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Differences in Parent-Child Interaction Using Physical Toys Versus Technology

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NORTHERN ILLINOIS UNIVERSITY

Parent-Child Interaction Using Physical Toys Versus Technology

**A Capstone Submitted to the
University Honors Program
In Partial Fulfillment of the
Requirements of the Baccalaureate Degree**

With Honors

Department Of

Family and Consumer Sciences

By

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DeKalb, Illinois

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University Honors Program
Capstone Faculty Approval Page

Capstone Title (print or type) Differences in Parent-Child Interaction Using Physical Toys Versus Technology

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Parent-child interactions are vital to children's growth and development. The quality of parent-child interactions shape the child's cognitive and language development. As society becomes increasingly technologically advanced, it is important to consider how technology might impact the quality of parent-child interactions, particularly with young children. The purpose of this literature review was to analyze and evaluate research concerning how parent-child interactions differ when using a physical toy vs technology. Nine studies focusing on parent-child interactions with children between the ages of 16-36 months were reviewed. Results of the review indicate that parents typically engage in higher quality interactions with their children when they engage with a physical toy compared to an electronic toy. Yet, when provided with only a technology toy, such as an iPad, parents engage in scaffolding interactions and provide verbal, emotional, and physical support to their child. These findings are important as they point to the importance of physical toys for high quality parent-child interactions, but they also demonstrate that parents can engage in quality interactions using technology as well. All in all, parents should provide both physical and technological toys when interacting with their children to enhance their language and cognitive development. Lastly, concerning future directions within the realm of child development, more research should be conducted as to conclude on what types of toys helps parents interact with their children while scaffolding them as they increase their ability to think and speak for themselves.

Theoretical Framework

Vygotsky's theory emphasizes how culture and social interaction guide cognitive development (John Santstrock, 2009). This theory is primarily based on the language and thought development of children in early childhood. Furthermore, by using language, children learn how to communicate effectively with the people around them, with their parents being the

first people that children interact with. Children use speech for solving tasks and enhancing their social communication skills (John Santrock, 2009). Lastly, parents help their children mold, develop, and maintain social interaction in and out of the household.

According to Vygotsky, “Children think and understand primarily through social interaction” (John Santrock, 2009). Parents should use the Zone of Proximal Development, also known as ZPD, which is “a range of tasks that are too difficult for the child alone that could be learned through guidance” (John Santrock, 2009). The Zone of Proximal Development is when a task is too advanced for a child to achieve on their own, so the parent provide support in offering guidance to help them solve problems. Scaffolding is a process that allows facilitators, or in this case parents, with the ability to be able to help them solve challenging problems and offer the proper support when they see their children struggling. Scaffolding is also essential to play and the development of children. This is important because it helps parents mold their children to complete tasks and motivate them to participate in new activities that they have not tried before. It is essential for parents to be able to support children in being social through the interaction of play.

With the Vygotsky theory, inner speech is important concerning child development. In his view, social interaction affects how children learn and how they acquire knowledge (**input citation**). Similar to teachers, parents also play the role of a facilitator. By playing the role of a facilitator, the parent teaches children about social interaction through play. This is important because it also teaches children important skills, like sharing with other people. This theory is useful and relevant to this review of literature because it serves as a foundation to discovering how the quality of parent-child interaction varies when using technology versus physical toys. because it connects the interplay of how children develop concerning parent-child interaction

concerning the type of toy that is being used. These toys can range from being a physical toy versus and electronics. An example of a physical toy would be a farm animal and an example of technology would be a mobile device, such as an iPad.

Parent-Child Interaction with Physical Toys

Parent-child interaction with physical toys are important concerning language and cognitive development because it affects how children will interact with other people as they age. There was a study that was conducted by Hildayani, Savitri, Dwyniaputeri, Tertia, Wukiranuttama, and Gracia in 2018. The purpose of this study was to analyze how the interaction between a mother and their child differs when using electronic toys versus using non-electronic toys. 61 mother-child dyads participated in the study. The children were between 3-6 years of age, and half of the children were boys. The *PICCOLO* is an observational coding system that assesses parent-child interaction quality across four domains: affection, responsiveness, encouragement, and teaching. This was a quasi-experimental study in which mothers were observed interacting with their children using physical toys. The researchers observed and measured both interactions using the *PICCOLO*. Participants also complete a questionnaire that contained open-ended questions to gain insight into the activities that the parent and child interact with in the home. The results demonstrated that the interaction of a mother and child is significantly lower when using electronic toys versus using non-electronic toys. Based on the *PICCOLO*, when interacting with children, there were differences in the averages of parent affect, responsiveness, encouragement, and teaching. Here are the following scores concerning parents using physical toys versus electronics: with parent affect, parents who used electronic toys scored .919 versus parents who didn't use electronics when interacting with their children .953 (the difference here is that parents had more of an effect on children who used

