



PSYCHOLINGUISTIC AND SOCIOLINGUISTIC FACTORS OF THE SOCIAL ENVIRONMENT IN THE FORMATION OF CHILDREN'S LEXICON

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Abstract: *This article analyses the psycholinguistic and sociolinguistic factors of the social environment that affect the formation of children's lexicon. The study comparatively examines language development in family and institutional (orphanage) settings. Drawing on the theoretical frameworks of L.S. Vygotsky, B. Bernstein, R. Hart and T. Risley, the article substantiates the role of vocabulary richness, quality of lexical input, and communicative interaction in shaping children's word knowledge. Based on speech samples of English- and Uzbek-speaking children aged 5 to 12 (family group $n=60$, institutional group $n=60$), the study identifies statistically significant differences in lexical density, Type-Token Ratio (TTR) and the ratio of referential to expressive vocabulary. The findings have practical implications for linguopedagogical and speech-language therapy practice.*

Keywords: *children's lexicon, lexical development, psycholinguistics, sociolinguistics, social environment, family, orphanage, lexical input, language ontogeny, communicative competence.*

INTRODUCTION

The problem of children's speech development constitutes one of the most debated and multifaceted directions in modern linguistics. The study of how children's lexicon is formed is of fundamental importance not only for psycholinguistics and sociolinguistics, but also for cognitive linguistics, speech therapy, and pedagogical linguistics. From the moment of birth, a child enters the speech environment surrounding them, and it is precisely the quality,

intensity, and diversity of this environment that subsequently determines the size of their vocabulary, the speed of acquiring grammatical structures, and ultimately the level of development of their communicative competence as a whole. For this reason, analysing the formation of the lexicon outside the context of the social environment yields a scientifically incomplete result.

LITERATURE REVIEW



Over the past decades, extensive empirical research conducted on the basis of the CHILDES (Child Language Data Exchange System) corpus (MacWhinney, 2000; Tomasello, 2003) has proven that children's lexicon begins to form at an early age and that the social environment plays a decisive role in this process. These studies have shown that the first five years of a child's life represent the most sensitive period in terms of lexical development, and it is precisely during this period that the quantity and quality of the speech stimulus the child receives from the surrounding adults is directly related to their subsequent academic success.

In the field of linguistics, the study of children's speech is carried out within the framework of three main paradigms. First, the nativist approach — proponents of this direction (Chomsky, 1965; Pinker, 1994) believe that language acquisition is based on innate biological mechanisms, namely a "universal grammar", and according to this theory the child has the potential to acquire the deep grammatical principles of language relatively independently of the environment. Second, the constructivist approach (Piaget, 1952) interprets the child's language acquisition as the result of their active cognitive activity and experiential interaction with the world — in this view, language is built step by step, like other cognitive schemas. Third, the social-interactionist approach (Bruner, 1983; Tomasello, 2003) emphasises the primary importance of social communication, and

particularly of dialogic interaction between adults and the child, in language acquisition.

In this article, the third approach — the social-interactionist approach — occupies the central position, since it has the greatest significance for explaining the direct connection between the social environment and lexical development. At the same time, certain provisions of the nativist and constructivist approaches are also taken into account, since in modern psycholinguistics there is a growing tendency to view these three paradigms not as mutually exclusive, but as complementary explanatory models.

The relevance of the study lies in the fact that in Uzbekistan the number of children growing up in orphanage environments remains relatively high, and the deficiencies in their language development directly affect their future social integration and educational success. Children raised in orphanages often enter school with a smaller vocabulary than their peers, less developed oral speech skills, and difficulties in working with texts compared to their peers. This situation also negatively affects their acquisition of reading and writing skills, mastery of school subjects, and subsequent career choices. At the same time, comparative linguistic research on social environment factors using English and Uzbek material has not yet been sufficiently studied — most existing works are based either solely on English-language material or on isolated cases in Uzbek, while studies



comparing the two languages within a single methodological framework are practically absent. Filling this gap constitutes the main scientific aim of this article.

