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**Psychology of subculture: Phenomenology and Contemporary
Tendencies of Development**

**COGNITIVE DEVELOPMENT OF EARLY AGE
PRESCHOOLERS IN THE CONTEXT OF MONO-AND
BILINGUALISM**

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Abstract

An empirical study implements a general psychological approach to the study of cognitive development, which considers cognitive processes as “generic” properties of a person. In accordance with this approach, the research focuses on the study of the peculiarities of cognitive development in different categories of children - monolinguals and bilinguals. To assess the level of children's cognitive development, 10 methods were applied, which at an affordable level for younger preschool children made it possible to identify various aspects of their cognitive development. In this empirical study the features of the cognitive development of monolingual children and bilingual children (preschool age children, from expatriate families) attending pre-school educational organizations were studied. The bilingual children in this study were shown to be more cognitively advanced than their monolingual peers, but their memory was less developed. It was found that in the early preschool years there seems to be a “reconfiguration” of memory modalities. Important conditions affecting the performance of cognitive development are the psycho-emotional state of children and their inclusion in a particular educational system.)It was revealed that the early bilingualism has neither a definite positive nor a negative impact on the cognitive development of children, rather that it was of a neutral factor.

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1. Introduction

The problems of cognitive development and defining the conditions that positively affect the development of cognitive ability of children have been a major principle subject of study in psychological research for many years.

As a result of our research, a wide range of factors were identified that influence a child's response to his or her environment. These factors include the correlation between language and cognitive ability, which is controversial and most interesting.

Language plays an integral part of culture and social life. However, empirical research on its role in human cognitive development is clearly insufficient. Moreover, most studies have scrutinized adults who already have language literacy. Children, especially those of younger preschool age (3-4 years old) were rarely the focus of scientific attention.

2. Problem Statement

Bilingualism is a phenomenon that exists throughout the world, on all continents. In most countries of the world, it is characteristic of the educational environment of educational institutions, in which both monolingual children (indigenous people) and bilingual children (migrants) are represented. In the studies of bilingualism these children often acted as subjects. However, when studying migrant children living in a foreign language environment, it is difficult to avoid the cultural affiliation hypothesis (Matsumoto, 2002), which affects the course and results of research. Therefore, our attention was drawn to children from families of expats who speak (or begin to speak) two languages: native and foreign — English in this case, but never lived in English-speaking countries.

In this regard, it is necessary to think about how language is associated with cognitive processes and with general mental development. Does the rate of cognitive development depend on whether people speak one or more languages?

3. Research Questions

It is important to identify which option - mono- or bilingualism - creates the most favorable basis for the cognitive development of children 3-4 years old: what are the general features of cognitive development at this age: what cognitive consequences arise from the impact of the language factor ss. learning to speak one language or several at once.

4. Purpose of the Study

It is important to identify the features of the cognitive development of younger preschoolers: monolinguals and bilinguals.

5. Research Methods

- theoretical. The cultural-historical approach formulated by Vygotsky (1960) was fundamental for studying the characteristics of cognitive development in the younger preschool age. Vygotsky believed

himself that thought and language are interdependent processes from the very beginning of life. Learning a language changes the higher mental functions of a child: it gives perception and thinking a certain form, contributes to the development of attention and imagination, makes possible the use of memory, comparison and classification operations, and provides action planning and self-regulation development. In this sense, the language systematizes the direct experience of children and, therefore, acquires a central role in their cognitive development.

- diagnostic. The following methods were used to study the cognitive development of children 3-4 years old: "A box of form", "Draw a person test", "Train", as well as the methods "Umbrellas", "Picture completion", "Find an animal", "Memorizing words, objects and movements", "Matryoshka doll" (Martsinkovskaya, 2000).

- statistical. Statistical processing of the results included descriptive and inductive statistics performed using the SPSS program.

- organizational. The study was conducted in Moscow kindergartens. The experiment involved 96 preschoolers aged 3 to 4 years. 49 bilinguals and 47 monolinguals. We will focus only on the study of early bilinguals-the very children who master the second language simultaneously with their first language in childhood.

The cognitive development of the child is the driving force behind the development of mental abilities, determining not only their level (quantitative characteristic), but also their individual identity (qualitative characteristic). It covers "all mental activity or conditions associated with the acquisition of knowledge and the functioning of the mind, including perception, attention, memory, thinking, speech functions" and others (Corsini & Auerbakha, 1998, p. 591).

