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HARMONIZATION PROBLEMS OF THE EDUCATION SYSTEMS INDICATORS IN THE BRICS COUNTRIES

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DOI: 10.21684/2412-2343-2018-6-1-5-40

The conditions for the development of modern states are impossible without cooperation and integration with other states in various socio-economic areas. The formation and protection of an alternative position in the world by a number of countries led to the creation of the BRICS association. Participation in this association is of great importance for Russia in a variety of fields. One of the promising areas of cooperation is the sphere of education in all its aspects, ranging from preschool education to the attainment of various degrees and titles. This article addresses the issue of coordination of the BRICS countries in the field of education.

The basis for determining the indicators of the education systems and the principles of their comparison was the similar data from the international organizations UNESCO, OECD and Eurostat. As a result of studying the principles of collecting statistical data and methodological materials for comparing the education sector indicators in these international organizations, a certain vision of the database of the BRICS countries has

been set. On the one hand, this base should not contradict international practice; on the other hand, the chosen indicators should be used by all countries of the BRICS association. Following this study, a proposal on the principles of information collection was made, as well as a proposal on the main indicators for education indicators comparison in the BRICS countries.

The basis for cooperation between the education systems is a harmonized system of concepts and definitions, which allows unambiguous interpretation of such fundamental terms as education, educational program, educational institution, student, entrant, acceptance for study programs, graduates, graduations, personnel of educational institutions, expenses for education, etc.

In parallel with the harmonization of the education system terminology, it is necessary to harmonize statistical indicators that can quantify the education system at all levels. As a rule, observation units of education statistics are institutions that provide educational services at all levels of education to both individuals and legal entities.

Keywords: BRICS countries; education; indicators of education; harmonization of information indicators of the education system; methods of comparing indicators.

Recommended citation: Diana Yampolskaya et al., *Harmonization Problems of the Education Systems Indicators in the BRICS Countries*, 6(1) BRICS Law Journal 5–40 (2019).

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Introduction

In today's unstable political conditions, education plays an important role as the basis for the formation of interstate relations. In this connection, great importance is attached to the development of humanitarian ties between various countries and associations of countries. At the meeting of BRICS education ministers, held in New Delhi in September 2016, it was noted that

> the BRICS countries will strengthen international cooperation, promote fair and inclusive education.[1]

The hope was expressed for further strengthening of cooperation between all countries in such areas as vocational education, ensuring the quality of education, continuing education and promoting exchanges of teachers and students. It was also noted that the "Declaration" fully meets the requirements of the United Nations in the field of sustainable development until 2030. In accordance with the conclusions of the meeting of the Ministers of Education of the BRICS countries, the Ministry of Education of the Russian Federation set the task of assessing the education systems of the five BRICS countries and developing approaches to assessing and harmonizing these systems. In 2017, the Peoples' Friendship University of Russia conducted a study related to the search for ways in which to harmonize the indicators of the educational activities of the BRICS countries, some aspects of which are discussed in this article.

The main objective of this study is the development of guidelines for the renewable and long-term comparability of statistical data on the BRICS countries. The BRICS countries have quite different education systems. In these countries, the following areas can be identified in the development of education systems:

– Increase in compulsory schooling;
– Improvement in quality of education at all levels;
– Ensuring continuous learning;
– Improving the quality of education;
– Improvement of control over the quality of education;
– Increase in public spending on the education system.

However, not all directions are developed evenly. The tasks of active development of distance education are stated in Russia, India, China and South Africa. The task of developing the internationalization of universities is set by Russia, India and China.

A preliminary analysis of the education statistics of the BRICS countries allowed the determination of the general characteristics:

– Pre-school and higher education is not mandatory;

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[1] New Delhi Declaration of the 4th Meeting of BRICS Ministers of Education, New Delhi, 30 September 2016 (Dec. 10, 2018), available at http://www.brics-info.org/new-delhi-declaration-of-the-4th-meeting-of-brics-ministers-of-education/.

– Primary and incomplete secondary education is compulsory;

– In all the BRICS countries, it is possible to get a secondary vocational education, which is not the first stage of university education;

– To continue training in a higher education institution one can obtain either a complete secondary education or a secondary vocational education;

– In all the BRICS countries, at the first stage of higher education there is an opportunity to study in undergraduate programs; however, there are also alternative national programs.

Nevertheless, there are differences that are most noticeable at the senior levels of secondary education and higher:

– Different duration of training at different levels of education and, accordingly, differences in the content of the training program;

– Differences in the duration of compulsory education;

– Differences in available educational levels.

In South Africa and India, there is an opportunity to get a professional bachelor's degree (from 4 to 5.5–6 years). In other countries there is one type of undergraduate program (4 to 6 years). In Brazil, the first stage of higher education also includes a licentiate degree program and higher technical education; in Russia – a specialty; in South Africa – the National Diploma and National Higher Certificate;

– The approach to the organization of final exams in schools and entrance exams for universities: in some countries, centralized state exams are held (e.g. Russia and China); in others, the university is allowed to organize its own entrance examinations (e.g. Brazil).

To ensure the comparability of the learning processes in the education statistics of the BRICS countries, the international classification of ISCED as amended in 2011 (ISCED 2011) was taken as the basis, which made it possible to carry out high-quality international comparisons and to outline further ways to improve the national education systems and their individual structural elements.

The main research methods chosen for this research were content analysis of official documents and documents in the open press as well as expert analysis with the involvement of specialists in the field of education of the studied countries. Surveys were conducted in the form of videoconferences as well as through the exchange of information via e-mail. Three basic research tasks were highlighted:

– Identify countries' interest in developing a methodology for harmonizing indicators of education systems;

– Determine the principles of the formation of the methodology in general and indicators in particular; and

– Define the statistical tools and approaches for obtaining statistical information.

Information was gathered through the study of official materials of the Ministries of Education of the BRICS countries. First of all, the goals and objectives as well as the structure of education of the countries were studied. The availability of statistical data,

which is published in the official press, was estimated. Another important source of information was the databases of international organizations: UNESCO, OECD and Eurostat. These international organizations conduct their research in various fields and have significant statistical data, which amounts to about 200 different indicators for evaluation of the education sector. The methodology for collecting information and the design of individual indicators was studied. The main sources of information were the following documents that are publicly available on the websites of the relevant organizations:

1) Documents of the UNESCO Institute for Statistics (UIS):[2]

– ISCED: International Standard Classification of Education 2011, 2013;

– Education indicators after 2015 (Post-2015 Education Indicators Consultation, Proposed indicators to track the post-2015 education framework);

2) Materials of the organizations of the European Union:

– OECD statistical base, Education, 2016[3] (Education at a Glance, 2016);

– The statistical base of Eurostat, the Education and Training section;

3) A joint document developed by three international organizations (UNESCO, OECD and Eurostat) on the methodology for collecting data on education (UNESCO, OECD, Eurostat – together referred to as "UOE") joint data collection – methodology).[4]

Materials of other international associations, such as ASEAN (Association of Southeast Asian Nations), UNASUR (*Unión de Naciones Suramericanas*) and NAFTA (North American Free Trade Agreement) were also studied. Content analysis showed that these organizations create practically no separate databases on education systems, but to some extent use indicators, principles of their collection and comparison proposed by UOE.

