The Effects of Technology on Child Development

Makenzie Marwitz

HDFS 5113: THEORIES OF CHILD DEVELOPMENT

Professor Cantrell

## Introduction: The Use of Technology in Everyday Life

Technology plays a significant part in the socialization of humans, especially children. Starting children young with technology use could have effects on their development, socialization, and other interactions (Cantrell, 2023). It is heavily present in the world today and will only become even more so with time. This makes it inevitable that children are exposed to technology at an early age, whether it be phones, tablets, televisions, computers, or even augmentative and alternative communication devices (AAC). Technology has increased widely in healthcare that could affect my work as a child life specialist. For example, the use of Virtual Reality (VR) to assist in intravenous placement within the emergency department (Goldman et al., 2020). The therapeutic use of technology in healthcare has an impact of aiding the child life specialist in exploring how to integrate coping interventions within children (Rode, D., Capitulo, K., Fishman, M., & Holden, G.,1998). This paper will explore not only the positive effects of technology but also the negative effects and provide a variety of outlooks on the topic.
In an article by Hosokawa et al., they describe the association between mobile technology use and child adjustment in early elementary school-age children (2018). They describe the positive and negative effects of technology use. This study was made to define how technology use increases or decreases the risk of behavioral problems. They mentioned how computer use can be positively related to cognitive and academic skills; however, it can also be negatively related to social and psychological development. For example, "frequent computer use increases children's social isolation, robs children of time for social activities with others, and interferes with social development" (Hosokawa et al., 2018, p.2). Although, when used appropriately, technology can be a powerful tool to help children learn.

Since the early 2000s, technology has started to become the main way that children learn and communicate. Nowadays, parents use devices to distract their children from crying or behaviors which increases technology use. In this article, they stated "A recent survey found that, according to the Japan Ministry of Education, the proportion of children using mobile devices for over an average of 1 hour per day was 15% among elementary schoolers and 48% among junior high schoolers" (Hosokawa et al.,2018). With this information in mind, it has raised concerns for developmental and behavioral delays in children.
This is an important topic to discuss because the amount of education that is being put on tablets or portable devices for children is increasing quickly. It is concerning for the younger generation since a tablet may be all that they know. It also increases the number of behavioral problems such as tantrums that may be involved with technology use.
This topic changes over time because existing research does not have experience with technology use. However, with the number of articles surrounding technology use, it could be interesting to see the difference between children who do not engage with technology.

## Vygotsky's Cultural Theory Overview

Vygotskys theory revolves around "Children's oral vocabulary, storytelling performance, and phonological awareness at school entry are predictors of later reading comprehension and decoding, in addition, to using oral language to express ideas and intentions in communication with others, children use language to organize and reflect on experiences" (Alexander, 2006; Dickinson & Porche, 2010; Resnick & Snow, 2009; Barnes, 1992; Mercer & Littleton, 2007; Wells, 1999; Vygotsky, 1978). Vygotsky's theory is about communicating with peers to deepen the understanding of learning and social development which impacts child development. Since Vygotsky's theory is complex in the way of exploring the unique concepts of interaction, he bases his reasonings on "learning vocabulary, speech sounds, and ways of putting words and phrases together, children learn possible roles, relationships, perspectives, meanings, and modes of meaning available within their social worlds as they learn language" (Genishi & Dyson, 2009; Malec et al, 2017, Vygotsky, 1978). Some assumption based on his theory is that child development relies on social interaction, which could vary among most cultures. Another assumption is that Vygotsky was more so concerned with the aspects of speech such as thinking and language (Gillen, 2000). His main concepts revolved around social sciences in education and psychology.

When Vygotsky first started his ideas, there were five ideas that were integrated in his theory. The first idea was related to education, which includes teaching and learning. The second idea was how the human personality is the how creativity is born, which results in students manifesting different creative potentials in various condition. The third idea is teaching and learning through personal activities with students that support their inner values. The fourth idea is that teachers provide opportunities and guide individuals through activities. The last, and fifth idea is one of the most valuable methods for students. That includes providing methods for students with teaching and learning through developmentally appropriate and individualized activities for them to learn (Davydov, 1995). Because education was one of the first concepts that became known by Vygotsky, it plays an important role in how it correlates to education now with child development. This quoted article states how teaching and learning can develop children's personalities through socialization. Language and a child's environment could affect their internal speech, which arises in their mental function (Vygotsky, 1978). Another concept that Davydov provided in his article is how Vygotsky has a reputation throughout psychology that provides another concept related to developmental psychology which included the problems of thought and language (1995)

Vygotsky's cultural theory can be derived and used in many ways to show how his theory works. Within Davydov's article, he stated how Vygotsky had an impact on 3 theories that play a role in child development and socialization. Davydoy states "the theory of the independence of psychological development from education and from upbringing of a human being (as in the works of Gessell, Freud, Piaget, and others). Psychological development is seen here as a fully independent process, the results of which are merely used in education and upbringing. Even

today, many theoretical psychologists describe the regularities and stages of children's development without regard to how and what children are taught and how they are brought up"(1995). This first theory regarding Vygotsky's work helps educators and those studying the topic of how independence in children could be used to determine their upbringing.

