictive influence of screen exposure and family environment on child socialization outcomes. Additionally, ANOVA and collinearity diagnostics were used to assess model significance and statistical assumptions. Ethical considerations were strictly followed. Participation was voluntary, confidentiality was ensured, and no personal identification information was collected. The study was conducted solely for academic purposes.

RESULTS AND DISCUSSIONS

Table no 1 Descriptive Statistics and Correlation Matrix

Variables	Mean	SD	1	2	3	4
Screen Exposure	3.42	0.78	1	.663**	.747**	.643**
Psychological Outcomes	3.31	0.74	.663**	1	.504**	.506**
Social Outcomes	3.48	0.81	.747**	.504**	1	.433**
Parenting Environment	3.29	0.76	.643**	.506**	.433**	1

Table 1 shows descriptive statistics and correlation (Pearson) analysis of the study variables, namely the screen exposure, psychological outcomes, social outcomes and parenting environment of children in urban Pakistan.

The descriptive results showed that the mean level of children's use of digital screens was 3.42 (SD = 0.78), which is a medium level. Psychological outcomes have a mean of 3.31 (SD = 0.74) which represents a moderate level of behavioural and emotional difficulties among respondents. The mean score for social outcomes is 3.48 with an SD of 0.81 which indicates that there is some variation in children's social development patterns. The mean score for parenting environment is 3.29 (SD = 0.76), indicating moderate level of variance in parenting practices and supervision level across the households.

The correlation results show that all the study variables are significantly and positively correlated. Screen

exposure is highly associated with psychological outcomes ($r = 0.663$, $p < 0.01$) and as more time children spend on screens, more psychological and behavioral problems arise. Likewise, a very strong positive correlation is found between screen time and social outcomes ($r = 0.747$; $p < 0.01$), indicating that excessive screen time is significantly associated with decreased social interaction, social skills, and social engagement with peers.

There is also a positive correlation between screen exposure and parenting environment ($r = 0.643$, $p < 0.01$), suggesting that less parental supervision and more unstructured parenting practices are linked to elevated screen exposure among children. In addition, social outcomes have significant correlations with psychological outcomes ($r = 0.504$, $p < 0.01$), indicating that emotional and behavioural problems frequently coexist with social development and/or behaviour problems.

Moreover, parenting environment is moderately related to psychological outcomes ($r = 0.506$, $p < 0.01$) and social outcomes ($r = 0.433$, $p < 0.01$), indicating its role as an important contextual factor impacting children's developmental outcomes.

Overall, the results suggest a consistent and strong relation between all the variables, and that the most salient variable associated with psychological and social development in early childhood is screen exposure.

Regression Analysis

Table 2: screen exposure and parenting environment on psychological outcomes among children

Predictor	B	Beta	T	Sig
Screen Exposure	0.916	0.576	7.214	0.000
Parenting Environment	0.157	0.136	1.705	0.090

$R^2 = 0.451$, $F = 60.357$, $p < 0.001$

Multiple regression analysis was used to analyse the predictive effect of screen exposure and parenting environment on psychological outcomes for children.

The results of the model summary showed that the two variables, screen exposure and parenting environment, together explained 45.1% of the variation in psychological outcomes ($R = 0.671$, $R^2 = 0.451$). This indicates that the model has a high level of predictiveness in children's psychological behavior.

These results were corroborated by ANOVA which showed that the overall model was statistically significant ($F = 60.357$, $p < 0.001$), meaning that the predictors as a whole have a significant effect on the psychological outcomes.

The table of the coefficients indicated that the duration of screen exposure was a very significant predictor of psychological outcomes ($\beta = 0.576$, $p < 0.001$). This indicates that the more they use screens, the more psychological and behavioural issues they may have. However, the direct effect of parenting environment was positive but not statistically significant ($\beta = 0.136$, $p = 0.090$), suggesting that when screen exposure is adjusted for, the direct effect of parenting environment on psychological outcome is limited.

To confirm that there is no problem of multicollinearity among predictors, collinearity diagnostics were conducted and the VIF values were found within the acceptable range, ensuring the reliability of the

regression model.

Taken together, the regression models indicate that screen exposure is the primary predictor of psychological outcomes and parenting environment is a secondary and indirect one in the child's behaviour.