1. Analysis of Approaches to the Formation of a Methodology for Comparing Indicators of the Education Systems

The study of materials of international organizations, primarily UNESCO, OECD and Eurostat, made it possible to identify general principles for the formation of a statistical system for the formation of indicators for assessing socio-economic processes. When determining the list of methods used when comparing indicators of different education systems, it is advisable to follow a certain selection procedure.

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[2] UNESCO Institute of Statistics, Data for the Sustainable Development Goals (2017) (Dec. 10, 2018), available at http://www.uis.unesco.org/Education/Pages/international-standard-classification-of-education.aspx#sthash.xvN29DIF.dpuf.

[3] OECD, Education at a Glance 2016: OECD Indicators (2016) (Dec. 10, 2018), available at https://www.oecd-ilibrary.org/education/education-at-a-glance-2016_eag-2016-en.

[4] UNESCO OECD Eurostat (UOE) joint data collection – methodology (Dec. 10, 2018), available at http://ec.europa.eu/eurostat/statistics-explained/index.php/UNESCO_OECD_Eurostat_(UOE)_joint_data_collection_%E2%80%93_methodology.

There is a common methodology for comparing the statistical bases in the field of education and training, developed by the UOE organization, which, as practice shows, does not remove all problems of data comparability. The analysis of this methodology contributes to the development of common approaches and methods for comparing the statistical indicators of the BRICS countries.

The methodology for comparing results involves the following key steps:

1) A list of information sections of indicators;

2) Development of basic concepts and definitions agreed on by all participants;

3) Geographical division by regions with their subsequent coding;

4) The information collection period;

5) The principles and approaches for collecting information;

6) Development of forms for comparability of results.

The first stage is key and depends on the goals and objectives of the analysis of education systems. In this aspect, we turn to the bases of the three leading international organizations.

1.1. Characteristics of the Statistical Base of UNESCO

UNESCO is the legislator in the evaluation of education systems, and leading international organizations are guided by its recommendations. Due to the fact that national education systems are diverse in their structure and the content of their educational programs, it is rather difficult to compare the achievements of different countries and track their progress towards goals at the national and international levels. To understand and correctly interpret aspects and processes of education systems at the global level, it is especially important to ensure the comparability of data. This can be achieved through the use of the International Standard Classification of Education (ISCED), a concept paper intended to classify and provide internationally comparable statistics.

The UNESCO Institute for Statistics (UIS) is the statistical body of the United Nations Educational, Scientific and Cultural Organization; it stores information in the fields of education, science and technology, culture and communication from around the world and makes it available to the U.N. Here, the International Standard Classification of Education, ISCED 11 (the international abbreviation is ISCED 2011) was developed, which is taken as the basis for the maintenance of statistical databases by other organizations and countries. In this classification three levels of education are distinguished:

– Lower (education of young children; educational programs for the development of young children; programs of preschool education; primary education);

– Secondary (first stage of secondary education; second/highest stage of secondary education; post-secondary non-tertiary education);

– Upper (short cycle of tertiary education; bachelor's degree or its equivalent; magistracy or its equivalent; doctorate or its equivalent).

The classification of national educational programs in accordance with ISCED is the main tool for systematizing information on national education systems, educational programs and relevant qualifications used for comparing data on ISCED levels and helping them to be interpreted internationally.

The initial classification unit of ISCED is the national (and subnational) educational program and the corresponding recognized educational qualifications. In ISCED, an educational program is defined as a single complex or sequence of types of educational activity or communication, planned and organized to achieve preset learning goals or specific educational objectives for a certain period of time. A common characteristic of an educational program is that upon reaching the learning objectives or after completing the educational objectives a document is issued confirming its successful completion.

The basic principle of the UNESCO base and the selection of UNESCO indicators is the social orientation of education throughout the world, taking into account not only developed countries but also countries with a low level of education. The database consists of 129 indicators and indices, distributed across 15 sections, which are ideologically divided into 5 main groups. The base is built on a hierarchical principle: an integrated indicator, a complex indicator and a unit indicator/numerical parameter meter (or a section, sub-section and a measurable indicator). Table 1 shows an excerpt from the structure of the UNESCO database under Education as an example of the formation of indicators. For the example, the International Mobility section is taken.

Table 1: The Principle of Structuring Indicators of the UNESCO Base (Excerpt)
Section: International Mobility

Section	Subsection	Indicator
International mobility of students in higher education institutions	Arriving students	Arriving foreign students on the continent of origin
		Arrived foreign students by region of origin
		Arriving foreign students by country of origin
	Departed students	The departed foreign students in the region
	Mobility indicators	Net flow of foreign students
		The level of mobility of arrivals
		The level of mobility of the departed students by region
		The overall coverage rate for the departed by region

Source: International Standard Classification of Education, 2011, available at http://www.uis.unesco.org/DataCentre/Pages/BrowseEducation.aspx.

The collection of education statistics, carried out in accordance with ISCED, can be based on various sources:

– Administrative documents;

– Individual surveys;

– Household survey;

– A set of macroeconomic statistics.[5]

The classification of national educational programs in accordance with ISCED is the main tool for systematizing information on national education systems, educational programs and relevant qualifications used for comparing data on ISCED levels and helping them to be interpreted internationally.

1.2. Characteristics of the Statistical Base of the OECD

The priority for the recent Organisation for Economic Co-operation and Development (OECD) research in the field of education is the question of the development of higher (tertiary) education and its accessibility (cost). The problems relating to gender equality of pupils and graduates of various levels of higher education were also considered. Gender inequality in the OECD member countries in the teaching profession is noted, where high-paid positions are occupied, in the main, by men. In light of recent developments in the population movement from regions of Africa and the Middle East, issues involving immigrants in the educational process are being considered. The OECD database includes a large number of indicators that are universal measures of the level of educational activity in different countries shared by most professionals in the field. The indicators provide an idea:

– of human and financial resources invested in education;

– of the mechanisms of educational systems activity;

– of the return on investment in education.

The distinction of the OECD base lies in the greater economic focus on the education system and its results. OECD indicators provide data on the structure, financing and results of the education systems of OECD member countries and also some of the countries of the G20 and partner countries. Statistical indicators for the evaluation of education within the OECD are divided into the following groups:

– Accessibility of education and results;

– Effects of education on the economy and the labor market;

– Financial investments in education;

– Frames;

– Examination of the skills of adults.

Table 2 shows an excerpt from the base structure of the OECD for Education as an example of the formation of indicators. For the example, the "Access to Education, Degree of Involvement in Education and Performance" section is taken, which includes the indicator of International Mobility.

