

DEVELOPING COGNITIVE ACADEMIC LANGUAGE PROFICIENCY (CALP) VIA BILINGUAL EDUCATION: INTERNATIONAL BACCALAUREATE EXPERIENCE IN KAZAN, RUSSIA

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Abstract

Nowadays, at the beginning of the XXI century, bilingual education is considered to be quite a promising area. Over the course of time, multiple countries around the world have accumulated vast experience of bilingual education in the field of international education, starting from primary school stage. One of the leading programs in this area is the International Baccalaureate program which enables primary school students to acquire not only subject-related competences and language competences, but also to develop cognitive abilities and higher-order thinking skills. The positive effect of bilingualism on the development of cognitive academic language proficiency (CALP) of primary school students may only be achieved through a purposefully constructed developmental educational system involving two languages, the way it is practiced at the International schools.

The article presents an overview of the results obtained in the course of a research project conducted at the International School of Kazan (Russia) which operates according to the International Baccalaureate (IB) Primary Years Program (PYP). The article describes the means and results of measuring the level of cognitive academic language proficiency (CALP) development (cognitive, academic and language competences) of students within three semesters of study. It also provides a forecast of results for the fourth semester.

Keywords: bilingualism, bilingual education, International Baccalaureate, cognitive academic language proficiency (CALP).

1 INTRODUCTION

Over the past fifty years the problem of bilingualism has been the focus of many researches, in particular the issue of its formations and functioning in bilingual children. The relevance of studying bilingualism in children may be explained by the fact that the process of mastering the second language and the mechanisms of several languages co-functioning within one linguistic personality (one individual) have not yet been fully researched. This paper looks at the issue of bilingualism formation at the initial stage of education.

Viewed from a psycholinguistic perspective, bilingualism can be defined as an ability to utilize two language systems for the purposes of communication [1]. E.M. Vereschagin (2014) described bilingualism as a “psychic mechanism (comprising knowledge, skills and abilities) which enables a person to produce and reproduce speech works subsequently belonging to two language systems” [1]. U. Weinreich (1979, 1972) suggests that the focus of such approach lies in the influence of bilingualism on a person’s intellection [2], still, without highlighting the degree of language command, he defines bilingualism as “using two languages alternately” [3]. Yu. Rosenzweig (1982) believes that bilingualism is “fluency in two languages and regular switching from one to the other depending on the situation of communication” [4].

Following the above researchers, M.Siguan and W.F.Mackey (1990) conclude that a bilingual person is not only highly competent in two languages, but can also use either of them with the same degree of ease and efficiency in any situation [5]. Based upon the opinions of these researchers on the topic of bilingualism, bilingualism can be defined as command of two languages coupled with alternate practical usage of the two languages according to the situation of communication.

Irrespective of whether the acquisition of two languages happens in a natural environment or as a result of a purposefully arranged learning process, the issue of bilingual education should also be taken into

consideration. Despite the fact that initially bilingual education became widely spread in the practice of secondary schools, one of the most relevant and interesting questions of the past fifty years has been the research into cognitive processes in bilingual children within the framework of primary education.

A child's brain is undergoing a stage of active formation and advancement; therefore, the development of mental skills should be started as early as possible. The peculiarities of speech development and the formation of cognitive abilities in primary school pupils within a bilingual environment presents considerable interest and potential for further research in the field of assessing the intellectual development and cognitive superiority of such children.

Bilingual children demonstrate certain advantages in the field of metalinguistic capacities, which allow them to increase the speed and intensity of education on the whole; besides, they are more efficient (as compared to monolinguals) in formation and development of executive functions (such as attention, executive control, ability to plan one's actions, concentration, ability to sort out secondary information) which are significant not only for performing verbal tasks, but also for controlling any activity [6]. For instance, the experiment conducted by L.A.Petitto (2003) and her colleagues from Dartmouth college, which assessed the cognitive abilities of mono- and bilingual children who can read and write in two languages, revealed higher results in bilingual children, even though the initial hypothesis of the experiment was just the opposite. The results of Simon Task testing showed that bilingual children have more developed cognitive abilities as compared to monolingual children. In particular, bilinguals tended to be more apt at mathematical calculations, due to the ability to operate two linguistic systems [7].