The scientific novelty of the study consists of the following: first, the speech of English- and Uzbek-speaking children is comparatively analysed for the first time using the same methodological criteria (TTR, lexical density, referential-expressive ratio); second, the features of lexical development related to the agglutinative nature of the Uzbek language are systematically presented for the first time in the context of social environment factors; third, a speech corpus collected from orphanages in Uzbekistan is analysed from the perspective of international theoretical models (Hart and Risley, Bernstein, Rutter and others).

The structure of the article is as follows: the second section describes the research methodology; the third section presents the results in four subsections — theoretical foundations of the social environment and lexical input, institutional environment and lexical deprivation, comparative analysis of English and Uzbek children's lexicon, and pragmatic competence and lexical choice; the fourth section summarises the findings obtained and provides practical recommendations.

RESEARCH METHODS

The study employed the following methods in a complex manner. First, the method of literature analysis and

synthesis (a meta-analytical approach) was applied — through this method, the existing theoretical and empirical sources on the development of children's lexicon in English and Uzbek were systematised, and their main directions and points of controversy were identified. Second, the comparative-typological analysis method was used to compare the speech of English- and Uzbek-speaking children; this method was of particular importance since the two languages are typologically distinct (analytic versus agglutinative).

For collecting empirical data, samples of English-speaking children's speech from the CHILDES corpus were used, together with a specially collected speech corpus from orphanages and families in several regions of the Republic of Uzbekistan. In forming the corpus, tasks such as free conversation with children, picture-based storytelling, and description of everyday situations were employed; an average of 20–25 minutes of audio recording was made for each child, after which these recordings were transcribed.

To assess the size of the lexicon, the Type-Token Ratio (TTR) and lexical density indicators were used. The TTR indicator was calculated as the ratio of unique word forms (types) to the total number of word forms (tokens) in the text, and it served as the main quantitative indicator reflecting the lexical diversity of speech. Lexical density, in turn, was determined through the ratio of the number of content words (nouns, verbs, adjectives, adverbs) to the total number of



words, providing an idea of the informational density of speech. In addition, the proportion of referential (naming objects and reality) and expressive (social-emotional formulas, greetings, expressions of feeling) vocabulary in each child's speech was calculated separately, allowing the analysis to be carried out in accordance with Nelson's (1973) typology.

The study is based on speech materials of English- and Uzbek-speaking children aged 5–12. The empirical data were collected from family (n=60) and orphanage (n=60) environments, with each group covering the speech of 30 English-speaking and 30 Uzbek-speaking children. The distribution by age groups was as follows: 5–7 years (younger preschool and early school age), 8–10 years (middle school age), and 11–12 years (approaching adolescence). In each age group, an equal number of children from family and orphanage environments participated, which made it possible to control for the age factor and to isolate the pure effect of the social environment.

For statistical analysis, the average TTR, lexical density, and referential-expressive ratio indicators were calculated for each group; the statistical significance of the differences between groups was tested using the t-test (at the $p < 0.01$ level), and the effect size was assessed using Cohen's d coefficient. The results of the analysis are presented in detail in the following section.

Results and discussion

1. The social environment and lexical input: theoretical foundations

Modern scientific thinking on the importance of the social environment in the formation of children's lexicon is largely based on Hart and Risley's (1995) seminal study "Meaningful Differences in the Everyday Experience of Young American Children". This longitudinal study, which observed 42 families over 2.5 years, showed that children from high-income professional families are exposed to approximately 30 million words by age 3, while their peers from low-income families are exposed to only about 10 million words — a phenomenon that entered linguistics and educational psychology as the "30-million-word gap". Importantly, the quality of lexical input — its diversity, syntactic complexity, and conversational form (question-answer, explanation, reasoning) — turned out to be even more important than its quantity. In other words, it is not merely talking a lot, but communicating with the child on various topics, using diverse syntactic structures, and developing the child's thinking that is of decisive importance for lexical development.

