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Place of Residence Affects Preschool Children's Speech Development: A Study on Children Living in Apartments and Neighborhoods

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Abstract

The aim of this study is to examine the effect of the place of residence on the speech development of preschool children living in an apartment or neighbourhood. In the study, children's speech skills were evaluated using the Expert Assessment Scale of Speech Skills (EASSS) developed by Işık Aydın and Erdem (2022). In this context, 100 students (53 living in an apartment and 47 living in a neighbourhood) were analysed by expert therapists according to the EASSS results. According to these findings, although the EASSS total score frequencies of the participants differed, it was observed that children living in apartments had a significant delay in speech development compared to those living in the neighbourhood ($t=-8.488$, $p<.001$, Cohen's $d=-2.44$). In conclusion, social isolation is thought to be one of the main causes of speech development delay in children living in apartment buildings. Therefore, it is thought that it is important to create common playgrounds to support the language development of children living in these areas.

Keywords: Speech development, Education, Living area, Preschool children

Introduction

Childhood is a critical period in which the foundations of speech and language development are laid [1]. Children are expected to start saying their first words at approximately 12-18 months of age, and this process usually accelerates at the age of 2-3 years [2]. Language and speech skills acquired in these early periods play a major role in children's social [3], emotional [4], and cognitive development [5]. The ability to speak enables children to communicate effectively with their environment, express their feelings, and obtain information. Therefore, the development of speech skills in early childhood is an important factor affecting the overall quality of life and success level of individuals [6].

Speech delay or speech disorders can develop due to various causes. Genetic factors [7], neurological disorders [8], hearing loss [9], an environment with poor language modeling and psychosocial factors can lead to speech delay [10]- [11]. Research shows that boys experience speech disorders at a higher rate than girls [12]. Children with speech delay may have difficulties in social interactions, their school success may be negatively affected and they may lack self-

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confidence. However, early diagnosis and intervention can help these children improve their speech and language skills and minimize long-term negative effects [13].

The environment in which a child lives has a significant impact on speech and language development. Children living in apartments may generally have a limited social environment and may have limited opportunities to play outside and interact with other children [14]. In contrast, children living in neighborhoods usually have a wider social network and may have more opportunities for communication [15]. These social interactions are critical for children to develop their language skills. Moreover, neighborhood environments can increase language richness by enabling children to communicate with individuals from different age groups.

The aim of this study is to examine the effects of the environment in which children live on speech development. Comparing the speech skills of children living in apartments and neighborhoods aims to develop a deeper understanding of this issue. The necessity of the study is based on the belief that a better understanding of environmental factors on speech development can contribute to the development of early intervention strategies. The hypothesis of the study is that children living in neighborhoods will have more developed speech skills than children living in apartments. This study aims to emphasize the importance of appropriate environmental arrangements and interventions to support children's speech development.

Method

In this study, the scale method, one of the quantitative data collection techniques, was adopted cross-sectionally. The research was applied to 100 students attending pre-school education. Participants who did not attend school regularly, had any disability, had developmental disorders, chronically used any medication, and had active infection were not included in the study. The minimum sample size of G Power (University of Düsseldorf, Düsseldorf, Germany) was used in this study. Accordingly, when $\alpha=0.05$, $1-\beta=0.80$ and effect size $=.51$, it was determined that at least 98 participants should participate in the study with 80% actual power.

Institutional permissions were obtained within the scope of the study and voluntary consent was obtained after all parents were explained the purpose, reason and hypotheses of the study. In addition, the research was conducted in accordance with the principles set out in the Declaration of Helsinki.

Data Collection Tools

In this study, students attending pre-school education institutions were randomly selected. Expert supervisors then assessed each participant individually. The same observer expert team made the evaluation for each participant.