Thus, due to the advantages of bilingual children, the model of bilingual education is getting more and more widespread in the current poly-cultural conditions of intercultural cooperation in the field of international education. In this model, the second language is not just the object of study, but mostly a means of communication and the language of teaching.

In accordance with the current approach, the concept of bilingual education within the framework of primary school education presupposes:

- Teaching an academic subject and getting the student to master the content knowledge of the subject on the basis of interconnected usage of two languages (native and acquired ones) as an educational tool;
- Teaching a foreign language in the process of acquiring content knowledge of a certain subject due to the interconnected usage of the two languages and simultaneous acquisition of a foreign language as a means of educational activity.

Thus, in bilingual education language is perceived primarily as a tool enabling students to get access to the world of specialized knowledge, while the content of education is characterized by combining the factual subject-matter component with the language component at all stages of educational and upbringing process, i.e. it reflects the integrated approach in education - Content and Language Integrated Learning (CLIL). Within the ranges of bilingual education, the academic goal will have been achieved only when the student has mastered the subject-matter content of an academic discipline, due to the fact that writing, reading and comprehension skills etc. have been developed at a relatively high level. [8]

As for developing cognitive abilities, there exists an opinion that bilingual education also contributes to acquiring high levels of language, subject and cognitive competence in pupils, which is also known as cognitive academic language proficiency (CALP), singled out by professor J.Cummins.

The formation of a bilingual model of education at an educational institution presupposes a special arrangement of a bilingual educational environment. In this respect, the practice of introducing a bilingual educational system has become widely spread primarily at international schools, where English is not a native language for the pupils.

Currently, an undoubted leader in the field of international education is International Baccalaureate Organization, implementing three programs of study – kindergarten and primary school program 'Primary Years Programme (PYP)', 'Middle Years Programme (MYP)' – secondary school program, as well as Diploma Programme (DP), targeting high school students. International schools working on IB system, guarantee universality of their study programs and issue IB diplomas which are accepted in Europe and the USA. As of 2018, about 5000 schools in 150 countries (including 45 schools in Russia) have been working by the International Baccalaureate program. In Russia, IB schools have been functioning since 1993. According to numerous research, pupils from IB schools demonstrate a high

level of academic attainment in both curriculum subjects and the language of study, as well as cognitive development, which is due to the fact that tuition is conducted bilingually.

An obligatory condition for bilingual education in Russian International schools is a high level of proficiency in both the native speaker teachers and their Russian-speaking assistants whose level of English should equal that of a native speaker. This requirement is observed at the International School of Kazan, where the Russian curriculum of primary education is closely linked with the Primary Years Program of International Baccalaureate.

The International School of Kazan is the first and only private school in Kazan which has introduced the International Baccalaureate program. Founded in 2015 as an economic development driver of Tatarstan Republic and its capital, the International School of Kazan is a flagship of Tatarstan Republic's educational system on the whole.

What assists quick language acquisition at the International school of Kazan:

- small classes: in every school class the number of students does not exceed 18, which guarantees individual approach to every student;
- teaching is conducted by native speakers as well as by highly qualified teaching assistants, that's why children acquire correct pronunciation skills, learn to use vocabulary correctly, understanding the meanings of words and expressions;
- all taught subjects, except native languages, are taught in English, which reflects the content-language integrated learning (CLIL).

Thus, bilingual education at ISK changes the educational situation from learning a foreign language to learning with the help of a foreign language already at the initial stage of education.

It should be noted that within the Primary Years Program (PYP) students practice cognition and not learning by heart: an IB pupil strives to become inquisitive and knowledgeable. In order to form and develop intellection and thinking skills, the International School resorts to using active and content-based teaching methods which help pupils achieve deep understanding of the studied content and develop their abilities to draw conclusions, analyse and summarise the information, etc. A child discovers knowledge on his or her own, with the necessary support from the teacher, through experience and practical activity. Thus, the school supports not only the development of language and academic competence, but also cognitive proficiency, which, as we believe, constitutes CALP.