Findings of the Study

From the results of the present study, it might be concluded that the digital screen exposure has a significant effect on the socialization process of the children of urban society in Pakistan during their early childhood. The descriptive results indicate that children are exposed to a moderate amount of screen time ($M = 3.42$, $SD = 0.78$) in their daily lives, which illustrates the increasing integration of digital devices into daily life. Also, children show moderate developmental challenges in psychological outcomes ($M = 3.31$, $SD = 0.74$) and social outcomes ($M = 3.48$, $SD = 0.81$), and there is variability in the parenting environment ($M = 3.29$, $SD = 0.76$).

Strong and statistically significant relationships were observed in all the study variables through the correlation analysis. A significant correlation was observed between screen exposure and psychological outcomes ($r = 0.663$), and very significant correlation was observed between screen exposure and social outcomes ($r = 0.747$), which shows that there are positive correlations between increased use of screens and behavioral, emotional and social development issues. All these variables had important relationships with parenting environment, reflecting the important contextual role of parenting in shaping child behavior.

The regression analysis also confirmed that screen exposure was the best predictor of psychological outcomes, with a significant amount of variance in child behavior being accounted for ($R^2 = 0.451$). The influence of the parenting environment was statistically non-significant and weaker when controlling for screen exposure, suggesting that screen exposure is the primary influence.

DISCUSSION

The results of this study bring to the fore the growing impact of digital screen time on early childhood development in urban Pakistan. The findings are similar to previous international studies, which have reported that high levels of screen time are linked to behavioral and social problems in children (Christakis, 2019; WHO, 2019). The positive correlation between screen time and emotional effects suggests that overuse of screens could lead to emotional instability, irritability, and attention difficulties in early childhood.

The strong correlation between screen time and social outcomes is an additional reason to consider the displacement effect of screen time, which means that screen time interferes with the necessary social interactions like peer communication, family engagement, and physical play (Anderson & Subrahmanyam, 2017). This corresponds with sociological views which suggest that socialization is significantly influenced by direct human interaction, initially in the developmental years (Mead, 1934).

The study also revealed that the parenting environment is an important factor in the context, but is not a good independent predictor if screen exposure is added to the model. This indicates that parents' actions have a more indirect impact on children's digital use, while the direct impact of screen exposure, in terms of psychological and social outcomes, is more predominant. These results support the ecological systems theory in child development (Bronfenbrenner, 1979), which underscores the role of the media environment and family structure in child development.

Overall, the findings add to the body of literature by demonstrating that digital screen time is an emerging trend in the context of early childhood socialization in urban Pakistani contexts and that it may be affecting traditional patterns of interaction within families.

CONCLUSION

Based on the findings of the present study, it is concluded that digital screen exposure negatively affects the socialization of young children in the urban area of Pakistan. The findings show that greater screen time is strongly linked with greater psychological and social development problems in children.

The study also suggests screen exposure is most predictive of children's developmental outcomes in comparison to parenting environment, pointing to a key role played by screen exposure in influencing children's behavior in early childhood. The parenting environment is still considered to be a contextual factor, but its impact is lower than that of screen use.

In summary, the study highlights the importance of regulating screen time, improving parental monitoring, and understanding the developmental impacts of excessive screen time. Parent-child relationship strengthening and the development of a balanced digital lifestyle are crucial in early childhood development in order to encourage healthy psychological and social development.

RECOMMENDATIONS

1.Parenting, monitoring, and supervision are important.

Parents need to monitor and manage their children's screen time to ensure they receive a balanced exposure to screens. Daily time limits for media use can improve the negative psychological and social impact of media use.

2.Encouraging other activities

Families are encouraged to foster healthy social, emotional, and cognitive development by getting their children off their screens, into reading, and into physical activity.

3.To advance the awareness programs for parents.To promote parents' awareness programs.

Government and educational organizations should conduct awareness creation programs to educate parents about the developmental harms associated with overexposure to screens during early childhood.

4.School-Based Digital Literacy Guidance

Schools should implement basic guidance programs for parents and teachers on healthy digital use and behavior in the learning context of children.

5.Promotes Balanced Family Interaction Practices

There is a need to enhance parents' interactions with the child and increase direct communication with children to build emotional attachment and promote socialization while minimizing the use of digital devices for behavioral management.

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