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The Impact of Preschool Children's Use of Electronic Devices in the Home on Their Social Development

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Abstract: The advancement of science and technology is leading to the increasing utilization of electronic items among younger demographics. The influence of preschool children's utilization of electronic devices on their social development has garnered heightened scrutiny. This study examines the literature regarding preschool children's utilization of electronic devices and its impact on their social development. The present study analyzed the current state to identify existing issues and subsequently offered the insights and recommendations for the appropriate use of electronic products, aiming to foster the healthy development of preschool children. The research indicated that increased utilization of electronic gadgets correlates with diminished social development in preschool children. Parenting styles provide a moderating function in this context, with highly positive styles mitigating harmful behaviors associated with preschool children's use of electronic devices, thereby fostering the development of pro-social behaviors in preschoolers. The significance of this study is to further knowledge by offering a thorough review of the existing literature and emphasising the necessity of responsible and balanced usage of electronic devices in early childhood education and care environments.

Keywords: Preschool children, electronic devices, social development.

1. Introduction

1.1. Background

1.1.1. The Current Situation of the Use of Electronic Products by Young Children

With the rapid development of the electronic economy, many electronic products into the family, iPad, iPhone, computer, TV and other electronic products are almost every family's necessities. For parents, electronic products have brought convenience to "bringing up children", some parents in order to make their children stop crying. Cell phones and tablets have become "electronic coaxing weapon", and some parents to look at the cell phone, computer as a reward condition. Most parents carry electronic devices (ED) when they go out, and some even carry more than one kind of electronic device. The reason for carrying ED is that they have the need for communication, and on the other hand, they want to use the ED to divert the attention of their toddlers when they are crying and screaming [1]. Therefore, the use of ED by toddlers is very common in families.

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1.1.2. Impacts on Young Children's Use of ED

As the Internet has grown at a dizzying rate in the past few years, its user base has been shifting towards younger demographics. Not only do most parents use electronics on a regular basis, but even the youngest children can use them competently. When it comes to young children, there are pros and cons to using electronics. The benefit is that kids can learn and grow from a wider range of experiences when they use technology appropriately, which is possible if parents understand and guide their children well. The negative impact on children's physical and mental health, including issues like obesity and impaired vision, is a major drawback. Additionally, kids' social development can take a hit when they see or play violent media at a young age.

1.2. Research Topics

It is mentioned that parents are aware of the rules for the reasonable use of ED by young children [1]. Similarly, it is mentioned that parents' attitudes towards their children's use of ED are mostly equal in terms of advantages and disadvantages, with no effect being the least common [2]. It can be seen that most parents are optimistic about their children's use of ED and believe that they can reasonably control it. However, since the outbreak in early 2020, online teaching has become the norm, and young children are spending more time at home and more time with ED. Young children receiving online instruction need to spend a lot of time using ED at irregular times, and it is difficult for parents to distinguish whether their children are using ED for learning or for entertainment. Therefore, in the post-epidemic era, when preschoolers spend more time using ED, the research and analysis of how parents can correctly guide the development of pro-social behavior of young children and whether parental involvement can influence children's social behavior will be one of the innovations of this study. In addition, this project will analyze the impact of preschoolers' use of electronic products in China on their social behavior, and based on the results of the analysis, this research will make targeted recommendations to parents.

2. Literature Review

2.1. Integration of Electronics into the Lives of Preschoolers

Research conducted in China has shown that electronic gadgets are now ubiquitous, with the majority of youngsters having used them at some point in their lives. This usage varies by family income level and the children's ages. Young children utilize electronic gadgets for multiple purposes, mostly for entertainment. Zhang indicated in her study that the majority of young children utilize electronic gadgets for educational and recreational purposes [2]. Dai revealed that the iPad enjoyed significant popularity in Shanghai, with a high ownership and usage rate among preschoolers [3]. The predominant software utilized by these children includes entertainment, educational, and puzzle applications, with the majority primarily engaging with ED for recreational gaming [3]. Han noted that the utilization of electronic media has decreased in age, and that such media have been assimilated into the lives of young children [4]. In this context, researchers have commenced the examination of the correlation between children's use of electronic gadgets and their socio-behavioral development.