Being one of the linguistic competences in the cognitive theory of bilingualism of J.Cummins (1984), the cognitive academic language proficiency is a certain degree of competence in the field of non-native language [9]. The formation of CALP takes place in three areas: cognitive, academic and linguistic. In the following, we define the academic component of CALP as the interrelation of the content of the academic subject and the practical language classes. Following the idea of J. Cummins (2000) that language should be perceived critically by students, and the language itself should be formed by linguistic and socio-cultural means, we attribute such skills as writing, determining the purpose of the written text, finding and correcting errors, etc. to the linguistic competence of CALP [10]. The cognitive direction of CALP is that in the learning process, the teacher suggests that students perform tasks that are feasible for them, but at the same time causing certain cognitive difficulties. Such tasks usually require the use of higher-order thinking skills [10]. This condition is observed in all lessons at the International School of Kazan, as the IB Learner Profile involves the development of 10 personality traits, among which we would like to highlight such qualities as: thinking, inquiring, open-minded, and analyzing.

This division of CALP into components allows us to better understand the content of competence and thus track its development in the course of the study.

2 METHODOLOGY

The research has been conducted over 18 months. The participants were 15 pupils of International School of Kazan (Kazan, Russia): 8 girls and 7 boys. All participants belonged to the same class and were included into the same age group of 7-8-year-olds. It should be noted that classes at Russian state schools and the International School differ in 1 year, so in our case the 3rd-grade pupils can be considered equal to 2nd-year pupils of Russian state schools in terms of their age and psychic development peculiarities.

Within the ranges of this research, we used statistical methods, such as statistical observation, surveying, testing, as well as methods of statistic data processing. The tests, the results of which were used to analyze the development of CALP, are included in the training program, were conducted in the main training time and are not additional.

In order to measure the level of CALP development, our research group divided the CALP competence into three components: cognitive, academic and language ones, and used the following measurement tools.

As a tool for measuring the level of academic and language proficiency in pupils throughout the whole period of observation (2017-2018 and 2018-2019 academic years) we have chosen the MAP Growth-testing (Measures of Academic Progress Growth), aimed at evaluating the academic level, knowledge and skills in the field of Mathematics, reading and practical use of language. This test has been developed by Northwest Evaluation Association (NWEA) and is currently regarded as one of the best methods to evaluate intermediary results in pupils. The test is an adaptive one, which means it can be adjusted to the abilities of every child: if the child has done the task correctly, the next one is going to be more difficult, if the answer was incorrect, the next task will be easier. Thus, MAP test is substantially different from conventional tests, which only reveal whether a student has performed the test with a higher or lower grade compared to the rest of the class, while MAP test shows how much higher or lower the student can be rated in comparison to the general grade level in their class, which may eventually help the teacher to adapt their teaching to every individual student and target curriculum to their specific needs. [11]

The test measures both the total subject grade and the grades for study areas, the so-called "goals", which we can relate to specific skills and abilities in this or that area (see Table 1). The test in Language Use and Mathematics comprises 50-53 question, the Reading test has 40-43 questions and lasts 45-60 minutes. It should be noted that the language in which the test is given (English) is not native to 100% of the research participants.

In this research we match the CALP components: cognitive, academic, language ones – with the results of real tests. Thus, we believe that the MAP Growth results in Mathematics and Reading correlate to the content of academic proficiency, while Language Use test results correlate to language proficiency. The cognitive component should be linked to the development of cognitive abilities, such as memory, attention etc., therefore we resort to the analysis of particular cognitive test results, in order to measure the degree of their development.

Following Cummins (2000), we define the academic component of CALP as an interrelation between the content of the studied discipline and the practical language classes [10]. This presupposes the knowledge of concepts and main topics in the content of the subject curriculum (in our case, these are Mathematics and Reading), as well as using this knowledge in solving the set tasks in a foreign language, and having a good command of terminology and methodology. The list of skills measured in MAP test in Mathematics, Reading and Language Usage is shown in Table 1.

Table 1. List of skills measured in MAP test in Mathematics, Reading and Language Usage.