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[5] Joseph O. Fadare & Corinna Porteri, *Informed Consent in Human Subject Research: A Comparison of Current International and Nigerian Guidelines*, 5(1) Journal of Empirical Research on Human Research Ethics 67 (2010).

Table 2: The Principle of Structuring Indicators of the OECD Base (Excerpt)
Section: Access to Education, Degree of Involvement
in Education and Effectiveness

Section	Subsection	Indicator
C. Access to education, degree of involvement in education and performance	C1. Involved in the educational process	C1.1 Indicators of involvement in education and the expected number of years depending on the age group
		C1.2 Percentage of students aged 15 to 20
		C1.3a Percentage of students enrolled in senior grade programs by age
		C1.3b Involvement in continuing secondary education depending on specialization and age group
		C1.4 Percentage of part-time students by level of education and age group
		C1.5 Changes in student level by age group
	C2.Pre-school and primary education	C2.1 Percentage of students enrolled in early childhood and preschool programs, by age
		C2.2 Structure on programs for the development of young children and preschool education
		C2.3 Expenses for all programs for young children
		C2.4 Profile of purely educational and integrated preschool programs
		C2.6 The extent to which pre-school education programs are distributed within the framework of the OECD and partner countries
	C3. How many students are expected to enroll in higher education?	C3.1 Profile of students who are expected to enroll in universities
		C3.2 Profile of students who are expected to enter universities for the first time
		C3.3 Profile of students who are expected to enter universities for the first time, according to the tertiary level ISCED
		C3.4 Trends in terms of admission to universities, at the tertiary level ISCED
	C4. International mobility	C4.1 International student mobility and foreign students in higher education
		C4.2 Female students involved in the educational process, as a proportion of the total number of those involved. Depending on education and mobility status

C. Access to education, degree of involvement in education and performance	C4. International mobility	C4.3 Examples of foreign student mobility
		C4.4 Distribution of foreign students in master and postgraduate programs depending on the country of origin
		C4.5 Students enrolled in graduate or postgraduate programs abroad by country of residence

Source: OECD data collection program, OECD, available at http://www.oecd.org/statistics/data-collection/.

The basic principles that the OECD uses in its practice are as follows:

1) Individual indicators and principles of their collection were developed (reflected in the table above);

2) Cooperation has been established with international organizations such as the IMF, the World Bank, Eurostat, the United Nations Economic Commission for Europe, the United Nations Statistics Division and others. Russia is a participant in this cooperation;

3) Forms of presenting the results were developed – 100 diagrams and 200 tables with various indicators, which are combined into metadata (various complex indicators);

4) A special online resource has been developed that includes information on how countries are working to create education systems;

5) The unique OECD instrument in the field of education is an international program for the assessment of student achievement. Since 2000, every three years students from randomly selected schools around the world take tests on basic issues. To date, students from more than 70 countries (including Russia) have participated in the program;

6) A set of measures for testing higher education institutions has been developed. A large number of countries participate in testing, including Russian universities;

7) A center for assessing innovation in education has been created and quantitative indicators have been developed for assessing the necessary knowledge of the adult population;

8) OECD financing. The main part of the funding comes from the mandatory contributions of member countries. The size of the annual contribution is determined by the country's GDP share in total GDP – the total product of the OECD countries. The second part of the funding consists of voluntary contributions from member countries and partner countries for participation in projects and work programs of the relevant committees.

The most significant publication of the OECD in the field of education is "A Look at Education," which contains data on the structure, financing and performance

of education systems in more than 40 countries including Russia. With 100 charts, 200 tables and over 100,000 digits, the overview provides key information on:

– Results of educational institutions;
– The role of training in different countries;
– Financial and human resources;
– Progress in education;
– Conditions of training and organization of school activities.

The OECD emphasizes the strong link between education and employment.

A special online resource has been created at the OECD which includes information on how countries are working to create their education systems. Norway has established a National Quality Assessment System for the education sector providing access to information that helps public and private schools; education authorities evaluate their work and develop a development strategy.

The most popular statistical program of the OECD in the field of education is the international program for assessing the educational achievements of students. This is a unique tool of the OECD, as tests are developed that are not directly related to the school curriculum and are designed to assess how effectively students can apply their knowledge in real-life situations at the end of compulsory education.

As part of an international study of teaching and learning, the OECD conducted a survey of teachers on working conditions and the learning environment. The study includes questions relating to, for example:

– Initial teacher training and professional development;
– Feedback from students;
– School climate;
– Features of the training methodology;
– Teaching practice.

To address the challenges of improving the quality of higher education within the OECD, a program is being implemented on the institutional management of higher education, with the aim of creating the conditions for the international cooperation of leading educational institutions. In total, the program involves more than 250 institutions from 50 countries. Russia is represented here by a large number of educational institutions, among them – MESI, NRU-HSE, the National Training Foundation, St. Petersburg State University and the Southern Federal University.

1.3. Characteristics of the Statistical Base of the Statistical Office of the European Union (Eurostat)

Eurostat's mission is to provide high-quality statistics for Europe. Eurostat contributes to the following tasks within the EU: respect and trust, strengthening best practices, encouraging innovation, the development of the services sector and professional independence. Its database "Education and Training" contains information on participation in the educational programs of pupils and students

and teaching staff, as well as on the cost and type of resources allocated to education. The database is aimed at analyzing the general level of education in the particular country, expenditures on education, knowledge of the population in foreign languages, as well as the effectiveness of educational processes. The base consists of 264 indicators and indices, divided into 16 sections, which are ideologically divided into 6 main groups.

Eurostat has developed a data collection methodology that allows obtaining coordinated indicators from all member countries. First of all, a document was developed, i.e. the European Statistics Code of Practice. The Code is based on 15 principles covering the institutional environment, the production of statistical data and their outcome. A set of indicators has been developed. The Code has the following sections:

1) Institutional environment. The institutional and organizational factors such as professional independence, authority for data collection, adequacy of resources, quality assurance obligations, statistical confidentiality and impartiality have a significant impact on the efficiency of the statistical body that develops, produces and disseminates European statistics, and objectivity;

2) Statistical processes. In the processes of organizing, collecting, processing and disseminating European statistics, statistical agencies fully comply with European and other international standards, regulations and principles of best practice. Confidence in statistics is enhanced by a reputation for prudent management and efficiency. Important aspects are the soundness of the methodology, the validity of the statistical procedures, the moderation of the burden of the respondents and the economy;

3) Output statistics. The statistics provided to users should meet their needs. The statistics correspond to European quality standards and serve the needs of European institutions, governments, research institutions, production concerns and the general population. Therefore, it is important how the statistics are relevant, accurate and reliable, timely, consistent, interrelated, how comparable they are across regions and countries and whether they are easily accessible to users.

The activities of the EU statistical office for collecting, processing and analyzing data, as well as harmonizing the statistical information provided, are funded from the EU budget. The key study of Eurostat is the study of the working population and the impact of the education sector on it. The data obtained within the framework of the study are used for several indicators of "lifelong learning" and for statistics on the level of education and learning outcomes.

