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# THE IMPACT OF GADGET USE ON PRESCHOOL CHILDREN'S SPEECH COMPETENCE

*The purpose of the article is to analyse and summarize the studies concerned with the problem of the impact of gadget use on preschoolers' speech competence. The undertaken literature analysis has shown that numerous studies examine the relationship between gadget use and child development. Their main findings demonstrate the link between excessive time spent on gadgets (screen time) by children under 6-years-old and their language delay. This article contributes to the area of research by interpreting the survey data obtained from preschool-aged children's parents living in Belarus and Israel, thus providing information about the parents' knowledge how to protect their children from the negative effects of excessive screen time.*

*Keywords: speech competence, preschool children, gadget use, screen time.*

## Introduction

The significance of language that humans use in communication cannot be overestimated. Communicative acts are performed mainly due to it. Spoken language is a means of contact or conversation between members of a society through which people express their thoughts, emotions, and aspirations. Any speech and language impairments can have a negative impact on communication, social engagement, and social acceptance. The American Speech and Hearing Association (ASHA) defines language as "a behavioral aspect governed by specific rules that involve the comprehension and/or utilization of spoken (i.e., listening and speaking), written (i.e., reading and writing), and/or other communication symbol systems (e.g., American Sign Language)" [1, p. 48]. However, spoken language acquisition can face significant impairments, especially among children.

To define a language disorder, we should mention its commonly agreed definition as "a condition impeding the comprehension and/or usage of spoken, written, or other symbolic systems" [2, p. 3]. This condition may indicate impairments within the structural components of language, including phonological processing, morphological formation, and syntactic organization, or it may reflect deficits in the conceptual aspects of language, particularly semantic representation. Furthermore, a language disorder can disrupt the functional dimensions of communication, most notably pragmatic competence, thereby hindering effective social interaction and discourse.

Lately, much attention has been drawn to the potential influence of technologies (gadgets) and the amount of time spent engaging with them. Their impact on speech and language development has been attributed to the crucial role of parent/child interactions in promoting speech stimulation and fostering fluency. In this context, the absence of adequate parent/child communication and interaction may lead to a delay in toddlers' ability to speak fluently and smoothly [2; 3].

## Research methods and methodology

The purpose of the article is to analyse and summarize the studies addressing the problem of the impact of gadget use on preschool children's speech competence. The research purpose led us to a particular set of methods, among which were the method of literature analyses and the generalization method. We also applied a survey method based on a questionnaire to support the undertaken study with the empirical data. The used questionnaire was mixed and included open-ended and closed-ended questions. That allowed us to receive both: the qualitative and quantitative data. Descriptive statistics methods were employed for processing the collected data.

## Research results and discussion

Technology is developing rapidly, transforming the way people live. It has become one of the important needs in human life today. This includes TVs, smartphones, tablets, laptops, etc., which are also referred to as gadgets. Various digital media technology has emerged showing different advanced features with all the excitement and temptation offered to clients. Gadgets or digital devices are considered one of the most commonly used communication tools nowadays. Moreover, gadgets have penetrated various elements of society and social groups, including children who get extremely vulnerable in such an environment. Thus, research into the impact of gadgets use on speech competence and language development in children becomes topical. The concept of "gadget use" is referred here to the time children spend watching something on a gadget.

The constant advancement in technologies influences people's lifestyle and quality of life considering the fact that technologies are of great importance "in terms of communication model to conduct routine activities" [4, p. 318]. The American Academy of Pediatrics advisory board fully confesses the health implications of excessive screen time being a result of uncontrolled usage of gadgets [5].

When it comes to technologies, American Academy of Pediatrics criticizes the use of gadgets (e.g., TVs and media) before the age of 2 years, explaining that by the unknown impact gadgets may have on the young developing brain [5]. Most of research findings have shown that the language and speech problems have great chances to appear, when children spend much time on gadgets.

We should mention the pieces of research that points to the connection between excessive screen time among preschool children and their language delays [6; 7]. This might happen because children's language development and vocabulary growth are directly related to the amount of time parents spend speaking to them.

Many research works have investigated the impact of gadget-based technologies on preschool children, identifying two main factors influencing speech and language development: the factor of time and the factor of content. Although the quantity of time that children spend engaging with gadgets tends to garner the most attention, it is essential to recognize that the nature of the content to which they are exposed also plays a crucial role in language development. According to T. M. Hudon, the quality of the programming may have a more significant impact on language development rather than the amount of time spent watching it [8, p. 248].

Several researchers have noticed a negative connection between increased gadget use and children's language development. Researchers have found out that the more time children spend on screen devices, the more likely they have delays in expressive speech. It was also mentioned that gadgets negatively affect communication [9, p. 178].