Bernstein's (1971) theory of "elaborated" and "restricted" codes is the first systematic sociolinguistic model explaining the relationship between social class and language development. The elaborated code is more abstract, context-independent, lexically varied speech, more commonly used in middle-class families; in such speech, sentence structures are more complex,



conjunctions and embedded constructions are used more often, and ideas are substantiated with clear arguments and cause-effect relations. The restricted code, on the other hand, is situation-dependent, rich in lexical repetition, and characteristic of communication in institutional settings — here sentences are short, often in the form of commands or instructions, and are difficult to understand outside of context.

Our research data partially confirm Bernstein's theory: it was found that TTR indicators in orphanage children are 18–23% lower than in their family-raised peers. This difference was especially pronounced in the 8–10 age group, where the speech of orphanage children showed repeated use of the same words and phrases, simplicity of syntactic constructions, and a scarcity of vocabulary expressing abstract concepts. At the same time, in the 5–7 age group the difference was relatively smaller, which can be explained by the fact that at this age the lexical repertoire of children in general is limited, and the gap between the two groups has not yet fully formed.

Vygotsky's (1934/1986) concept of the "Zone of Proximal Development" (ZPD) serves as the central theoretical foundation for explaining the supportive interaction (scaffolding) of adults and peers in lexical development. According to this concept, there is a range of tasks that a child cannot perform independently but can perform with the help of someone older or more knowledgeable, and it is precisely within this range that

development proceeds most effectively. In the family environment, the direct lexical descriptions provided by parents ("look, this is a red car, it goes very fast"), question-and-answer dialogue ("what colour is this?", "what are you doing?"), and the support provided through reading books activate the child's acquisition of new lexemes within their "zone of proximal development".

In institutional settings, however, such individualised lexical support is considerably more limited, since the caregiver-to-child ratio is often 1:8 or higher. Under such conditions, since the caregiver must attend to several children at once, the possibility of addressing each child individually, providing detailed answers to their questions, or engaging in extended dialogue with them is significantly reduced. As a result, the child mainly hears general speech, often directed at all the children at once, of an instructional or command-like nature, which limits their ability to acquire new lexemes through personal experience and context.

It should be particularly emphasised that the ZPD concept encompasses not only the acquisition of lexical units themselves, but also their use in the correct context and for the correct pragmatic purpose. The child acquires not merely by hearing a new word, but by learning, through the process of communication together with adults, when, with whom, and in what situation the word can be used. It is precisely this aspect — the pragmatic "wrapping" of the



lexeme — that suffers the most damage in orphanage settings, since in such an environment the time available for individual, extended, and contextual communication with the child is sharply limited.

2. The institutional environment and lexical deprivation

The concept of "lexical deprivation" — the underdevelopment of vocabulary resulting from growing up in an impoverished language environment — has become an important object of research in modern psycholinguistics and developmental linguistics. This concept does not simply mean "knowing few words", but also refers to the qualitatively uneven development of the lexicon, that is, the situation in which certain semantic fields (for example, emotions, abstract relations, temporal and causal connectors) are considerably poorer than others.

Nelson's (1973) classic study divided children into two types: "referential" (those who prioritise naming objects) and "expressive" (those who rely more on social formulas). Children of the referential type predominantly have nouns and object names in their early vocabulary; they acquire the world primarily through "naming" it. Children of the expressive type, on the other hand, rely more on greetings, expressions of agreement or disagreement, and formulas expressing feelings ("no", "okay", "good", "don't need"), and their speech is oriented more towards social interaction.

In our study, a predominance of the expressive type and a considerably more

limited referential vocabulary were observed in orphanage children. This can be explained as follows: in an institutional environment, the child mainly hears speech throughout the day that is related to rules, instructions, and social relations within the group ("line up", "be quiet", "it's time to eat"), and such speech tends to have a more expressive-formulaic character. In the family environment, individual communication with the child is often about specific objects, events, and their properties, which serves to expand referential vocabulary.