Table 3 shows an excerpt from the Eurostat base structure under "Education and Training" as an example of the formation of indicators; the excerpt is taken from the section "Educational Mobility."

Table 3: The Principle of Structuring Eurostat Base Indicators (Excerpt)
Section: Educational Mobility

Section	Subsection	Indicator
Educational mobility	2.1. Arrived foreign students	Arrived foreign students depending on the level of education, gender and education
		Arriving foreign students depending on their education, gender and country of origin
		The proportion of foreign students who arrived, depending on the level of education, gender and country of origin
		Distribution of foreign students who arrived, depending on the level of education, gender and education
	2.2. Certified foreign students	Certified foreign students, depending on the level of education, gender and education
		Certified foreign students based on education, gender and country of origin
		Percentage of graduated foreign students arriving depending on the level of education, gender and country of origin
		Distribution of graduated foreign students, depending on the level of education, gender and education

Source: Eurostat database, available at http://ec.europa.eu/eurostat/data/database.

With the development of the European Union, greater importance was attached to the task of harmonizing statistical methods used by EU Member States as well as candidate countries. Eurostat does not directly collect statistics – this work is done by the statistical services of the countries. The information collected by the national services is processed by Eurostat, reduced to uniform standards and published. Eurostat works closely with the national statistics services of the EU countries to develop uniform statistical standards. The activities of the EU statistical office for collecting, processing and analyzing data, as well as harmonizing the statistical information provided, are financed from the EU budget. Information-gathering activities in the European Union are regulated by the EU Statistical Law (Council Regulation 322/1997), which defines the general principles for the interaction of EU countries in the field of statistics, the role of Eurostat and the unified statistical program.[6]

[6] Council Regulation (EC) No. 322/97 of 17 February 1997 on Community Statistics (Dec. 10, 2018), available at http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31997R0322:EN:HTML.

Despite the fact that the legislator in charge of the statistical bases for education is the UNESCO organization, the most complete information is collected by the organizational structures of the EU, since it is the most deeply integrated. The statistical body of the European Union, Eurostat, does a great job of discussing issues related to the implementation of the updated International Standard Classification of Education (ISCED 2011). The Eurostat Working Group on Education and Training Statistics (Eurostat Working Group on Education and Training Statistics – WG ETS) was established to organize and coordinate the collection of data on relevant issues in the EU countries. Traditionally, the group meets once or twice a year.

By the beginning of 2014, most countries of the world had worked to harmonize their educational programs with the updated classification ISCED 2011. The so-called ISCED-mapping was carried out – a description of national education systems using updated approaches. In each country, this work is carried out by the staff of education administration authorities in conjunction with representatives of national statistical services.

The international education database is currently being developed jointly by UNESCO, OECD and Eurostat (i.e. UOE), and since 2014 it has been supplemented with information prepared in the ISCED 2011 format. UOE have developed a joint methodology for maintaining statistical data for evaluating education systems with different depths of analysis. An analysis of the statistical bases examined showed that the horizon of data collection cannot always be clearly established for all positions (indicators) and countries, since this depends on the policies of the individual countries in the area of statistics. The goals and tasks of statistical databases, confidentiality (secrecy) of information, data collection methods and information indicators themselves (indices) all vary. The instructions of any international organization for the collection of statistics are advisory in nature and are not mandatory for sovereign countries. As a result, there are gaps in the data, differing by country and information block.

Analysis of the databases of the three leading organizations shows differences in the approach to the formation of indicators. Table 4 presents a comparison of the basic sections of the three bases, from which the emphasis of each of them are clearly visible.

Table 4: The Composition of the Main Sections of the Statistical Databases of UNESCO, OECD, Eurostat

UNESCO	OECD	Eurostat
1) The process of education (children) 2) The level of education of the population as a whole	1) Demand for education and its impact on the labor market 2) Resources invested in education	1) Participation in the educational process 2) Educational mobility 3) Educational staff

3) Resources of the education system 4) Regional features of the educational process (selectively by regions of the world) 5) Overall indicators, including demographic and socio-economic	3) Access to education, the degree of involvement in education and results 4) Educational conditions and organizational process	4) Financing education 5) The effectiveness of education 6) Foreign languages
Total number of indicators: 129	Total number of indicators: 182	Total number of indicators: 264

Source: compiled by the authors based on the results of studies of the official sites of the organizations UOE.

1.4. Characteristics of the Formation of Statistical Indicators of Other International Organizations

To form the principles of harmonization of indicators of the BRICS countries, the experience of the harmonization of indicators of some international associations, which by certain characteristics are similar to the association of BRICS, was also studied. ASEAN (Association of Southeast Asian Nations), the North American Free Trade Agreement (NAFTA) and the Union of South American Nations UNASUR were taken as objects of research.

ASEAN is a political, economic and cultural regional intergovernmental organization of ten countries located in Southeast Asia. ASEAN was formed on 8 August 1967 in Bangkok along with the signing of the "ASEAN Declaration," better known as the "Bangkok Declaration." All the statistical indicators that ASEAN collects to analyze its activities can be divided into three categories: economic, socio-cultural and political. Education belongs to the socio-cultural and falls into the subcategory of the Millennium Development Goals (MDG). The annual compilation of MDG provides indicators assessing the results of ASEAN's work on the eight socio-cultural goals that it has set for itself. The indicators of the education sector that receive the most attention in the MDG are net primary education coverage and gender equality in education.

1) Procurement of a universal primary education:

– Net enrollment ratio in primary education in ASEAN member states;

– Literacy rate among 15–24-year-olds in ASEAN member states;

2) Promoting gender equality and empowering women in ASEAN member states:

– The ratio of girls to boys in primary education;

– The ratio of girls to boys in secondary education;

– The ratio of girls to boys in higher education.

ASEAN annually publishes statistical reports that show the indicators of education both for the region as a whole and for individual countries. In the annual statistical compilation ASEAN Statistical Yearbook, in the section Education and Health, the following indicators for evaluating education are presented:

– Adult literacy rate (for all countries, this indicator is considered from the age of 15+; for Brunei, from the age of 9+);

– Net enrollment in primary education, distributed by gender;

– Net coverage by secondary education, distributed by gender;

– The ratio of girls and boys in primary and secondary schools;

– The ratio of pupils and teachers in primary and secondary schools.

The main approaches to the coordination of statistical data within the framework of the ASEAN Association form a statistical body (ASEANstats – ACSS), which is one of the units within the ASEAN Economic Community Department responsible for providing statistical data. The activity of this unit is based on the principles of the work of the statistical bodies of the United Nations and adheres to its fundamental principles. The declaration of this organization (mission) states that ASEANstats seeks to serve the statistical information needs of institutions, enterprises and civil society of ASEAN, as well as provide statistical data to international organizations. ASEANstats strives to become an authoritative source of relevant, comparable and timely information to foster knowledge generation in the strong and respected ASEAN Community. ASEANstats works closely with the national statistical institutions of ASEAN member states and is interested in promoting the Commonwealth countries in the international arena. ASEAN Statistics Services work closely with EU statistical agencies and try to implement their standards.