Expert Assessment Scale for Speaking Skills (EASSS)

In this study, 'Speaking Skill Expert Rating Scale' was used as a data collection tool. In the process of developing the scale, a detailed literature review was conducted in order to measure the basic elements of speaking skills and an item pool including the related topics was created. The draft scale was submitted to expert opinions and 26 items were found appropriate. In the validity analyses, it was determined that 19 items met 62% of the total variance with a single factor structure as a result of exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) revealed that the fit indices were appropriate (X^2/sd : 1.453, CFI: .970, GFI: .907, RMSEA: .048). For reliability analysis, Cronbach Alpha reliability coefficient was calculated and .941 value was obtained for 17 items. This high value shows that the internal consistency of

the scale is high. The scale was applied by 20 teachers to 200 students and analysed with the data obtained. This scale was used in the study as a reliable and valid tool that allows a detailed assessment of speaking skills [16].

Statistical Analysis

In this study, SPSS 22 (Chicago, USA) software was used for statistical analyses. Visual graphics were made with Python software. An Independent Sample t-test was used to compare the speaking skills of preschool students living in an apartment and in a neighborhood. Firstly, the normality of the data was checked by the Shapiro-Wilk test. This test was used to determine whether the data were normally distributed or not, and if the p-value was greater than 0.05, it was accepted that the data were normally distributed. In addition, Q-Q plots were examined to visualize normality. As a second step, the homogeneity of variances was assessed by Levene's test. Levene's test checks whether the variances between two groups are equal or not and if the p-value is greater than 0.05, the variances are considered to be homogeneous. This is an important prerequisite for the applicability of the Independent Sample t-test.

Following the normality and homogeneity tests, an Independent Sample t-test was applied to determine the difference between the speaking skills of preschool students living in an apartment and in a neighborhood. This test is used to determine whether the difference between the means of two independent groups is statistically significant, and the difference between the groups was considered statistically significant if the p-value was less than 0.05. Cohen's d effect size was calculated to assess the practical significance of the difference between the groups. Cohen's d refers to the magnitude of the mean difference between the two groups in terms of standard deviation and is considered small if below 0.2, medium if around 0.5, and large if above 0.8 [17].

Results And Discussion

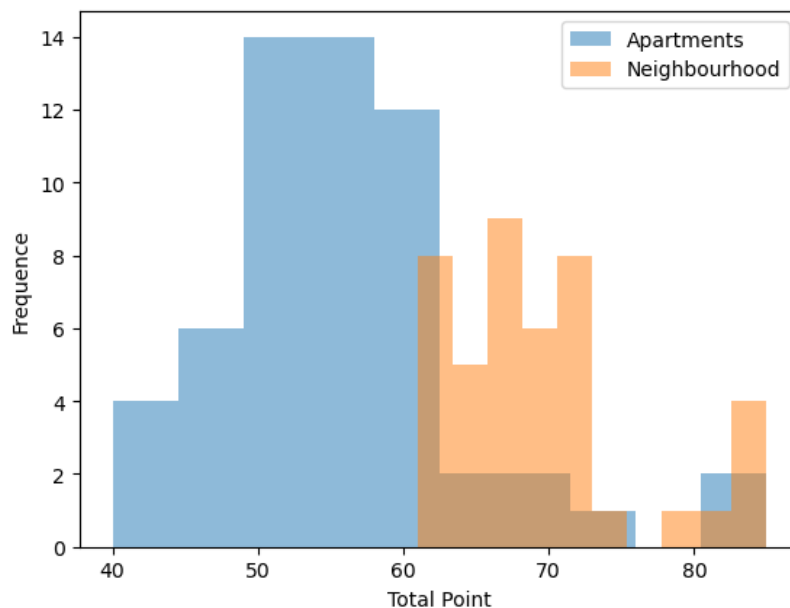


Figure 1. Frequencies of total speech development scores of the participants according to the flow they live in

Figure 1 shows the participants' speech development score according to the area they live in. According to this, the average speaking skill of individuals living in an apartment was found to be 53.81 ± 6.27 , minimum=40, maximum=71. The average speaking ability of individuals living in the neighbourhood was found to be 70.02 ± 6.98 , minimum=61, maximum=85.