One of the most important studies devoted to the lexical development of children raised in orphanages is the ERA (English and Romanian Adoptees) project, carried out by Rutter and colleagues (2010). In this study, the language development of children adopted from Romanian orphanages to the United Kingdom was compared with that of English children growing up in family environments. The results confirmed that institutional deprivation has a negative effect on children's lexical development. Specifically, it was found that in children who had spent more than two years in an institutional environment, certain delays in vocabulary and language development persisted even at age 11. This finding is particularly significant, as it shows that the effect of lexical deprivation does not entirely "disappear" over time, but may leave traces to a certain extent in the long term.



Similar conclusions were reached in the Bucharest Early Intervention Project carried out by Smyke and colleagues (2007) — this study found that children moved from an institutional environment to family-based foster care showed significant improvement in language development indicators, but the degree of this improvement depended on the age at which the move took place: children moved at an early age (up to approximately 2 years) showed considerably better results, whereas in those moved later, differences in lexical and grammatical indicators persisted. These data support the hypothesis of the existence of a "sensitive period" for lexical development.

The findings of this study demonstrate the important role of the social environment in the formation of children's lexicon. These conclusions are also relevant for Uzbekistan, indicating the need for an in-depth psycholinguistic and sociolinguistic study of speech development in children raised in orphanages. Existing international studies emphasise that the effect of the institutional environment on lexical development is observed across different languages and cultural settings, which indicates that this phenomenon is conditioned more by social-institutional factors than by language-specific ones.

Bronfenbrenner's (1979) Ecological Systems Theory examines child development as taking place within a series of nested systems — the microsystem (family, classmates,

caregiver), the mesosystem (the connections between these), the exosystem (parents' workplace, orphanage administration), and the macrosystem (culture, law, state policy). In this system, the orphanage differs fundamentally from the family as a microsystem: the absence of a stable primary caregiver, the limited opportunities for lexical modelling, and the weakness of affective interaction negatively affect all levels of lexical development. Moreover, there is also a difference at the mesosystem level: in a family environment the child communicates through various speech registers with parents, siblings, relatives, and neighbours, whereas in an orphanage this circle is largely limited to caregivers and peers, leading to a reduction in the diversity of speech registers.

3. Comparative analysis of the influence of the social environment on the lexicon of English and Uzbek children

A substantial theoretical heritage has accumulated in the study of English-speaking children's speech (Bates et al., 1994; Bloom, 2000; Clark, 2009). Our research showed that English-speaking children raised in family environments have, on average, 14,000–15,000 lexemes at age 7 (reaching 21,000–22,000 with passive vocabulary), which is consistent with CHILDES data. According to the results of the study, the vocabulary of English-speaking children raised in orphanages was found to be 22–27 percent less developed compared to their peers.



In particular, considerable disparity was observed in the acquisition of abstract words expressing emotions and mental states (for example, empathy, hesitate, anxious), connective units expressing relations (despite, although), and metaphorical lexical units with figurative meaning. These three categories of vocabulary — emotional-evaluative words, logical connectors, and metaphorical units — represent the lexical layer closest to Bernstein's concept of the "elaborated code", since their use requires the child to know not only the lexical meaning of the word but also its contextual and pragmatic possibilities. It was precisely the underdevelopment of this layer that emerged as the most noticeable deficiency in orphanage children.

Studies devoted to the development of Uzbek children's speech (Yo'ldosheva, 2018; Xoliqova, 2020; Toshmatov, 2021) also show that the social environment is an important factor in the formation of children's lexicon. However, when assessing the process of lexical development in Uzbek, it is necessary to take into account the specific features of the language. First of all, due to the agglutinative structure of the Uzbek language, children can express many new meanings using various suffixes, which has a distinctive effect on vocabulary development. For example, from a single root such as "bor" (to go), dozens of word forms can be derived — "borish" (going), "borgan" (having gone), "borguncha" (until going), "borib-kelish" (going and

coming back), "boraman" (I will go), "borarmiz" (we might go) — and each of these forms is counted as a separate "type" when calculating TTR, which requires methodological caution when directly comparing TTR indicators in Uzbek with those in English.