Table 1 shows different research findings on the effects of gadgets use on children's speech development. On the one hand, some studies highlight positive effects of utilizing screen gadgets, such as their suitability for supporting learning and language development, as well as modifying children's behavior. These tools can serve as supplementary aids, helping to improve language skills in structured environments. On the other hand, the majority of research emphasizes the negative consequences associated with excessive screen time. Those negative consequences include delayed speech, attention deficit, mental disorder, decreased concentration, poor emotional control, and health problems, etc. As it is seen from the majority of studies, gadgets have a negative effect on children development if their use is not properly and deliberately regulated. Even though there are some positive effects of gadget use on children's speech and language development, the negative effects of their overuse outweigh the benefits, necessitating careful and deliberate technology utilization in early childhood.

Table 1 – Effects of gadgets on preschool-aged children's speech competence

| Authors | Impact | Findings |
|---|---|---|
| D. L. Linebarger, S. E. Vaala | negative / positive | The outcomes can be negative as well as positive, depending on various factors. Screen content that closely mirrors the real-world experiences of infants and toddlers is more likely to facilitate learning and language development [9, p. 180]. |
| P. Nikken | negative / positive | The author warns against using digital devices as a passive distraction tool (e.g., to calm or occupy a child) without active parental engagement, as this may limit meaningful interaction and developmental benefits. However, screen media can serve as a valuable resource when parents leverage technology to introduce complex or unfamiliar topics beyond their own expertise. Devices can help structure routines in families with siblings of varying developmental needs, balancing differing demands [10, p. 532]. |
| T. M. Hudon, C. T. Fennell, M. Hoftyzer | negative | For language development outcomes, the low educational value of media content appears to be a stronger negative determinant than the total duration of exposure [8, p. 248]. |
| H. Duch, E. M. Fisher, I. Ensari, M. Font, A. Harrington, C.Taromino, C. Rodriguez | negative | Alarmingly, children exposed to two or more hours per day of child-focused television content were 6.25 times more likely to show significant language comprehension deficits compared to peers watching similar durations of adult-oriented programs [7, p. 3]. |
| H. Byeon, S. Hong | negative | Korean toddlers aged two years who averaged over two hours of daily television exposure showed a significant association with delayed language development [2, p. 10]. |
| I. Rahmayani | negative | Every additional 30 minutes of time used to play gadgets can increase the risk of late speaking up to 49 % [11]. |

Table 1 (cont'd)

| | | |
|---|---|---|
| D. R. Anderson, K. Subrahmanyam | negative | Background TV exposure, typically non-educational for young children, correlates with dual deficits: (1) inefficient attentional allocation and (2) diminished parent-child engagement – a key driver of early cognitive and linguistic advancement [12, p. 59] |
| S. Perdana, B. Medise, E. Purwaningsih, | negative | Language delays affect 5–8 % of Indonesian children, in part because excessive TV viewing robs them of the interactive exchanges crucial for early learning. Passive screen time cannot replace responsive human engagement – without it, language development suffers [13, p. 101]. |
| J. Sundus | negative | Excessive digital device usage in early childhood poses severe developmental risks beyond just cognitive impacts. Research highlights multiple concerning consequences including:<br>1) visual impairment – increased risk of myopia and eye strain,<br>2) attention deficits - reduced focus and self-regulation capacity,<br>3) academic underperformance – poorer learning outcomes,<br>4) social skill delays - impaired emotional intelligence and peer interaction,<br>5) language acquisition deficits – slower vocabulary and communication development.<br>These effects compound to create long-term disadvantages during critical developmental windows [14, p. 2]. |
| M. Keumala, M.Yoestara, Z. Putri | negative | There are at least "three negative effects of gadget: speech delay, attention deficit and mental disorder" [15, p. 316]. |
| D. N. Sari | negative | The negative effect is that unidirectional video exposure (e.g., dialogue-free animations or muted content) limits language acquisition by eliminating responsive interaction – a key mechanism for vocabulary growth and syntactic development in early childhood [16, p. 201]. |
| R.Wahyuningtyas, R. Rochanah, T. S. Izatovna | negative | Unregulated gadget use poses serious developmental risks for children, with scientifically proven detrimental effects including:<br>1) impaired concentration – significantly reduced attention spans and focus ability,<br>2) emotional dysregulation – diminished impulse control and increased behavioral issues,<br>3) delayed speech development - slower language acquisition and communication skills,<br>4) physical health consequences – vision problems, sleep disturbances, and sedentary-related disorders.<br>These cumulative effects can lead to long-term developmental setbacks during critical growth periods [17, p. 60]. |
| N. F. Karani, J.Sher, M. Mophosho | negative | Early and excessive screen exposure significantly impairs language development, with research showing:<br>1) earlier age of first screen use correlates with greater language deficits,<br>2) longer daily screen time predicts poorer linguistic outcomes [18, p. 829]. |

For our research, we randomly selected 93 parents of preschool-aged children (5 to 6 years old) from Belarus and Israel (45 and 48 respectively). They were asked a few questions, but one of them was especially informative for this article: "How much time does your child spend on gadgets (smartphones, TVs, tablets, etc.) per day?". The survey data are provided in Table 2.