The main functions of ASEANstats are:[7]

– Development of regional indicators and targets monitoring systems and initiatives;

– Consolidation, dissemination and transfer of statistical information about the region;

– Provision of statistical services to the governing bodies of ASEAN and all interested structures of the countries participating in the association;

– Harmonization of ASEAN statistics – standardization of concepts, definitions, classifications and approaches;

– Coordination and facilitation of regional statistical programs and activities, including the work of working groups and task forces within the framework of the ASEAN Statistical Cooperation, under the guidance of the ASEAN Statistics Committee;

– Implementation of policies and promotion of partnerships between the Committee on Statistics, the ASEAN bodies and the international/regional statistical communities.

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[7] ASEANstats (Dec. 10, 2018), available at https://www.aseanstats.org/about-aseanstats/.

As part of organizing the collection of statistical data, a code of norms of the ASEAN Statistical System was developed, which was approved at the 2nd session of the Committee in September 2012. The code of norms corresponds to the Basic Principles of Official Statistics, approved by the U.N. Statistical Commission in 1994, and reflects the principles established in the Codex Strategic Plan. The Code of Conduct includes eight basic principles:[8]

A. Institutional environment:

1. Authority to collect data;

2. Professionalism and integrity;

3. Confidentiality;

4. Reporting;

5. Cooperation and coordination of work in the field of statistics;

B. Statistical process:

6. Efficiency;

7. Reducing the burden of reporting;

C. Statistical products:

8. Obligation to ensure quality (relevance, reliability, timeliness, comparability, availability).

The committee reports to the ASEAN Ministers of Economics and coordinates its activities with other organizations operating within the framework of the association. However, since there is no single document that establishes the principles and norms of work that ensure the independence of statistical functions, reporting organizations can influence data collection. This may lead to a situation where official statistics, instead of providing independent information, will "provide" existing policies.

The North American Free Trade Agreement (NAFTA) is a comprehensive agreement on a free trade zone between Canada, the United States and Mexico. The U.S. strategy within NAFTA is to combine the distinctive advantages of the three participating countries: American high technology and investment, Canadian natural resources and Mexican cheap labor. The legal base of NAFTA consists of:

– The basic agreement on a free trade zone;

– A labor cooperation agreement;

– An agreement on cooperation in the field of ecology;

– Separate agreements (including bilateral) on automobiles, agriculture, textiles and clothing.

The main goal of NAFTA was the removal of barriers to trade in goods between the participating countries. Half of the barrier restrictions were lifted immediately, the rest were removed gradually over fourteen years. The agreement was an expanded

[8] Средство «Snapshot» для осуществления Кодекса норм СССА: методы проведения самооценки [Snapshot Tool for Implementing the Code of Norms of the ASEAN Community Statistical System Committee: Self-Assessment Methods] (Dec. 10, 2018), available at http://www.unescap.org/sites/default/files/Snapshot_ACSS_CoP_Self-Assessment_Measures_ASEAN_Russian.pdf.

version of the 1989 trade agreement between Canada and the United States. One of the main features of the North American economic grouping is that each of its members is in different starting condition. For the last decade, Canada managed to approach the main macroeconomic indicators (GDP per capita, labor productivity) of the USA, while Mexico, which for many years was in the position of an economically backward state with a large external debt, still noticeably lags behind the U.S. and Canadian indicators. The difference in per capita GDP between Mexico and the United States reaches 6.6 times, and with Canada 4.1 times. Such significant gaps in the levels of economic development of the member countries make it difficult to create a single economic complex.

NAFTA has a clear organizational structure. The central institution of NAFTA is the Free Trade Commission, which includes representatives at the level of trade ministers from the three participating states. The Commission oversees the implementation and further development of the agreement and helps resolve disputes arising from the interpretation of the agreement text. The Commission provides assistance to the Coordinating Working Body – the NAFTA Secretariat.

The recognition of NAFTA as an economic policy for the member countries and its impact on higher education in Mexico encourage their universities, and Mexican companies, to adapt their education systems so as to be able to compete in the new economic environment. It should be noted that the United States, Canada and Mexico are also full members of the OECD. This organization also analyzes statistical data on the participating countries.

Since there is such a significant difference in the per capita GDP indications between these countries, it is worth assuming that the same difference will exist in efficiency and in the quality of education. The calculation of various indices helps to identify various aspects of the education sphere of the countries of NAFTA.

The education index and the human development index (Education and Human Resources) take the position of priority. The education index is part of the knowledge index and knowledge economy. This index is calculated by the World Bank based on the Knowledge Assessment Methodology and describes the level of education of the population and its stable skills to create, disseminate and use knowledge. The main indicator of the index is the adult literacy rate, the ratio of registered students (students and schoolchildren) to the number of persons of corresponding age, as well as a number of other indicators.

The human development index (HDI) in turn is a cumulative indicator of the level of human development in a given country, including in terms of education. Currently, the HDI is considered one of the most authoritative classifications characterizing social development, compiled annually by the United Nations Development Program (UNDP) and used in a special series of U.N. reports on human development. The HDI value serves as the basis for dividing countries into groups depending on the level of human development.

The education system in the NAFTA countries is evaluated through the following groups of indicators:

1) Attendance and Enrollment;
2) Education History;
3) Educational Transitions;
4) Employment;
5) Faculty and Staff;
6) Finances;
7) Parents and Family;
8) School and Institutional Characteristics;
9) School Districts;
10) Special Education;
11) Staffing;
12) Student Characteristics;
13) Teachers and Teaching.

One of the main groups that stand out in many documents is the concept of lifelong education (Long Live Learning).

Due to the nature of the organization's focus on free trade, education is not a significant part of the integration of countries. There is a full focus on U.S. standards. As a result, there is no separate body for monitoring the education system and data collection. Secondary data of state institutions (ministries and departments) and private companies are used to evaluate education systems. In the field of education, the USA is the leader among NAFTA countries and their education model dominates. In this regard, trends in interaction between educational institutions and exchange of experience are not rare.

Each of the countries participating in this international agreement focuses primarily on the situation inside its own national territory. Therefore, the first source of information is the relevant ministries and their data provided within the agreement. This collection of information is characterized by a fairly large amount of information processed.

Since the member states of NAFTA are members of other international associations (e.g. OECD, UNESCO), many indicators are taken from sources of international statistical databases. Specific statistical indicators for the selected country (or several countries) are chosen from the OECD list, where there are parameters in almost all areas of interest. Greatly influenced by these processes are the results of the work of the United Nations Statistics Division, whose members are all NAFTA member countries.

The frequency of gathering information depends primarily on the relevance of this indicator. Some statistics, such as those relating to the World Food Program, are updated constantly and annually; others, which include the education index – irregularly. Sometimes these updates may not even take place annually.