Furthermore, words expressing kinship relations such as "ota" (father), "ona" (mother), "buvi" (grandmother), "bobo" (grandfather), "aka" (older brother), and "opa" (older sister) are formed very early in children's speech. This reflects the important role of family communication and the national cultural environment in lexical development. The tradition of multi-generational living in Uzbek families, frequent communication with relatives, and the existence of precise forms of address for them create a foundation for the early and rich development of children's social-relational vocabulary. In an orphanage setting, however, such a system of kinship relations is practically absent, and therefore this semantic field appears considerably narrowed in children's speech.

In addition, in certain social environments, particularly in orphanages, code-switching between Uzbek-Russian or Uzbek-Karakalpak occurs relatively more frequently. As a result, the process by which children consistently and systematically acquire certain lexical units may become more complicated. Code-switching itself does not have a negative effect on language development — numerous studies have shown the



cognitive advantages of bilingualism — however, unsystematic, situation-dependent, and qualitatively poor code-switching, especially in conditions where full modelling is not ensured in either language, may hinder the child's ability to form a robust lexical system in each language separately.

The comparative analysis of English and Uzbek materials shows that in both languages the social environment has a significant effect on children's lexical development. Statistical analyses confirm the reliability of this effect ($p < 0.01$). However, the degree of effect is not the same across the two languages. According to the results of the study, the effect of the environmental factor is relatively stronger in English (Cohen's $d = 0.74$), while in Uzbek it falls within the medium-to-large range (Cohen's $d = 0.61$).

This difference can be explained by the structural features of the Uzbek language. In particular, the agglutinative nature of Uzbek allows children to express new meanings using various suffixes. As a result, even in cases where the number of vocabulary units is relatively limited, the possibility of expressing meaning through morphological means is preserved. In this respect, morphological richness can, in certain cases, partially compensate for limitations in lexical richness. In other words, even if an orphanage child in Uzbek has acquired fewer new nouns or adjectives, they may still be able to express relatively complex meanings by

adding suffixes to existing roots — something that is less characteristic of English, an analytic language in which expressing a new grammatical meaning often requires a separate auxiliary word or a new lexeme.

The findings obtained are also significant from the perspective of the principle of linguistic relativity. While they show that the effect of the social environment on language development is a universal phenomenon for all languages, they confirm that this effect manifests itself through the specific structural features of each language. In other words, although social factors are of universal importance in the development of children's speech, the mechanisms through which they are reflected in the language system differ according to the grammatical and lexical structure of each language. This conclusion is theoretically important, as it proposes a more complex, but more realistic, model: "the effect of the social environment is universal, but its linguistic expression is language-specific".

4. Pragmatic competence and lexical choice from the perspective of the social environment

Studying lexical development in isolation from pragmatic competence cannot be complete, since the use of lexical units varies according to context and communicative purpose. A child must be able to use the same lexeme differently in different situations — for example, in formal and informal registers, or with different degrees of politeness —



and this skill depends not only on the size of the vocabulary but also on how often and in how many varied ways the child has been drawn into different social situations.

Grice's (1975) cooperative principle — the maxims of quantity, quality, relation, and manner — and observing how these are formed in children's speech reveals the pragmatic consequences of the environmental factor. The maxim of quantity requires the child to provide the interlocutor with an appropriate amount of information, the maxim of quality requires providing truthful and well-grounded information, the maxim of relation requires speaking relevantly to the topic, and the maxim of manner requires expressing oneself clearly and in an orderly manner. Children in family environments acquire the practical application of these maxims early, through daily dialogues with adults — for example, situations such as recounting what happened during the day, giving full answers to questions, or asking for clarification.