	Mathematics	Reading	Language usage	
Skills	Operations and Algebraic Thinking	Literary Text: Key Ideas and Details	Writing: Write, Revise Texts for Purpose and Audience	
	Measurement and Data	Informational Text: Key Ideas and Details	Language: Understand, Edit for Mechanics	
	Number and Operations	Vocabulary: Acquisition and Use	Language: Understand, Edit for Grammar, Usage	
	Geometry	Literary Text: Language Craft, and Structure		
		Informational Text: Language, Craft, and Structure		

During the research, students' results have been analyzed in each of the given areas – Mathematics, Reading and Language Usage. Thus, in primary school Mathematics the following skills are measured: Operations and Algebraic Thinking, Measurement and Data, Number and Operations, etc. We believe

that reading can also be correlated with the academic component of CALP due to the fact that reading allows to test the knowledge of information search tools and methods, reading with the purpose of finding essential information, details, command of vocabulary and vocabulary usage, etc.

Following the idea of Cummins (2000) that language should be perceived by the pupils critically, and that the language itself must be formed by linguistic and socio-cultural means, we refer such skills as writing, defining the purpose of a written test, finding and correcting mistakes etc. to CALP language proficiency [10].

We believe that the evaluation of academic and language components of CALP with the help of MAP testing is expedient, because in our opinion, the adaptive test developed by NWEA, is a unique test for every child and is suitable for his or her academic level, irrespective of the class. This way, the test adjusts to the child's competence which consequently allows to qualitatively assess the level of his or her competence in any given area and transfer it into quantitative indicators.

3 RESULTS

Table 2 shows the results of MAP test in Mathematics, Reading and Language use over 18 months. The grades are presented in the interval Rasch Unit scale (RIT), which is a constant scale with equal intervals, used by NWEA. The higher the RIT score, the more achievements the student has in this subject.

Table 2. Results of MAP testing in Mathematics and English for Grade 4 students of International School of Kazan in the academic year 2017-18 as compared to the fall semester of the academic year 2018-2019.

Student	Fall semester 2017-18 academic year			Spring semester 2017-18 academic year			Fall semester 2018-19 academic year		
	Mathe- matics	Language Usage	Reading	Mathe- matics	Language Usage	Reading	Mathe- matics	Langu- age Usage	Reading
Student 1	161	158	156	164	181	169	176	162	162
Student 2	180	165	-	205	180	-	-	188	184
Student 3	157	162	154	-	167	167	-	169	-
Student 4	181	171	169	207	180	174	198	185	-
Student 5	173	166	169	201	186	179	192	180	-
Student 6	193	176	175	201	186	182	192	189	176
Student 7	162	154	151	175	174	175	183	171	172
Student 8	180	173	160	200	185	179	194	184	174
Student 9	162	156	145	179	168	165	-	168	167
Student 10	177	166	153	182	191	175	182	169	166
Student 11	175	157	150	170	168	156	169	165	154
Student 12	135	152	175	166	189	164	-	168	-
Student 13	182	197	164	198	194	185	210	198	187
Student 14	187	171	177	201	194	203	197	185	182
Student 15	201	195	187	200	198	191	207	195	210

The analysis of Math test results conducted in September 2017, April 2018 and September 2018 shows that 63,3% of all students have a constant individual progress in Math, 46,4% have progress in Reading, while 33,3% have progress in language use.

It should be noted that between the spring test and the fall test in 2018 a certain difference in results can be observed. This may be due to the fact that students had a long summer vacation and perhaps, such test results are because of lack of sufficient concentration on the task. On the other hand, if we compare the test results during the same academic year, then we can see positive dynamics: 85,7% of students showed progress in Mathematics, 92,8% - in Reading, 93,3% in Language Usage.

At ISK the student's result is compared only to his or her previous result, which enables the teacher to define the areas which should be paid special attention to in the future teaching. Also if we consider the

mean score indicators of the class, general progress can be traced for the whole class in developing the academic and language components of CALP. Table 3 shows the mean grade average for the tests over the selected period of time, as well as standard distribution (SD). Comparing the mean results of the class, it can be said that together with every child's individual progress, positive dynamics of the whole class within one academic year can be observed.

Table 3. Mean grade average of the class and standard distribution over the period of 2017-2018 academic year.