All higher mental functions (speech, thinking, memory, perception, self-regulation, etc.) arise intersubjectively in ontogenesis they differentiate and reintegrate, becoming intrapsychic phenomena. This process transforms socially regulated, interpersonal operations, changing their structure, functions and content into individually-controlled mental operations, introducing personal coloring and cognitive orientation in them. Vygotsky (1960) argued that language is central to this transformation. It's important to emphasize that he points to the role of language, not speech.

Thus, the language is located in the psychosocial dynamics between parents and children, and manifests itself not as a transmitter of culture, independent of psychosocial realities, but as a tool for the practical solution of certain tasks. This is most clearly seen in the phenomenon of bilingualism.

The question of the influence of the knowledge of two languages on various aspects of the intellectual development of a person has always aroused the interest of researchers. In general, as noted by Bogus (2008), in the history of the study of this issue, three periods are conventionally distinguished: "negative", "neutral" and "positive".

The first period is characterized by a negative attitude towards bilingualism. The second, "neutral period" concludes that intellectual and speech development of mono- and bilinguals is absolutely the same, and bilingualism can both enrich and impoverish the intellectual development of a child (Emelyanova, 2010).

Studies of subsequent years have shown that learning more than one language has a positive effect on the overall literacy level. It was revealed that bilingualism improves the skills of classification, concept

formation, drawing analogies, and contributes to the development of a creative approach (Ramirez-Esparza, 2006; Grosjean, Li, & Bialystok, 2013).

It is established that knowledge of two languages is not just knowledge of two ways of speaking. The brain of a person who has two linguistic ways of expression in a speech asset has abilities that a monolingual lacks. The enriching effect of bilingualism can come from its very complexity: the fact that the structures and concepts of different languages never completely coincide.

However, a number of researchers pay attention to the ambiguity of the results of research conducted in this area. The long-running debates cannot be considered completed (Emelyanova, 2010; Matsumoto, 2008; Grosjean, Li, & Bialystok, 2013).

Thus, according to some researchers, bilingualism leads to negative or neutral consequences in cognitive development. Other researchers suggest that bilingualism is a positive developmental phenomenon. However, currently known studies have been carried out mainly on samples of schoolchildren or students, as well as on children from indigenous families or from migrant families. Research, in the center of which were children from families of expats, was not conducted. The essential issue of this study is to ascertain the positivity, neutrality or negativity of the effect on the cognitive development of 3-4-year-old bilinguals.

An empirical study implements a general psychological approach to the study of cognitive development, which considers cognitive processes as “generic” properties of a person. In accordance with this approach, the research focuses on the study of the peculiarities of cognitive development in different categories of children - monolinguals and bilinguals.

General characteristics of the sample are presented in table 1.

Table 01. Sample Characteristics

| General | Differences |
|--|---|
| All children at the time of the survey lived in Moscow | Included in the living environment (foreign-native) |
| Children age 3-4 | In language (bilingual - monolingual) |
| All children attend preschool | Mother tongues are different |
| All children live in the family | |
| Language proficiency levels (native for monolinguals, native and foreign for bilinguals) are age appropriate | |

In total, the study involved 96 children with no health restrictions from eight groups of four Moscow kindergartens.

Children age: from 3 to 4 years. 49 people are bilingual children (early bilingualism). 47 people are monolinguals.

Scheme, procedure and research methods are presented in tables 2 and 3.

Table 02. Organizational construction of empirical research in accordance with the factors of cognitive development

| Compared categories of children | Compared groups | Survey ¹ |
|---------------------------------|--------------------------|---------------------|
| Children (bilingual) | №1, 2, 3, 4 =49 children | in English |
| Children (monolingual) | №5, 6, 7, 8=47 children | in Russian |

The groups №1, №2 №3, №4 from one kindergarten include children from families of expatriates (specialists of different nationalities working in a foreign country under a contract). This kindergarten is attended only by children of expats. At the time of the study, the approximate time of stay in the Russian Federation is one year. At home, all children speak their first languages, but in kindergarten, all communication between them and adults is carried out in a foreign language, English. It was not possible to compare the cognitive development among these children in their first language. In addition, if the participants in the study are people from different cultures with different first languages, then it takes on the nature of a focus on studying the language itself and the difference between languages, rather than cognitive processes behind them.

Children from Russian kindergartens speak only their first language, Russian. Their families are Russian speakers.

The sociological variables of professional class, education, and parents' lifestyle were constant for all groups of children. In other words, standard control procedures were presented with experimental isolation of one of the variables, monolingual or bilingual.