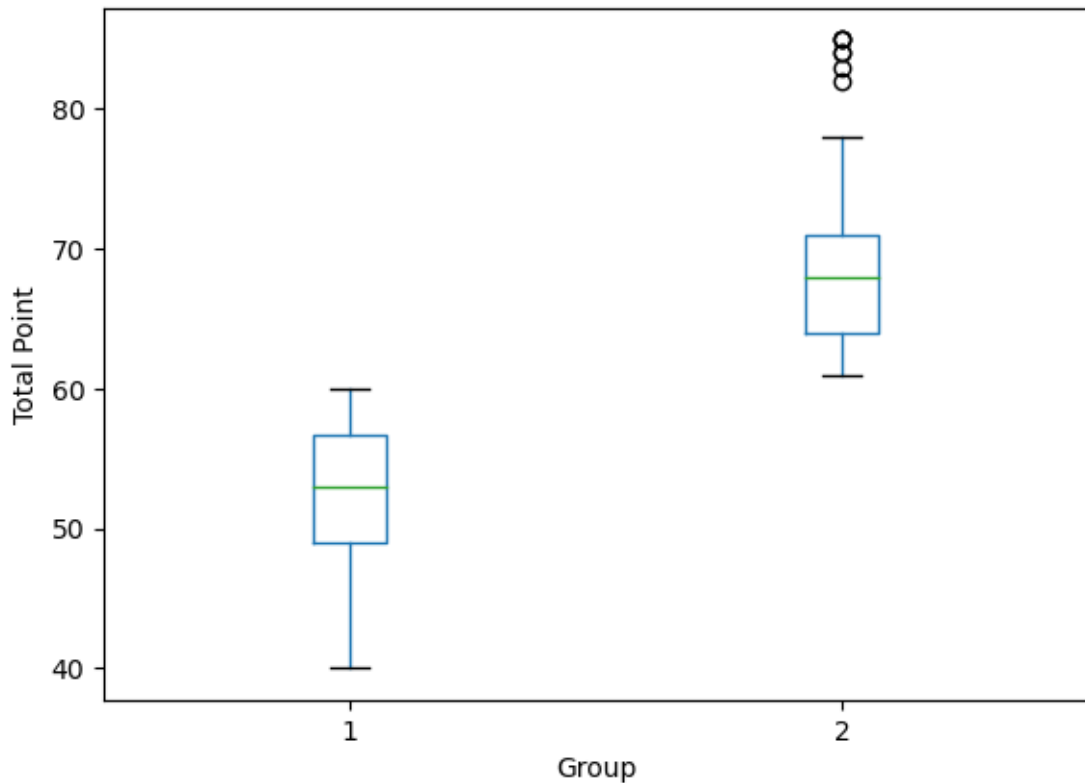


Figure 2. T-test results of participants' speech development

Figure 2 shows the speaking skills of the participants according to the type of structure in the area where they live. Accordingly, the speech development of preschool children living in the neighborhood was more advanced than that of children living in an apartment ($t=-8.488$, $p<.001$, Cohen's $d=-2.44$).

The main findings of this study revealed that preschool children living in apartments showed a significant delay in speaking skills compared to children living in neighbourhoods. In line with the hypothesis, children living in neighbourhoods were observed to have more developed speaking skills. Independent Sample t-test results showed that the difference between speaking skills was statistically significant. These results suggest that social isolation may cause delays in the speech development of children living in flats.

Speech delay may develop due to neurological, genetic and physiological reasons. Problems such as neurological disorders, genetic factors and hearing loss can lead to speech delay [8]-[7]. Such problems can cause delays in children's speech and language skills and negatively affect their social interactions. In our study, the effect of environmental factors on speech development was examined and it was concluded that lack of social interaction may contribute to speech delay, regardless of such neurological and genetic factors. Our study supports that the social environment plays a critical role in speech

development.