	Fall semester 2017-18 academic year		Spring semester 2017-18 academic year		Fall semester 2018-19 academic year	
	SD	Mean	SD	Mean	SD	Mean
Mathematics	16,30	173,73	15,68	189,21	12,52	190,91
Language usage	13,49	167,93	9,99	182,73	11,59	178,4
Reading	12,43	163,21	12,06	176,00	15,03	175,82

On the basis of the expected test results suggested by NWEA, we can make our own predictions considering the subsequent development of the cognitive component of proficiency. Thus, 100% of students are expected to achieve progress in CALP development, especially in its academic and language constituents. On average, every student will progress by 11,4 points on RIT scale in language usage, by 11,8 points in Mathematics, by 10,3 points – in reading skills development.

Cognitive component of CALP, according to Cummins (2000), consists in the fact that during the educational process, a teacher offers students to carry out doable, feasible tasks that still evoke certain cognitive difficulties [10]. Such tasks usually require using higher-order thinking skills. Such condition is observed at all the lessons at International School of Kazan (ISK), while IB Learner Profile and Attitudes presuppose their development to a certain degree.

The cognitive component of CALP is correlated to the development of such cognitive abilities as memory, attention, perception etc. In order to measure it, we have resorted to a number of cognitive psychological tests which allow to define the level of memory, attention and intellection development. All the test utilized as an instrument to measure the cognitive component are suitable for this age group and are approved for use at school.

Pierron-Rouser test consists in coding geometrical figures for 3 minutes [12]. This method is used for researching attention span and attention-switching abilities. It is possible to simultaneously assess the speed of performing a task, "immersion into" the task, as well as show signs of fatigue and surfeit. This method also shows the speed and quality of forming a simple skill, mastering a new mode of actions, development of elementary graphical skills.

In the course of analyzing the results, special attention is given to such indicators as ability to retain in the memory the instructions for a purposeful activity, the parameters of attention (span, distribution and switching), the number of filled figures per minute, number of mistakes (total and per minute) etc. Thanks to this test, aimed at measuring attention concentration, we have been able to conclude that 100% of students in the class have done the test according to their age requirements. Among them 94% of students have a very high level of memory development, 6% of the class have high level of memory development.

The method of A.R. Luria (1995) is a method of memorizing ten words which allows to investigate the memory processes such as memorization, retention and reproduction [13]. The very course of memorizing gives an idea of attention span and retention, about work efficiency, about the child's ability to perform rather boring purposeful activity. The test is conducted in complete silence. The stimulus material is 10 simple words which are not connected with one another in their meaning. For example: год, слон, мяч, мыло, соль, шум, река, пол, весна, сын (*year, elephant, ball, soap, salt, noise, river, floor, spring, son*), or, as was our case: лес, хлеб, окно, стул, вода, брат, конь, гриб, игла, мёд (*forest, bread, window, chair, water, brother, horse, mushroom, needle, honey*).

The given test was used to define arbitrary memorization. The norm is to memorize 3-5 words after the first presentation, which was successfully done by all the students. After the final fifth presentation of the words, 87% of students memorized 9-10 words or 8-9 during a postponed reproduction, which attests to a high level of memory development. 13 % of students showed average level of memory

development, which is within the norm for their age group. Moreover, it is possible that these very participants could have weaker active attention and show signs of general fatigue.

According to the results of the test, a so-called “memorization curve” was compiled, which allowed us to come to certain conclusions about the memorization peculiarities in test participants. The normal “memorization curve” for both adults and children of school age usually looks like this: 5,7,9, or 6,8,9 or 5,7,10 etc., i.e. by the third repetition the testee reproduces 9 or 10 words, and for subsequent repetitions the number stays around 9 or 10. Such memorization was demonstrated by those very 87% of students, which attests to a high level of memorization and memory development. It should also be noted that during the process of reproduction at any of the stages, over a half of the participants – 53% – remembered «extra» words, not included in the actual list. For most part, these extra words are either pairs of antonyms or words with similar sound structure such as огонь-вода (fire-water), окно-огонь (window-fire), мёд – лёд (honey-ice). This can also be attributed to fatigue and emotional languor, or to a desire to memorize as much as possible.