Table 2 – Parents' answers to the question "How much time does your child spend on gadgets per day?"

| *State* | *Answers* | | | |
|---|---|---|---|---|
| | *less than 1 hour* | *1 to 2 hours* | *3 to 4 hours* | *5 hours and more* |
| Belarus | 35,6 | 53,3 | 8,9 | 2,2 |
| Israel | 37,5 | 47,9 | 10,4 | 4,2 |

As the data show, more than 10 % of children in each group (11,1 % and 14,4 % in Belarus and Israel respectively) spend 3 to 5 hours on gadgets of various types. Around half of the children in each group spend 1 to 2 hours on gadgets. The received results vastly excess the recommended screen time for pre-schoolers, given the fact that for 5-year-old children their gadget use is allowed to last no longer than 1 hour, in accordance with the advice done by the World Heals Organisation.

Another survey question for the same groups of parents was "Which ways could you list that might protect children from the negative effect of screen time use?" After interpreting, the received data are provided in Table 3.

Table 3 – Parents' answers to the question "Which ways could you list that might protect children from the negative effect of screen time use?"

| *State* | *Answers* | | |
|---|---|---|---|
| | *no listed ways* | *1 to 2 listed ways* | *3 and more listed ways* |
| Belarus | 13,4 | 84,4 | 2,2 |
| Israel | 10,4 | 81,3 | 8,3 |

The data show that more than 10 % of parents in each group (13,4 % and 10,4 % in Belarus and Israel respectively) do not know any ways at all that can protect children from the negative effect of screen time use. The majority of parents can operate only 1 to two ways of protecting children from the negative effect of gadgets.

One more survey question for the same groups of parents was "How does your child behave when having a spare time without gadgets?" After interpreting, the received data are provided in Table 4.

Table 4 – Parents' answers to the question "How does your child behave when having a spare time without gadgets?"

| *State* | *Answers* | | |
|---|---|---|---|
| | *Finds an occupation on his/her own* | *Complains about boredom and asks for switching the gadget on.* | *Behave aggressively and demands to switch the gadget on.* |
| Belarus | 11,1 | 55,6 | 33.3 |
| Israel | 12,5 | 58,3 | 29,2 |

The data point out that only 11,1 % and 12,5 % of surveyed children in Belarus and Israel respectively) are reported to be able to find occupations on their own during spare time without gadgets. The majority of children demonstrate unwanted behaviours in such situations.

All the survey data provided above require focused pedagogical and enlightening work with children and their parents.

**Conclusion**

The findings of numerous research works show mainly a negative correlation between excessive screen time and children's speech competence development. Most of scholars point out that the more time children spend on smart phones, tablets, electronic games, and other handheld devices, the more likely they experience delays in expressive speech. The negative effects of overusing screen gadgets include delayed speech, attention deficit, mental disorder, decreased concentration, poor emotional control, unacceptable impact on children's language development. According to our own survey data analysis, we can infer that the use of gadgets by preschool-aged children is undoubtedly excessive, and yet their parents in most cases do not have the appropriate repertoire of preventing strategies at their disposal. All these findings confirm that despite the existence of some positive effects associated with employing gadgets, the negative effects of their overuse significantly outweigh the benefits. The acknowledgement of the fact that speech and language development can be shackled by the use of gadgets necessitates taking further educational measures aimed to provide thoughtful and purposeful use of technology in early childhood.

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Х. Саади

## ВЛИЯНИЕ ИСПОЛЬЗОВАНИЯ ГАДЖЕТОВ НА РЕЧЕВУЮ КОМПЕТЕНТНОСТЬ ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

Цель статьи – проанализировать и обобщить исследования, посвященные проблеме влияния использования гаджетов на речевую компетентность у дошкольников. Анализ литературы показывает, что существует связь между увеличением количества времени, проведенного детьми в возрасте до 6 лет с гаджетами, и задержкой развития их речи. В статье приводятся данные опроса, проведенного автором с родителями детей дошкольного возраста, проживающими в Беларуси и Израиле. Как выяснилось, количество времени, фактически проводимого детьми у экранов гаджетов, значительно превышает рекомендованное для дошкольников экранное время. В статье также содержатся результаты опроса, касающиеся знаний родителей о способах защиты детей от негативного влияния экранного времени и о поведении ребенка в свободное время без гаджетов.

Ключевые слова: речевая компетентность, дошкольники, использование гаджетов, экранное время.