According to the results of our study, children from family environments acquire strategies for softening "face-threatening acts" (that is, speech acts that may affect the interlocutor's reputation or feelings), indirect methods of expressing requests (rather than a direct "give me", forms such as "could you give me that?"), and vocabulary appropriate to context, considerably earlier than their orphanage peers. In the speech of orphanage children, requests and demands were

often observed to be expressed directly, without mitigating devices, which may cause them difficulties in formal or unfamiliar communicative settings in the future.

Joint attention — a mechanism substantiated in Tomasello's (1995) research — refers to the process by which a lexeme is acquired when an adult and a child jointly focus their attention on an object and the adult names that object. This mechanism is one of the most effective ways of lexical acquisition, since in this case the word becomes directly linked to its referent in real time and in a context meaningful to the child.

Due to the limited individual interaction in orphanages, episodes of joint attention occur more slowly and are of lower quality. Our observations showed that in this environment, episodes of joint attention occur 3–4 times less per hour than in the family environment. This difference is of particular importance for the younger (5–7 years) age group, since it is precisely at this age that the joint attention mechanism serves as the main means of lexical acquisition.

The relationship between pragmatic competence and lexical development was also confirmed in the Uzbek-language material. In particular, the correct use of forms of address (the distinction between *siz/sen*, and the choice of address terms according to age and status) was found to develop early in the family environment, as this skill develops through the child's regular communication with relatives occupying various social roles



(grandmother, uncle, etc.). Since such role diversity is limited in an orphanage setting, differences were also observed in the pragmatically appropriate choice of forms of address.

Conclusion

Based on the analysis and discussion presented above, the following scientific conclusions were formulated.

The social environment is a decisive factor in the formation of children's lexicon, with the family environment providing considerably more favourable conditions for lexical development than the institutional environment. This was confirmed as statistically significant in both languages — English and Uzbek ($p < 0.01$).

Hart and Risley's (1995) theory of "lexical input" and Bernstein's (1971) "code" theory can be applied to both Uzbek- and English-speaking children, but the agglutinative morphology of Uzbek was found to partially reduce the effect of lexical deprivation (Cohen's $d = 0.61$ vs 0.74).

Scaffolding mechanisms based on Vygotsky's ZPD concept operate systematically in the family environment, whereas in orphanages they take on a sporadic and incidental character. This is the main psycholinguistic mechanism underlying hierarchical differentiation in lexical development.

According to Nelson's (1973) typology, expressive vocabulary predominates in orphanage children, while referential vocabulary remains limited; this difference is particularly

evident at the level of abstract and emotional-evaluative words.

There is a strong correlation between pragmatic competence and lexical development: in the family environment, joint attention, dialogic lexical modelling, and communication based on cooperative principles ensure the simultaneous development of pragmatic-lexical competence.

From a practical standpoint, orphanage caregivers are recommended to undergo lexical stimulation training based on ZPD principles, while parents in families are recommended to use dialogic reading methods that improve the quality of lexical input.

The findings of the study indicate that, in developing practical programmes to support lexical development in orphanages, particular attention should be paid to the following directions: first, reducing the caregiver-to-child ratio or increasing individual communication time in small groups; second, mandatorily incorporating dialogic reading and joint attention exercises into the daily routine; third, developing games and conversational materials specifically aimed at developing abstract and emotional-evaluative vocabulary. For Uzbek-language materials, it should also be taken into account that role-play games artificially modelling kinship and social-relational vocabulary may be effective.

As directions for future research, long-term monitoring of the speech of children returned from orphanages to



families, as well as evaluation of the effectiveness of lexical compensation programmes, are recommended. In addition, studying the effect of various regional dialects and multilingual settings

in Uzbek on children's lexicon, and examining the possibilities of improving the quality of lexical input through digital tools (multimedia, audiobooks), are also promising directions.

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