Education is not the main driver for the integration of NAFTA countries; therefore, no specific information collection methodologies or systematic approach has been found.[9] The main levels of education and groups of indicators are similar to those of the joint UIS database (UNESCO-EU).

The Union of South American Nations (UNASUR) is an international organization composed of twelve countries in South America: Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela. The organization was established on 23 May 2008 and began active operations on 11 March 2011.[10] The purpose of the organization is to ensure integration in the cultural, economic, social and political spheres, taking into account the provisions of each of the participating countries. The mission of UNASUR is to eliminate socioeconomic inequality, achieve social integration, expand citizens' rights, strengthen democracy and reduce the existing asymmetry of development, while taking into account the sovereignty and independence of each of the states. In the field of education, UNASUR has set itself the task of eliminating illiteracy, improving access to quality education and universal acceptance of various training systems and qualifications. The following goals are declared in the humanitarian sphere:

1) The elimination of illiteracy, equal access to quality education and regional recognition of courses and degrees;

2) Equal access to social security and medical services;

3) Strengthening the identity of the peoples of the region of the participating States by promoting the expression of knowledge and memory in order to promote cultural diversity.

Organizationally, UNASUR consists of various divisions, which include the South American Council of Education (CSE), the South American Council on Science, Technology and Innovation (COSUCTI), the South American Council of Culture (CSC) and the South American Council of Social Development (CSDS).

On the official website of UNASUR, as well as in the Charter of the Education Council, the composition and objectives in this area are presented.[11] Initially, the South American Council on Education, Culture, Science, Technology and Innovation dealt with the issue of education. Now, there are three independent councils, one for each area of knowledge: the South American Culture Council, the South American Council on Science, Technology and Innovation and the South American Council on Education.

The South American Board of Education consists of the following bodies:

1) Council of Ministers: ministers or officials having jurisdiction in matters of education in member states;

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[9] Sample Records for NAFTA Guidance Document (Dec. 10, 2018), available at https://www.science.gov/topicpages/n/nafta+guidance+document.html.

[10] UNASUR (Dec. 10, 2018), available at http://www.unasursg.org/en.

[11] Proyecto de Estatuto del Consejo Suramericano de Educación (CSE-UNASUR) [Draft of the South American Council of Education Statute (CSE-UNASUR)] (Dec. 10, 2018), available at http://www.unasursg.org/images/descargas/ESTATUTOS%20CONSEJOS%20MINISTERIALES%20SECTORIALES/ESTATUTO%20CONSEJO%20DE%20EDUCACION.pdf.

2) Executive body: representatives of ministries of education with jurisdiction;

3) Working groups for analysis, which can make suggestions and recommendations, as well as develop specific projects.

The main provisions of the Board of Education are:

– Regional integration, defined on the basis of the following elements: dialogue, cooperation and the exchange of knowledge and experience between the participating countries;

– Social equality – from building a democratic society and protecting the rights of trade unions to promoting affordable education, culture, science, technology and innovation in the territory of the allied countries, taking into account cultural, ethnic and ideological differences;

– Civil participation;

– Quality school education;

– Dialogue and solidarity as the basis of educational integration.

The working group of the Education Council planned the activities of the educational sector and developed a special plan for the creation of the "Hoja de Ruta" (Road Map). It contains general goals and specific goals for each area: basic education, secondary school and higher education. The report on the achievements in the field of education in the South American region ("*Los logros de la integración educativa en la región*") summarizes the goals that the countries of the region aspire to – increasing the literacy of the population, education coverage of the indigenous peoples of the continent, developing exchange programs (academic mobility) and comprehensive development of various training programs. The Roadmap also developed specific arrangements for collecting information on all training issues, and also identified responsible units and countries for implementation. The main tasks set in the framework of providing information are the following:

1) Encourage cooperation in educational, cultural, scientific, technological, and innovation activities in the region;

2) Reduce the asymmetry of regional and subregional organizations in the field of knowledge, in the fields of education, culture, science, technology and innovation;

3) Facilitate the exchange of information on the recognition and equivalence systems of various training and quality assurance systems at all levels in order to facilitate the integration, mobility and exchange of students and teachers;

4) Promote the coordination of initiatives and the exchange of experience for learning, research and innovation aimed at sustainable development, preserving the cultural diversity of countries and adapting to climate change;

5) Encourage actions aimed at improving the quality of education at all levels; promote inclusive education, development of skills and opportunities, appropriate training for better integration in the social and labor spheres;

6) Promote the development, access and use of social technologies in the interests of the needy layers in order to improve the teaching of science and popularize scientific knowledge.

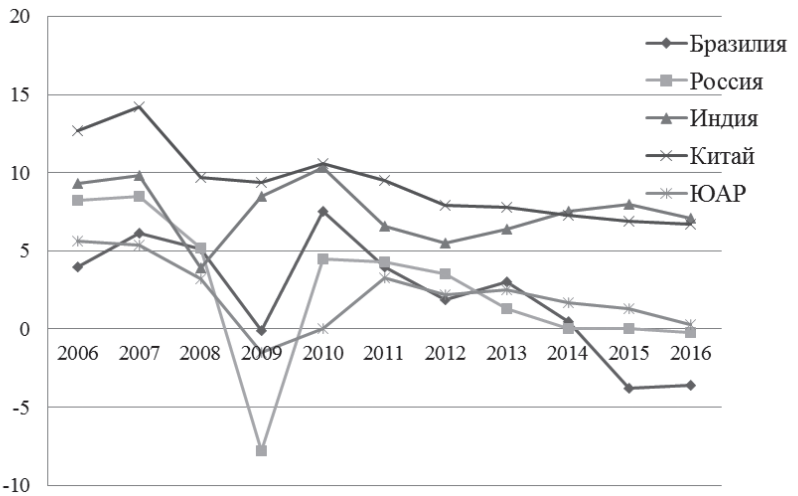
In open sources, there is no mention of a uniform methodology for calculating data on the UNASUR countries in the field of education. It can be concluded that each participating country independently approaches the collection of data in this area and submits the data to the South American Council on Education.

2. Assessment of the Socio-Economic Status of the BRICS Countries

To date, BRICS is a group of rapidly developing countries. Cumulatively, more than 3 billion people live in Brazil, Russia, India, China and South Africa, according to data from 2016, which corresponds to about 50% of the world population.[12] The cumulative GDP of the BRICS countries represents 22% of world GDP and is equal to US$16.8 trillion. The largest contribution to the overall figure is made by China and India, whose GDPs are US$11.2 and US$2.2 trillion, respectively.

A favorable position for these countries is ensured by the fact that they have both a powerful and developing economy as well as a large number of resources important for the world economy. However, in the global financial crisis, many BRICS countries have faced recession. In particular, the growth of China's economy over the past ten years has decreased almost two-fold. The financial crisis events of 2008 and 2014 also strongly affected Brazil and Russia, where GDP growth rates took negative values (*see* Diagram 1). According to data from 2017, the highest GDP growth rate was shown by India at +7.3%. For China, growth was 6.7% and for South Africa +0.7%. Russia and Brazil showed a drop in this key indicator of 0.4% and 2.9%, respectively.