2.2. Relationship between Electronics and Children's Social Development

Foreign studies have found that the users of electronic products are getting younger. Moreover the review shows that children's use of electronic products has both positive and negative effects, but it is clear that the negative effects are far greater than the positive effects. Some scholars have studied

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the relationship between the use of electronic products and problematic behaviors of preschoolers, such as the imitation of violent behaviors by preschoolers after playing violent games for a period of time. For example, LU and LI took ordinary children aged 0-8 years old as the research subjects and used Comprehensive Meta-analysis (CMA) 3. 0 software to analyze the data, and concluded as confirming that there is a positive correlation between preschoolers' screen exposure and behavioral problems, and suggesting that electronic media, as a fundamental aspect of preschoolers' lives, can have a negative impact on their behavioral development [5]. A random effects model was used to investigate the relationship between screen exposure and behavioral problems in preschoolers. The results of the study (k = 48) showed a pooled effect size of r = 0. 169 (P = 0. 000, 95% CI [0. 133, 0. 205]), suggesting that there is a significant correlation between screen exposure and behavioral problems.

Lu's and Li's research suggests that electronic products affect children's social development in several ways, the first being that, social learning theory suggests that individuals can acquire behaviors by observing others (role models) and their exemplary behaviors and copying them. This means that negative behaviors observed in movies or games may be used as role models, which can trigger or reinforce behavioral problems in preschoolers. Second, the use of electronics by preschoolers may lead to a decrease in their participation in instructional activities, which is detrimental to the development of pro-social behaviors. For example, preschoolers are supposed to develop their emotional competence through social interactions with others, but if electronic media replaces opportunities for these activities, it may stunt emotional growth and exacerbate behavioral problems.

In addition to this, the study by LU and LI categorized effect sizes based on the average length of screen exposure in each study, distinguishing between overexposure (> 1 hour) and moderate exposure (1 hour). Based on the analyses, it was found that the correlation coefficient between overexposure to electronic media (k = 26) and behavioral problems was 0. 185 (P = 0. 000, 95% CI [0. 136, 0. 233]), and that the correlation coefficient for moderate exposure to electronic media was 0. 120 (P = 0. 000, 95% CI [0. 076, 0. 162]) (k = 12). It is therefore noteworthy that excessive use of electronics is more strongly correlated with behavioral problems than moderate use of electronics.

In China, scholars Mei and Qian found in their study that there is a significant negative correlation between the level of exposure to smart electronic products and their social development, i. e. the higher the level of exposure to smart electronic products, the lower the level of social development [6]. Specifically, this is manifested in emotional stability, attachment to family members and peer relationships. Mei and Qian used 100 3-6 year-old toddlers from a kindergarten in Nanchang City as the research subjects, and distributed questionnaires to the parents of these 100 toddlers. The results showed r=-0. 313, p=0. 002, p<0. 01, indicating that social development was significantly negatively correlated with the length of time children used cell phones and tablets. Through further ANOVA, it was found that the duration of use was significantly different from social development (p=0. 004, p<0. 01), and post hoc test showed that the social development of children who did not use them was extremely and significantly higher than that of other children who had used them. The results of the study showed that the preschoolers who had not played with electronic products had the highest social development scores and were considerably higher relative to the preschoolers who had used electronic products. Mei and Qian also concluded that the more preschoolers were exposed to electronic products, the more emotionally unstable they became, which was not conducive to their social-emotional development. In addition, preschoolers who are exposed to more ED have less time to socialize with their peers, and peer relationships will be affected accordingly.