only physical toys when interacting with their children; with Responsiveness parents who used electronic toys scored .891, while those who used physical toys scored .925 (the difference here is that parents who used only physical toys paid more attention to their children when they interacted with their mother; with encouragement parents who used electronic toys scored .920, while parents who didn't use technology scored .957 (the difference here is that mothers who used only a physical toy during their interaction with their child scaffold their child more than those using technology); lastly with teaching parents who used electronic toy scored .902 and parent who used physical toys scored .957, and this informs readers that parents who used physical toys when interacting with their child were able to teach their child better than those using technology.

Ewin, Reupert, McLean, et al. (2020) created a study that looked at the impact of how joint attention using electronic devices affected the quality of parent-child interaction.

Sung (2018) conducted a study that looked at how children and their mothers experience parent-child interaction using a stuffed toy versus an animated toy. 48 children and their mothers participated in this study. They also participated in an interview and were observed while playing with the toys. Data was measured through the use of the PICCOLO measure and a questionnaire that consisted of 27 questions. Results show that when using the animated toy, the mothers scored: 2.01 when playing with an animated toy 1.95 for affection, 2.53 when using the animated toy versus 2.59 for responsiveness, 2.19 for encouragement and 2.01 when using an animated toy, 1.98 for teaching versus 1.77 when using the animated toy. These results indicate that using a physical toy versus technology was more beneficial to parents when they interacted with their children.

Zosh, Verdine, B.N., Filipowicz, et. al., (2015) conducted a study in which they, “compared the quantity and quality of the language children hear during play with either a physical toys or an electronic shape sorter designed to teach children about geometric shapes.” (pg. 136). There were 24 parent-child dyads that were white, and English were their first language. All participants were recruited by telephone and the children each received a certificate of appreciation. The participants were randomly assigned, and the parents played with their children in an university laboratory. Data was measured using a multivariate analysis. Researchers found that the quantity of the language that the children heard concerning the rate of the total words that the parent and the toy provided, which was higher using electronic toys versus a physical toy, with the average being 70.53. There was no indication of the parents voice affecting the condition of the words they were using. This informs readers that when using a physical toy, there are less interruption when interacting with children versus when using technology.

Parent-Child Interaction with Electronic Toys and Technology

Parents are now using technology when interacting with their children.

Radesky, Leung, Appugliese, et. al, (2018) conducted a study that measured the quality of parent-child interactions when using a mobile device. 195 mother-child dyads participated in the study. The participants were interviewed, and their scores were measured using Working Model of the Child Interview (WMCI), which is a tool used to assess an evaluate a multivariate analysis that was used in the study. 73.3% of mothers were white and on average, were 31 years old. During dinner, 47 out of 195 mothers in the study used a mobile device at least one time, which came out to be 24.1% of the participants. 44 out of 195 mothers in the study used a mobile device while eating, which came out to be 22.6% of the participants and 18 mothers in the study

did both, which came out to be 9% of the participants in the study. Results concluded that mothers used mental representations that was associated with their children using mobile devices during family time. There is more research that needs to be done concerning mobile device usage and relationship characteristics.

A study was conducted by Wooldridge and Shapka in 2012. The purpose of this study was to investigate how play with electronic toys impacts the development of children concerning screen time. 25 mother-toddler dyads participated in this observational study. This observational study and the median age of the toddlers were 19.75 months. Again, the PICCOLO was used to measure the quality of interaction between the mothers and their children. In this study, participants also completed a self-report play questionnaire, which included open-ended questions pertaining to the interaction of the mother and child in their home. The researchers of this study believed that electronic toys may have a negative impact on the development of children. Results demonstrated that mothers are less encouraging and responsive when interacting with their children using technology. Along with this, it was also discovered that playing with technology negatively affects the language and cognitive development of children. This is because when toddlers interacted with their parents, the quality of parent-child interaction was low due to joint attention being put on the electronic toy rather than on the child.