Diagram 1: Dynamics of GDP of the BRICS Countries



Source: World Bank data, available at http://databank.worldbank.org/data/home.aspx.

[12] World Bank data (Dec. 10, 2018), available at http://databank.worldbank.org/data/home.aspx.

Despite the significant share of GDP in the world economy, GDP per capita in the BRICS countries is rather low. There is a large gap between the income levels of the population. This indicator can be determined with the aid of the Gini coefficient. The Gini coefficient is a macroeconomic indicator characterizing the differentiation of the monetary incomes of the population in the form of degree of deviation of the actual distribution of income from an absolutely equal distribution among the inhabitants. It is measured from 0% to 100%. The closer its value to 0, the more evenly distributed the public good:

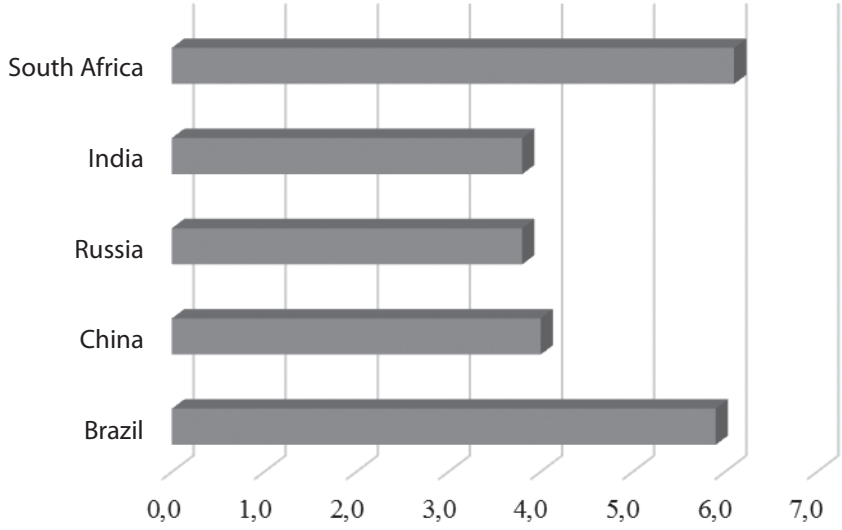
– South Africa 63.38% (2011);
– Brazil 51.5% (2014);
– China 42.16% (2012);
– Russia 41.59% (2012);
– India 35.15% (2011).

The greatest difference between the levels of life expectancy of the population is observed in South Africa. The population is most evenly distributed in India, but taking into account the low GDP per capita, it can be said that most of the population of India lives below the poverty line.

The development level of the education system is directly related to the level of economic development of the BRICS countries and the amount of public investment in education. The issues of education in these countries affect the following aspects: ensuring universal accessibility, improving the quality of education and the impact of education on the standard of living of the population. Providing poor families with access to education is one of the primary tasks in these countries. To this end, the state increases annual funding for education. The share of government spending on education in percent of GDP has worsened for eight years in all BRICS countries. The strongest state support is provided by the educational institutions of South Africa and Brazil.[13]

[13] Divya Budhia Gupta, *A Comparative Study of Basic Education Parameters for BRICS and their Relationship with Expenditure on Education*, 22(9) IOSR Journal of Humanities and Social Science (IOSR-JHSS) 1 (2017).

Diagram 2: Education Expenditure in the BRICS Countries, % of GDP (according to the World Bank)



Despite the crisis in university education,[14] Russia at the moment is leading in terms of the level of education among the rest of the BRICS countries. A comparative assessment can be made on the basis of the education level index, which was developed by the United Nations Development Program. This indicator is calculated as the normalized average value of the indicators of the average duration of training and the average expected duration of training. For Russia, the value of this indicator (reference is to 2015) is 0.816, for Brazil 0.681, for India 0.535, for China 0.631 and for South Africa 0.705.[15] A minimum of 0.8 is considered what developed countries should have. Thus, only the Russian Federation among the BRICS countries has an education index on a par with developed countries.[16]

The number of students at various levels of education in the BRICS countries is given in Table 5. By 2013, almost all the BRICS countries achieved 100% primary education. Despite this, the rates of enrollment in vocational education in the BRICS countries remain quite low (with the exception of Russia). The table also shows that the BRICS countries have a low level of access to higher education (with the

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[14] Dmitry Maleshin, *The Crisis of Russian Legal Education in Comparative Perspective*, 66(2) Journal of Legal Education 291 (2017).

[15] Human Development Data (1990–2017) (Dec. 10, 2018), available at http://hdr.undp.org/en/data.

[16] Oleg Vinnichenko & Elena Gladun, *Legal Education in the BRICS Countries in the Context of Globalization: A Comparative Analysis*, 5(3) BRICS Law Journal 4 (2018).

exception of Russia). Access to skills development programs is also limited, especially for illiterate adults, who are still quite numerous in India.[17]

The data on education expenditure, presented in Diagram 2, show a high level in South Africa and Brazil, whereas in India and Russia this indicator is only 3.8%, which is lower than the global level (6%).

Table 5: Number of Students at Various Levels of Education in the BRICS Countries

ISCED 1 (primary education)			
	The number of students	The number of students	The number of students
Brazil	16,761	48	21
China	95,107	46	16
Russia	6,343.4	49	21
South Africa	7,195.2	49	32
India	141,155	50	32
ISCED 2 and 3 (secondary education)			
	Number of students, thousand people; Share of women, %	Number of students, thousand people; Share of women, %	
Brazil	24,881	51	
China	88,692	47	
Russia	9,824.2	49	
South Africa	4,956.2	51	
India	119,401	48	
ISCED 5, 6, 7, 8 (higher education)			
	Number of students, thousand people; Share of women, %	Number of students, thousand people; Share of women, %	
Brazil	7,541.1	57	
China	41,924	51	
Russia	4,878.4	53	
South Africa	1,035.6	58	
India	28,175	46	

Source: Authors' summary of the following sources: World Bank, available at http://data.worldbank.org/indicator/; OECD, available at https://data.oecd.org/;

[17] UNESCO, BRICS: Building Education for the Future: Priorities for National Development and International Cooperation (2014) (Dec. 10, 2018), available at https://unesdoc.unesco.org/ark:/48223/pf0000229054.

European Union and the BRIC countries // European Union / 2012, available at http://ec.europa.eu/eurostat/.

An analysis of the data presented above suggests that the relative indicators of education in the BRICS countries have slight deviations from the average. Thus, the share of women at the primary level of education ranges from 46% to 50%; at the secondary level of education the share ranges from 47% to 51%. In contrast, at the higher education level the proportion of women is increasing in most countries, India being an exception. But the number of students per teacher is different: most students are in South Africa and India – 32 people, while in China – this figure is 16 people, and Brazil and Russia – 21 people.