The impact of environmental factors on speaking skills has been widely discussed in the literature. Gu [14] and Visser et al. [15] emphasise that the environment in which children live supports language development by increasing opportunities for social interaction. Children living in neighbourhoods have a wider social network and more opportunities for communication compared to those living in apartments. This is a critical factor for children to develop their speech and language skills. For example, Ramírez-Esparza et al. [3] emphasise the importance of parent-child interactions in children's language development. The opportunity for children to communicate with individuals from different age groups increases language richness and promotes language development [15]. These findings are also supported by studies conducted by Hoff and colleagues [18]. Hoff stated that environmental factors and social interactions play a critical role in children's language development. Children's interactions with their families and their immediate environment are decisive in the development of language skills. Hoff's research emphasises the importance of parents' level of education and linguistic stimuli provided at home in children's language development [18]. In addition, Schwab and Lew-Williams (2016) showed that children from families with low socio-economic status experience delays in language development and that this situation is related to environmental deprivation [19]. On the other hand, a classic study conducted by Hart and Risley [20] reveals how effective environmental factors are on children's language development. Hart and Risley found that the amount and variety of speech children are exposed to at home makes a big difference in language development. Children who grow up in rich language environments have a larger vocabulary and stronger language skills. The findings of our study are consistent with this literature and show that environmental factors have a significant impact on children's speech development. It has been observed that children living in apartments with limited opportunities for social interaction experience delays in their speaking skills. Children living in neighborhoods, on the other hand, have more developed speaking skills because they have wider social networks. These findings emphasize the importance of appropriate environmental arrangements and interventions to support children's language development.

Limitations of the study include the limited sample size and demographic diversity. The study was limited to children in a specific region, and future studies with a larger and more diverse sample may increase the generalisability of the findings. In addition, since it was a cross-sectional study, factors changing over time and long-term effects could not be observed. Future research addressing these issues with longitudinal methods will allow us to better understand the long-term effects of environmental factors on speech development. In addition, it may be useful to examine other socioeconomic factors and family structures that affect language development.

Conclusion

According to the findings obtained from the results of this research, it was determined that preschool children living in apartments showed less development in speaking skills than those who grew up in the neighbourhood. In this context, it is thought that measures should be taken to prevent social isolation in these areas. Especially in such areas, parks and playgrounds to be created at critical points and at points accessible to everyone can be an important method in preventing this situation. In addition, the results of the studies conducted have shown that this situation regarding these speech skills in children attending pre-school education is quickly eliminated. For this reason, it should be ensured that pre-school age individuals receive pre-school education before formal education. It is thought that some policies should be established for these individuals to continue school in the same way. Although children growing up in the neighbourhood have improved their speaking skills, it has been observed that they have problems with the pronunciation of some words. It is thought that these individuals

should also be directed to pre-school education in order to prevent these wrong learnings.