The second theory he mentioned was "The interdependence of psychological development and upbringing (for example, the works of G. S. Kostyuk, N. A. Menchinskaya, and others). According to this theory, development is defined by certain internal factors and at the same time by teaching and upbringing, the concrete character of which depends on the real level of human development" (1995). Within this second theory, he discusses how internal factors could be examined for and ultimately result in understanding their character. The last theory he mentions that plays a part in understanding Davydov's theory he mentions how "organized interactions of the child with adults, of one person with other people" could shape their culture and development (1995). While reading this article, Vygotsky explores his cultural theory in many ways whether that be interdependence, independence, or interaction between peers. With that being said, the mechanisms for his theory are based on social interactions, cultural context, and language. A child's upbringing between their guardians could prompt development.

**What Influences Development?**

Motivation is one of the key elements that determine how a theory can influence development. Based on research by Vygotsky, development is asserted by the nurture aspect of nature vs nurture. Since his theory is socialization-based, he states that most of his research is influenced by the child's environment, experiences, upbringing, and culture and that personality and cognitive abilities are defined by those aspects. However, his theory suggests that the children within this theory are either passive or active. But with the research that validates his theory, it seems as though he exerts a combination of active and passive due to the research wanting to know how a child is reactive and engages with their environment.

An active or passive environment is viewed as a dynamic and interactive context that shapes the children within it. With his theory, he provides an active environment to be able to understand the learning that may take place within the theory. Lastly, the most important motivation that influences development is internal or external motivation. Vygotsky states that internal and external factors could provide motivation depending on the surrounding environment. Providing a positive environment could allow the child to be motivated to be engaged, while some factors could delay their full potential.

**Changes within Vygotsky's Theory**

Vygotsky's theory, based on his research, is qualitative based rather than quantitative. Because his research is a qualitative change, he emphasizes the transformation of children. For

example, in the research article by Hosokawa et al., they determined the link between technology use and behavior problems among 1,642 children (2018). Within this research, they examined the nature of the children and how long they spent on their devices. Because of qualitative change, it shows the children in their environment which shows the accuracy of the outcome. While qualitative is related to the steadiness of research, it correlates with linear development. Vygotsky's theories imply that he has a steady and predictable progression within the timeline of his research. Although there is steady progression within his research, he does not include a specific duration for development. He emphasized the importance of social interactions to be organic. If data for Vygotsky's theory changes throughout his research, he needs to evaluate which approach aligns with his theory. Based on past research, he aligns with a holistic approach with qualitative data, due to the fact of considering the integration of cognitive, social, emotional, and cultural factors that shape the individual. Overall, the qualitative changes occur when there are positive environments, social interaction, and educational resources for parents, that best support the use of technology.

## Limitations in Vygotsky's theory

Most theories provide a limitation on what could not be accounted for when theorizing. One of Vygotsky's flaws within his theory is that he does not examine how biological factors could result in a decrease or increase in interaction within child development. However, in the article by Michael Skyer, he stated how children who are deaf have social experiences that result in them having to compromise, which could ultimately affect them biologically (Skyer, 2023).

## Applying Vygotsky's Theory to Technology Use

Vygotsky cultural theory is a psychological and educational theory that emphasizes the importance of social interaction in child development. With social interaction being one of his most important ideas, he states that it allows children to explore new ideas and ways of thinking, which leads to cognitive and intellectual growth. My topic is technology use in children. It explores how technology affects and isolates children, which could lead to a deficit in cognitive and intellectual thinking. It could also lead to a decrease in external communication with peers and families. Since Vygotsky's theory is socially based, it could open theories as to why technology has an impact on communication

## Limitations

Limitations that technology use plays a role in Vygotsky's theory is that since his theory is over 20 years old, he may not have advanced research on how children now have tablets, phones, televisions, or other devices that many individuals did not have when Vygotsky first made his theory. His theory needs to be comprehensive and integrate new ideas that are present tense

## Future Directions

       With the future constantly changing with new research every day, I feel as though Vygotsky's theory could play a role in high school students and how they interact with social media versus in-person socialization with their peers. With the future being technology-based, high school students would be the perfect study for this observation.

## Conclusion

       In conclusion, Vygotsky's cultural theory has left a historical mark on psychology and education development throughout history. His emphasis on socialization, culture, and other aspects that explore interaction evolves within new research every day. His remembrance impacts a multitude of different theorists such as Piaget and Erikson. With his framework of cognitive development, he allows researchers to gain clarity regarding their future work. My topic of technology is important to understand in the 21st century due to schools, work, and other therapies being remote. Technology allows individuals to be active online but could increase isolation. Although there are limitations to his research, he provides outlooks on peer interaction, collaborative learning, and development in cognitive thinking for child development.

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