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2.3. The Role of Parents in Influencing the Social Development of Young Children

Foreign studies generally agree that there is extensive use of ED by children aged 3-6 years old, and this situation brings serious negative impacts on children's social behavior, but if parents can correctly intervene between children and ED, then this negative impact is likely to be turned into a positive impact. Zhang et al. in their study analyzed the relationship between the level of electronic device use, problematic behaviors and parenting styles (PSs) and parent-child relationships (PCR) by distributing questionnaires to 582 parents of preschoolers aged 3-6 years old [7]. It was found that the higher the level of electronic device use, the more hyperactive behavior, emotional problems, attention deficit and peer interaction problems the children had. A study on the mediating role of PSs concluded that highly positive PSs can alleviate parent-child conflict and social problems caused by excessive use of ED, and help to foster pro-social behaviors in preschoolers. Zhang et al. used a combination of four questionnaires: the Children's Electronic Device Use Questionnaire, the Strengths and Difficulties Questionnaire developed by Goodman, A., & Goodman, R. (in Chinese), the PCR Scale (PCRS) developed by Pianta & Reeve, and the PSs Questionnaire developed by Yang & Yang [7]. The data showed that preschoolers' use of ED could help foster pro-social behaviors in preschoolers. The data showed that the degree of electronic device use by preschoolers was significantly positively correlated with PCR and problematic behaviors ($p<0.001$, $p<0.001$), and negatively correlated with PSs ($p<0.001$). Next, the relationship between PCR and PSs was significantly negative ($p<0.001$) but significantly positive ($p<0.001$) with the emergence of problem behaviors (PB). In addition, PSs were significantly negatively correlated with the production of PB ($p<0.001$). The study further tested the mediating role of PCR between preschoolers' electronic device use and PB on this basis. The result was a relative mediation effect value of 61.6% with a confidence interval of [0.18, 0.28], indicating that PCR partially mediated the association between preschoolers' electronic device use and problem behavior.

Next, the role of parenting style as a mediator of the PCR was examined, and it was found that parenting style mediates the PCR through preschoolers' electronics use and thus influences preschoolers' PB. Higher positive PSs moderated the negative effects of children's electronic device use on PCRs (b simple = -0.29, t = -7.35, $p < 0.001$), compared to lower positive PSs where electronic device use was more likely to lead to deterioration of PCRs (b simple = -0.15 , t = -3.28 , $p < 0.01$). In contrast, the effect of the PCR on problematic behaviors could be buffered under higher positive PSs (b simple = -0.43, t = -8.61, $p < 0.001$). Thus, PSs influence the PCR through preschoolers' use of electronics, which in turn influences the development of preschoolers' PB. When young children with high levels of electronics use grow up in environments with low levels of positive PSs, the PCR will deteriorate further, and young children's internalized and externalized PB are likely to increase significantly. In contrast, when children have high levels of electronics use but parents provide highly positive PSs, the PSs can act as protective factors, reducing children's PB and contributing to the development of preschoolers' pro-social behaviors.

The research conducted by Zhang et al. exhibits certain limitations [7]. The study focused on parents of preschoolers, who are susceptible to subjectivity and recollection bias. Future studies may incorporate subjects into the preschoolers ontology or investigate preschool educators; furthermore, the research methodology can be enhanced, allowing for the measurement of young children's problematic behaviors through multi-subject reports, observational techniques, or experimental approaches; additionally, the experimental design can be refined. Zhang et al. employed a cross-sectional experimental design that precluded causal inferences regarding the impact of family-related factors on children's electronics usage. Subsequent research could employ longitudinal designs or intervention trials that would more effectively elucidate potential pathways. Ultimately, owing to constraints in sample size, the study conducted by Zhang et al. did not differentiate between father-

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child and mother-child connections, instead categorizing them collectively as PCRs. Parental behaviors in PCRs vary according to gender variances, and following research could be enhanced accordingly.

In China, scholars Liu et al. believe that the family environment plays a mediating role in the use of electronic products and young children's social interaction ability, in which the family environment specifically refers to the five dimensions of intimacy, ambivalence, knowledge, control, and recreation, and young children's social interaction ability is a layer of dimensions of young children's social development, and the degree of electronic product use (EPU) is measured in terms of the use of video screen [8]. The use of electronic products is measured by the length of video screen use. Liu et al. hypothesized that the length of video screen use would have an impact on young children's social interaction skills. The study was conducted with a whole cluster random sampling method, and the study population was defined as 757 young children aged 3-6 years old from one of the four kindergartens in Shenzhen. A self-administered questionnaire on the current status of young children's use of ED, together with the Chinese version of the Family Environment Scale (FES-CV) and the Early Childhood Interaction Competence Test, was used to survey the parents of these 757 preschoolers.