To assess the level of children's cognitive development, 10 methods were applied, which at an affordable level for younger preschool children made it possible to identify various aspects of their cognitive development. An overview of the diagnostic tools of the study is shown in Table 3.

Table 03. Diagnostic support for empirical research

| Diagnostic parameters of cognitive development | Techniques (name) |
|---|--------------------------|
| Perception and attention (concentration, sustainability) | "Umbrellas" |
| The level of perception and action with sensory standards | "A Box of forms" |
| Visual and imaginative thinking | "Picture completion", |
| Comparison and classification operations | "Finding an animal test" |
| General mental development | "Drawing a person test" |
| Short- term auditory memory | "Memorizing a Word" |
| Short-term visual memory | "Memorizing an Object" |
| Short-term motor memory | "Memorizing a Movement" |
| Hand -Eye coordination | "Matryoshka doll" |
| Diagnostic parameters of emotional development | Techniques (name) |
| Psycho-emotional state of the child | "Train" |

When choosing a diagnostic tool, we proceeded from the fact that it should be used to identify the central mental formations that characterize the level of cognitive development of a 3-4 year old child.

¹ The diagnostic work was carried out in both languages by the same person, who knew them perfectly

² All techniques are variations of games for 3-4 year olds with assignment of points for a certain level of actions performed

6. Findings

The results of cognitive development, obtained separately for bilingual and monolingual children, are presented in Table 4.

Table 04. Indicators of the cognitive development of monolingual children and bilingual children

| Comparison options | Monolingual | Bilingual |
|---|-------------|-----------|
| Perception and attention | 2,3 | 2,5 |
| Visual and imaginative thinking | 2,2 | 2,4 |
| Comparison and classification operations | 2,6 | 2,6 |
| The level of perception and action with sensory standards | 2,9 | 3,1 |
| Short term auditory memory | 3,6 | 3,1 |
| Short-term visual memory | 4,4 | 3,8 |
| Momentary short-term memory | 4,6 | 4,4 |
| General mental development | 8,2 | 9,3 |
| Hand-eye coordination | 5,0 | 4,9 |
| Psycho-emotional state of the child | 3,6 | 2,2 |

According to table 4, bilingual children are ahead of their peers in the development of the intellectual sphere, individual mental operations, perception and attention. Monolingual children show better results in the short-term memory zone.

The greatest inhomogeneity, i.e. a large scatter of data was revealed (by counting $W = X_{\max} - X_{\min}$) with bilingual children by general mental development ($W = 17$), visual ($W = 5$), auditory ($W = 5$), motor memory ($W = 5$), and also on the psycho-emotional state ($W = 7$). with monolingual children, a large scatter of data W was found in general mental development ($W = 18$), visual ($W = 5$), auditory ($W = 4$) memory, and also in psycho-emotional state ($W = 11$). As for the remaining parameters of cognitive development high uniformity was found.

The cognitive development of bilingual children is somewhat ahead of the same development of their peers, monolingual, but somewhat late. In terms of perception and attention ($U=810$, the differences are statistically significant at $p \leq 0.01$), as well as in the development of visual-imaginative thinking levels ($U=901$, the differences are statistically significant at $p \leq 0.05$), bilingual pre-school children are ahead of their monolingual peers. It should also be noted that the level of their overall mental development is higher ($U= 812$, the differences are statistically significant with $p \leq 0.01$), and the psycho-emotional state is more comfortable ($U=807$, the differences are statistically significant with $p \leq 0.01$). However, they work worse with Matryoshka doll ($U=917$, the differences are not statistically significant at $p \geq 0.05$). Perhaps by itself, Matryoshka doll for them is an unusual toy. The operations of comparison and classification, the level of perception and actions with sensory standards in bilinguals and monolinguals are identical, the indicators do not differ.

The Memory diagnostics tests show that, with each repetition, the number of memorizing objects increases within both test groups. In monolingual children, the quantitative indicators of such memorization are higher for all types of memory ($U=805$, the differences are statistically significant at $p \leq 0.01$), but for preschool-bilingual children, the increment rates, i.e. the dynamics of memorization itself, is higher. In both

groups, the volume of auditory memory is lower than the visual one, and the volume of the visual memory, in turn, is lower than the motor one.

Then, using the SPSS program, the correlation (according to Pearson) correlations between the indicators of all methods were also calculated. Significant ($p \leq 0,01$) correlations are presented in tables 5, 6.