The diagnostics of mental processes has been conducted with the help of “Colouring figures” test according to N.Ya.Chutko’s method, the essence of which is to reveal the abilities to classify visual material (geometrical figures) according to any basis or similarity found by the testee [12]. Out of the set of triangles (4 isosceles, 3 equilateral, 3 orthogonal ones), depicted in perpendicular and reversed positions, as well as in direct and mirrored (reversed) positions, the testee has to single out and colour the same triangles with different colours. The test results are assessed on the four levels: the first one – whether the classification is performed correctly, i.e. three groups of different figures have been singled out (4 isosceles, 3 equilateral, 3 orthogonal triangles). The second level allows for one mistake (inability to distinguish the same figures in direct vs. reverse/perpendicular positions); the third level means two mistakes (inability to distinguish the same figures in direct vs. reverse and perpendicular positions); the fourth level means three mistakes (inability to distinguish the same figures in direct vs. reverse and perpendicular/mirror positions as well as inability to distinguish different figures); senseless, chaotic colouring of the figures. This test is also used to research the process of generalization and abstraction. In our study, 13 out of 15 students passed the test, and the majority of them showed a high level of intellection development for their age.

4 CONCLUSIONS

Thus, bilingual education is such an organization of the educational process, when the use of more than one language as the language of instruction becomes possible. In that way, language is not an object of study, but a means of learning and mastering the subject content of the program. The advantage of bilingual education is the intensive development of cognitive abilities of students on a bilingual basis. The experience of the International School of Kazan, which implements the International Baccalaureate programme at the primary level, shows that bilingual education helps to successfully master not only the language and subject content, but also to develop the cognitive abilities of younger students.

Analysis of the results of the MAP test allows us to talk about the development of cognitive academic language competence (CALP), namely its components such as academic and linguistic. The cognitive component, measured by a series of psychological tests, complemented the study result by providing an overall assessment of the development of CALP in primary school children who do not learn English as a native language. According to NWEA’s prediction of the MAP test results for the next semester and the subsequent development of the cognitive component of competence, we can assume that the study participants will show positive dynamics in the development of CALP.

Considering all the above factors mentioned in this research paper, we can conclude that at the current stage CALP of research participants is developed on a due level for the given age group.

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REFERENCES

- [1] E. M. Vereshchagin, Psychological and methodological characteristics of bilingualism (bilingualism). Moscow: Directmedia, 2014.
- [2] U. Weinreich, Language contacts. Kyiv: Vyscha shkola, 1979.
- [3] U. Weinreich, "Monolingualism and multilingualism. On the compatibility of genealogical kinship and convergent development," *New in linguistics*, vol. VI, pp. 25-60, 1972.
- [4] V. Y. Rosenzweig, Language contact: linguistic perspectives. Leningrad, 1972.
- [5] M. Siguan, W.F. Mackey, Education and bilingualism. Series: International School and pedagogy. Moscow: Education Publ., 1990.
- [6] L. L. Salekhova, A. V. Danilov, "Cognitive costs of bilingual education: theoretical and empirical research", *EDULEARN16 Proceedings*, pp. 366-370, 2016.
- [7] L. A. Petitto & I. Kovelman, "The Bilingual Paradox: How signing-speaking bilingual children help us to resolve it and teach us about the brain's mechanisms underlying all language acquisition," *Learning Languages*, Spring Vol.8, No.3, pp. 5-18, 2003.
- [8] L. L. Salekhova, A. V. Danilov, "CLIL-integrated subject-language learning: conceptual idea, advantages, models", *Kazan science*, No.12, pp. 226-230, 2015.
- [9] J. Cummins, "Bilingualism and Special Education: Issues in Assessment and Pedagogy", *Canadian Modern Language Review*, vol. 42 (1), pp. 267-290, 1984.
- [10] J. Cummins, "Putting language proficiency in its place: Responding to critiques of the conversational/academic language distinction", *English in Europe: The acquisition of a third language*, pp.54-81, 2000.
- [11] A. P. Gerasimova, "On the experience of bilingual education in primary school on the example of the international schools of Russia (Kazan)", *Bulletin of the modern research*, No.10-7 (25), pp. 37-40, 2018
- [12] N. Ya. Semago, M. M. Semago, Diagnostic album to assess the development of cognitive activity of the child. Preschool and primary school age. Moscow: Iris-press, 2005.
- [13] A. R. Luria, "Memorizing 10 words of A. R. Luria", *Almanac of psychological tests*, pp. 92-94, 1995.