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References

- J. S. Perkell and D. H. Klatt, "Invariance and Variability in Speech Processes" Psychology Press., USA, 2014, <https://doi.org/10.4324/9781315802350>
- M. T. Carlson, M. Sonderegger and M. Bane, "How children explore the phonological network in child-directed speech: A survival analysis of children's first word productions," *Journal of Memory and Language*, v. 75, pp. 159–180, 2014, <https://doi.org/10.1016/j.jml.2014.05.005>
- N. Ramírez-Esparza, A. García-Sierra and P. K. Kuhl, "Look Who's Talking NOW! Parentese Speech, Social Context, and Language Development Across Time," *Frontiers in Psychology*, v. 8, 2017, <https://doi.org/10.3389/fpsyg.2017.01008>
- H. Van Agt, L. Verhoeven, G. Van Den Brink and H. De Koning, "The impact on socio-emotional development and quality of life of language impairment in 8-year-old children," *Developmental Medicine & Child Neurology*, v. 53, no. 1, pp. 81–88., 2011, <https://doi.org/10.1111/j.1469-8749.2010.03794.x>
- I. S. B. Nip, J. R. Green, and D. B. Marx, "Early speech motor development: Cognitive and linguistic considerations," *Journal of Communication Disorders*, v. 42 no. 4, pp. 286–298, 2009, <https://doi.org/10.1016/j.jcomdis.2009.03.008>
- R. Feeney, L. Desha, J. Ziviani and J. M. Nicholson, "Health-related quality-of-life of children with speech and language difficulties: A review of the literature," *International Journal of Speech-Language Pathology*, v. 14, no. 1, pp. 59–72, 2012, <https://doi.org/10.3109/17549507.2011.604791>
- J. Den Hoed and S. E. Fisher, "Genetic pathways involved in human speech disorders," *Current Opinion in Genetics & Development*, v. 65, pp. 103–111, 2020, <https://doi.org/10.1016/j.gde.2020.05.012>
- A. Basilakos and J. Fridriksson, "Types of motor speech impairments associated with neurologic diseases," *Handbook of Clinical Neurology*, pp. 71–79, 2022, <https://doi.org/10.1016/B978-0-12-823384-9.00004-9>
- K. Wiefferink, C. Van Beugen, B. Wegener Sleeswijk and E. Gerrits, "Children with language delay referred to Dutch speech and hearing centres: caseload characteristics," *International Journal of Language & Communication Disorders*, v. 55, no. 4, pp. 573–582, 2020, <https://doi.org/10.1111/1460-6984.12540>
- M. E. Hayiou-Thomas, "Genetic and environmental influences on early speech, language and literacy development," *Journal of Communication Disorders*, v. 41, no. 5, pp. 397–408, 2008, <https://doi.org/10.1016/j.jcomdis.2008.03.002>
- B. Çar, A. Kurtoğlu, B. Yermakhanov and İ. Bozdağ, "The Effect of 8-week educational game training on cognitive flexibility, emotional intelligence and coping strategies," *Journal of Physical Education and Sport*, v. 23, no. 6, pp. 1528–1536, 2023, <https://doi.org/10.7752/jpes.2023.06187>
- A. Zanon, F. Sorrentino, L. Franz and D. Brotto, "Gender-related hearing, balance and speech disorders: a review," *Hearing, Balance and Communication*, v. 17, no. 3, pp. 203–212, 2019, <https://doi.org/10.1080/21695717.2019.1615812>
- H. M. Sharp and K. Hillenbrand, "Speech and Language Development and Disorders in Children," *Pediatric Clinics of North America*, v. 55, no. 5, pp. 1159–1173, 2008, <https://doi.org/10.1016/j.pcl.2008.07.007>
- N. Gu, "Korean apartment complexes and social relationships of the residents," *Housing Studies*, v. 35, no. 8, pp. 1362–1389, 2020, <https://doi.org/10.1080/02673037.2019.1667491>

- K. Visser, G. Bolt, C. Finkenauer, M. Jonker, D. Weinberg and G. W. J. M. Stevens, "Neighbourhood deprivation effects on young people's mental health and well-being: A systematic review of the literature," *Social Science & Medicine*, v. 270, no. 113542, 2021, <https://doi.org/10.1016/j.socscimed.2020.113542>
- R. Işık Aydın and İ. Erdem, "Development of an expert assessment scale on speaking skills," *Rumeli Dil ve Edebiyat Araştırmaları Dergisi*, v. 30, pp. 106–120, 2022.
- J. Cohen, "Statistical power analysis for the behavioural sciences (2nd ed.)," Lawrence Erlbaum Associates, Eng, 1988.
- E. Hoff, "How social contexts support and shape language development," *Developmental Review*, v. 26, no. 1, pp. 55–88, 2006, <https://doi.org/10.1016/j.dr.2005.11.002>
- J. F. Schwab and C. Lew-Williams, "Language learning, socioeconomic status, and child-directed speech," *WIREs Cognitive Science*, v. 7, no. 4, pp. 264–275, 2016, <https://doi.org/10.1002/wcs.1393>
- B. Hart and T. R. Risley, "Meaningful Differences in the Everyday Experience of Young American Children," Paul H Brookes Publishing, USA, 1995.