Table 05. Correlations between the indicators of all methods for bilinguals

| | Perception and attention | Visual-imaginative thinking | Classification and comparison operations | Level of perception and action with sensory standards | Auditory memory | Visual memory | Motor memory | Mental development |
|---|--------------------------|-----------------------------|--|---|-----------------|---------------|--------------|--------------------|
| Classification and comparison operations | | 0,423** | | | | | | |
| Level of perception and action with sensory standards | 0,371** | 0,428** | 0,477** | | | | | |
| Auditory memory | | 0,529** | 0,571** | 0,599** | | | | |
| Visual memory | | 0,435** | | 0,602** | 0,747** | | | |
| Motor memory | | 0,397** | | 0,549** | 0,644** | 0,863** | | |
| Mental development | | 0,454** | 0,547** | 0,523** | 0,645** | 0,573** | 0,554** | |
| Hand-eye coordination | | 0,399** | 0,384** | 0,554** | 0,409** | 0,473** | 0,427** | 0,534** |
| Psycho-emotional state | | | | | | | | -0,548** |

Note: ** - correlations are statistically significant at $p \leq 0.01$

Table 06. Correlations between the indicators of all methods for monolinguals

| | Perception and attention | Visual-imaginative thinking | Classification and comparison operations | Auditory memory | Visual memory | Motor memory | Mental development |
|-----------------------|--------------------------|-----------------------------|--|-----------------|---------------|--------------|--------------------|
| Auditory memory | 0,457** | 0,408** | 0,450** | | | | |
| Visual memory | | | | 0,771** | | | |
| Motor memory | | | 0,449** | 0,681** | 0,674** | | |
| Mental development | 0,440** | 0,478** | 0,413** | 0,486** | 0,423** | | |
| Hand-eye coordination | 0,463** | | 0,482** | 0,476** | 0,436** | 0,428** | 0,558** |

With bilinguals there were 28 connections, with monolinguals there were 18. Thus, we can come to conclusion that the greater interconnection and structuring of the parameters of cognitive development in the case of bilingual children rather than in the case of monolingual children.

According to table 6, in the group of bilinguals, the greatest number of correlations falls on visual-motor coordination, visual-imaginative thinking, and general mental development. This means that they play a leading role in the cognitive development of younger bilingual preschoolers, since a violation in the subject-spatial orientation will cause a maximum disruption in cognitive development, giving rise to secondary disorders. Conversely, its advanced development contributes to the positive dynamics of cognitive development in the younger preschool age.

We draw attention to the fact that the more developed (with the identified high absolute indices, see Table 4) cognitive processes also reveal a large correlation network. Exceptions are associated with memory: its highest values are determined by the motor modality, and the largest correlations are identified by the visual modality. Apparently, in the younger preschool years, there is a “reconfiguration” of modalities: the motor memory loses its dominant position, and the visual memory is brought to the forefront, linking (correlating) with other cognitive processes and determining their development. Motor memory begins to manifest itself in visual-motor coordination, i.e. at a higher level. Poddyakov (2001) notes that a peculiar way of knowing, in which global structures acquire independence and independence, provides an intensive growth of mental development.

Thus, according to different methods, successful results and failures are found both in bilingual children and monolingual children. Therefore, we can conclude that the factor of bilingualism does not make an unambiguous contribution to the cognitive development of younger preschoolers, that it is, in fact, neutral.

The greatest heterogeneity was revealed in terms of general mental development, visual-motor coordination, and visual and auditory memory. Memory instability manifested itself in the process of memorization, children were found, both with positive and negative the dynamics of memorization. The functions of attention and perception, visual-imaginative thinking, comparison and classification operations turned out to be the most stable. This reveals an internal contradiction of cognitive development in the younger preschool age, some cognitive structures become stable and others acquire or remain unstable. It is revealed that the general mental development is associated with the psycho-emotional state, which ensures the child's successful course of adaptation processes.

7. Conclusion

A theoretical analysis of domestic and foreign literature has shown that the impact of multilingualism on the cognitive development of a of 3-4 year olds children remains poorly understood and reveals itself as an urgent problem of modern psychology.

In the process of empirical research, it was found that the cognitive development of younger preschoolers is characterized by a specific phenomenology associated with the influence of various factors, the manifestation of which is caused by life circumstances and the educational context, psycho-emotional state of the child in children's groups of pre-school educational institutions. According to the language factor, it has been established that early bilingualism does not make an unambiguous contribution to the cognitive development of younger preschoolers, that it is, in fact, neutral.

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