Wood, Petkovski, De Pasquale, et al. (2016) examined how parents scaffolded their children when they are using mobile devices, such as an iPad. 104 parent-child dyads participated in this study. This study was naturalistic and observational. The children ages ranged from 46.21-75.9 months. Each session was 10 minutes long. Researchers had the participants complete a pre-observational survey to acquire demographic information from the parents and they got their perspective on how much they use technology when interacting with their children.

Results from this study has shown that parents show support when children are interacting with technology, which provides verbal, emotional, and physical support. The overall mean was 79. Concerning verbal support, the average was 79. The average with physical support was 23, while the average for emotional verbal support was 6. This informs readers that early exposure to technology was beneficial when parents interacted with their children when using a mobile device. Lastly, researchers measured the data by conducting a regression analysis concerning what parents thought about their children interacting with an iPad.

Hildayani, Savitri, Dwyniaputeri, Tertia, Wukiranuttama, and Gracia conducted a study in 2018. Results concerning electronic toys conclude that playing with electronic toys is beneficial because it provides children with learning something new, provide intellectual stimulation, and technology awareness. Here are the following scores concerning parents using physical toys versus electronics: with parent affect, mothers had more of an effect on children who used only physical toys when interacting with their children and those who used electronic toys scored .919 versus parents who didn't use electronics when interacting with their children .953; with responsiveness mothers who used only physical toys paid more attention to their children when they interacted with them. Those who used electronic toys scored .891, while those who used physical toys scored .925. With encouragement, mothers who used only a physical toy during their interaction with their child scaffold their child more than those using technology, mothers who used electronic toys scored .920, while parents who didn't use technology scored .957; lastly with teaching, parents who used physical toys when interacting with their child were able to teach their child better than those using technology. Parents who used electronic toys scored .902 and parent who used physical toys scored .957. This informs readers that there were significant differences between the averages of parent affect,

responsiveness, encouragement, and teaching when mothers interacted with their children. This is important because it shines light on the role of parents and how much effort goes into interacting with children.

Sung (2018) conducted a study that looked at how children and their mothers experience parent-child interaction using a stuffed toy versus an animated toy. 48 children and their mothers participated in this study. They also participated in an interview and were observed while playing with the toys. Data was measured through the use of the PICCOLO measure and a questionnaire that consisted of 27 questions. Results show that when using an animated toy, the mothers scored: 2.01 when playing with an animated toy versus 1.95 for affection, 2.59 when using the animated toy versus 2.53 when using a physical toy for responsiveness, 2.19 when using an animated toy versus 2.01 when using a physical toy for encouragement, and 1.98 when using the animated toy versus 1.77 for teaching. These results indicate that using a physical toy versus technology was more beneficial to parents when they interacted with their children.

Zosh, Verdine, B.N., Filipowicz, et. al., (2015) conducted a study in which they, “compared the quantity and quality of the language children hear during play with either a physical toys or an electronic shape sorter designed to teach children about geometric shapes.” (pg. 136). There were 24 parent-child dyads that were white, and English were their first language. All participants were recruited by telephone and the children each received a certificate of appreciation. The participants were randomly assigned, and the parents played with their children in a university laboratory. Data was measured using a multivariate analysis. Researchers found that the quantity of the language that the children heard concerning the rate of the total words that the parent and the toy provided, which was higher using electronic toys versus a physical toy, with the average being 70.53. There was no indication of the parents voice

affecting the condition of the words they were using. Concerning electronic toys, there was an average of 55.82, and this is significant because it informs readers of how the use of electronic toys interrupts the quality of parent-child interaction.

Discussion

The purpose of this review was to look at the differences of how parents interact with their children when playing with a physical toy versus technology . It is clear that after looking at the articles that were reviewed, that there is a significant decrease in the quality of interaction between a parent and their child when using electronics versus a physical toy. Parent-child interaction is important because it affects the development of children, specifically concerning how they will interact with people as they age. Parents must realize the importance of how learning first starts at home and effectively evaluate if using technology or a physical toy while interacting with their children is more beneficial concerning the psychosocial wellbeing of kids. What can be drawn from this literature review is how the quality of parent-child interaction is dependent upon the type of toy that is used during that interaction. It is suggested that parents use toys to enhance the language and cognitive development of children. Concerning future research direction, there is a need for more research to be conducted on how the use of toys impact the relationship between the parent and child, along with the development of cognition and language. Based on findings, it's essential to understand how the type of toy impacts the quality of parent-child interaction. Play and parent-child interaction is important because it impacts behavior and how children will communicate and interact with other people as they age.

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