The study applied Epl Data3 . 1 to create a database all information was coded and entered into the database and SPSS24 . 0 software for data analysis. The results of the data showed that there was a negative correlation between the length of video screen time and young children's ability to socialize ($r=-0.09$, $p<0.05$), the longer the video screen time, the lower the young children's ability to socialize; the length of the video screen time was negatively correlated with the family closeness, knowledge, entertainment and control ($r=-0.15, -0.09, -0.10, -0.12$, $p<0.05$), and the longer the video screen time The longer the video screen duration, the lower the family intimacy, the less knowledge parents have about scientific parenting, the less time for parent-child recreational activities, and the less control parents have over their preschoolers; and the positive correlation between video screen duration and family conflict ($r=0.10$, $p<0.01$) means that families with longer video screen duration have more conflict; at the same time, the positive correlations of family intimacy, knowledge, recreation, and control with social interaction ability ($r=-0.15, -0.09, -0.10, -0.12$, $p<0.05$) were found. social competence ($r=0.18, 0.27, 0.23, 0.11$, $p<0.01$), which means that preschoolers in families with higher family closeness, knowledge, entertainment and control have higher social competence; however, there is a negative correlation between family ambivalence and social competence ($r=-0.14$, $p<0.01$), i. e. , preschoolers in families with higher ambivalence are more likely to have higher social competence than those in families with longer video screen hours. However, there is a negative correlation between family ambivalence and social competence ($r=-0.14$, $p<0.01$), i. e. , the stronger the family ambivalence, the weaker the social competence of preschoolers [8].

Liu et al. revealed that family intimacy, knowledge, and entertainment completely mediated the impact of video screen time on children's social skills through a comprehensive analysis of the mediating impacts of the family environment. In families that are more inclined to obtain scientific parenting knowledge and employ democratic PSs, the management of preschoolers's electronic device usage can be enhanced, thereby mitigating the adverse effects of excessive device use on their social skills and, to some degree, promoting the development of pro-social behaviors in preschoolers. Previous studies have reached similar conclusions [9].

Likewise, the investigations conducted by Liu et al. exhibit certain shortcomings. The quiz was directed at parents of preschoolers, who are susceptible to subjective influences. Future research can directly examine the family environment of preschoolers and evaluate their social development capabilities. The sample was selected from urban youngsters, disregarding the disparities between

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rural and urban settings, including educational resources and family dynamics. Subsequent research can enhance and refine the findings by focusing on the attributes of rural regions [8].

3. Conclusion

3.1. Summaries

This study draws conclusions from a literature review compiled on the impact of preschoolers's use of ED on their social development. In the context of ED have been integrated into the life of preschoolers, preschoolers who use ED excessively are more likely to have problematic behaviors, such as violent behaviors. And the higher the degree of exposure to smart electronic products, the lower the level of social development of preschoolers, specifically in emotional stability, attachment to family and peer relationships. However, some scholars have found that parental intervention can reduce the negative impact of preschoolers' use of ED on their social development. Therefore, this study will focus on parents' perspectives and provide them with suggestions to minimize the negative effects of ED on preschoolers' social development.

3.2. Recommendations

The responsibility of being a role model and setting a good example falls on parents. Because of their exceptional capacity for mimicry, preschoolers learn to use ED by watching and mimicking their parents. Although many parents think that their children's exposure to technology can help them develop a worldview, it is really more advantageous for parents to take their children on nature walks with them. Thus, parents of children aged three to six should dispel the temptation to multitask by physically present with their young children. As an example, parents can subtly influence their children by doing things like doing engaging crafts together or creating a reading nook at home where they can relax and read aloud to their children during the holidays.

Parents should limit the amount of time and frequency that preschoolers use ED. Parents also should either allow their children a certain amount of time to use ED each day or establish acceptable and suitable limits on how much time their children can spend on these devices. It is also important that children should not . With the proliferation of gaming applications and short movies, even very young children can easily be exposed to violent and harmful content on their ED. The best course of action for parents is to restrict their children's access to these apps and websites.

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