All five BRICS countries have national medium-term plans for the development of education. The main dominants of their strategies follow:

- Brazil. Development priorities are aimed at increasing the coverage of education: provision of preschool education for all children aged 4–5 years; universal provision of 9-year training; increasing the coverage rate by secondary education to 85%. For higher education, the goals include increasing the enrollment ratio of youth aged 18–24 to 33%, and increasing the proportion of teachers and graduate students.[18]
- Russia. The program for the development of education for 2013–2020 focuses on the quality of education. The main objectives include the modernization of preschool and general education; improving infrastructure, management and finance to ensure equal access to education; creation of a modern system for assessing the quality of education; the development of higher education, courses and continuing education to meet the needs of youths and adults.[19]
- China. Fundamental principles of development: giving priority to education, students-focused orientation, experimenting with innovative reforms, giving all citizens equal access to education and improving its quality.[20] The most pressing issues are equal access to education and the conformity of the educational level to the country's economic development.[21]
- India. Goals for all levels of education: universal access to quality, free compulsory education for children aged 6–14; improvement of attendance, universal

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[18] Brazil National Plan for Education 2014–2024 (Dec. 10, 2018), available at https://internationaleducation.gov.au/International-network/Latin%20America/policyupdate/Pages/Article-Brazil-National-Plan-for-Education-2014-2024.aspx.

[19] *Аксенова О.А.* Экономическое развитие России и векторы реформирования высшего образования: барьеры и возможности // Научный альманах. 2016. № 2-1(16). С. 27–36 [Olga A. Aksenova, *Development of Russian Economy and Directions of Reforming the System of University Education: Barriers and Opportunities*, 2-1(16) Science Almanac 27 (2016)].

[20] Zhizhou Wang et al., *Internationalizing Chinese Legal Education in the Early Twenty-First Century*, 66(2) Journal of Legal Education 237 (2017).

[21] M.A. Jiani, *Why and How International Students Choose Mainland China as a Higher Education Study Abroad Destination*, 74(4) Higher Education 563 (2016).

enrollment in education of 90% in secondary schools and 65% in senior schools; increase literacy among youths and adults to 80%; universal provision of at least one year of preschool education; improving the results of training, with emphasis on basic reading.[22]

• South Africa. The main tasks are the eradication of poverty and the reduction of inequality. The government defines the goals of education until 2030, which include: universal assistance in preschool education; high standards of literacy of school education; expansion of higher education and courses; the creation of an innovative system that will link universities, scientific councils and other research institutions.[23]

According to the results of the assessment of the socio-economic situation of the BRICS countries, it can be concluded that for a comparative analysis it is necessary to use the indicators of coverage with educational programs. Also, an important aspect is the possibility of financing education and state support for education, since for the most part the population of the BRICS countries does not have high solvency.

3. Principles for the Formation of a Base of Information Comparison

According to the results of the socio-economic assessment of the BRICS countries, two main aspects can be identified for comparing education systems: the coverage of educational programs by the population of countries and the financing of the education system. The coverage indicators will provide an opportunity to determine the depth of penetration of education in different age groups and the entire population as a whole. An important aspect is the possibility of financing education and state support for education, since in the bulk of its population the BRICS countries do not have high solvency. To form a data system, the following items must be provided:

1) Determination of the main purpose of maintaining the general statistical bases of education;

2) Development of a list of information sections of indicators;

3) Basic concepts and definitions agreed upon by all participating countries;

4) Setting the period of collection of information;

5) Identification of sources of information collection;

6) Development of forms for comparability of results.

• *General objectives of information collection.* The overall goal of coordinating the BRICS education systems can be seen as increasing the competitiveness of specialists and educational mobility. Since the BRICS countries are heterogeneous in terms of

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[22] Lovely Dasgupta, *Reforming Indian Legal Education: Linking Research and Teaching*, 59(3) Journal of Legal Education 432 (2010).

[23] BRICS: Building Education for the Future, *supra* note 17.

the educational level of the population, the main objectives may be generalized positions of education:

– Coverage and accessibility by levels of education, i.e. general involvement (non-involvement) of the population in the educational process (starting from preschool education and up to higher education);

– Assessment of educational levels (by ISCED 11 categories[24]), i.e. types of education, quality indicators and the state of infrastructure;

– Level of costs for education;

– Academic mobility of students;

– Professional status of graduates and working population.

• *The principle of determining the composition of information*. There are several approaches to the formation of an indicator system. The following options for forming the base of indicators were identified.

A combined principle of forming the system of indicators is based on the comparison of the indicators of the education systems of the BRICS countries with the identification of common and most relevant indicators for each country. General indicators are collected by all five of the countries, which simplifies and accelerates the process of collecting and comparing data.

On the basis of OECD, with which the BRICS countries work in the field of education statistics. The OECD's statistical base is linked to the economic activities of states, and the conditions for the provision of statistical data are related to this circumstance.

On the basis of UNESCO, which already collects certain statistics for many countries, including the BRICS countries, based on indicators collected by the UNESCO organization. The database of this organization has a socio-humanitarian focus. If we consider the declared priority areas of cooperation of the BRICS countries,[25] the most appropriate evaluation system is that of UNESCO.[26]

The basic principle of indicators choice:

a) On the basis of the studies carried out, the main areas of educational activity were identified: the coverage of education of various groups and its structure, the termination of educational levels, financial resources and the burden on pedagogical staff;

b) Use of comparison principles on the generally accepted ISCED basis and ten basic principles of official statistics for cross-country comparisons (adopted by the United Nations Statistical Commission);

c) Use of indicators by all BRICS countries;

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[24] ISCED 11 – International Standard Classification of Education, developed by UNESCO in 2011.

[25] New Delhi Declaration, 2016, *supra* note 1.

[26] A.5.2. The list of 25 quantitative statistical data is a list of statistical computational indicators that allow quantifying the characteristics of the BRICS education systems.

d) A limited number of indicators for the initial coordination of statistical information of all countries.

All indicator databases are formed on the basis of ISCED standards and fully correlate with world statistics.

• *Definition of basic education systems concepts.* When we discuss basic concepts and definitions, we should focus on general concepts and definitions:

– Formal education (subject to statistical evaluation): planned educational programs implemented by state and public organizations and recognized private organizations in the field of education;

– Pre-school education: programs at the ISCED-0 level or the education of young children;

– First education and adult education: training of persons before their first entry into the labor market;

– Formal educational programs for adults included in the database can be classified as educational programs of the second higher education;

– Completion of the training process/release is confirmed by the assignment of an educational qualification;

– Educational institutions. The statistical records include those educational institutions that have the provision of educational programs for students as their main goal (for example, schools, colleges, universities);

– Applicants and graduates are those who have completed their school education, received a certificate of completion and hold a graduation document;

– Training staff consists of all employees in educational institutions;

– Students are classified as students on a full-time or part-time basis within the academic year (the established period);

– The total amount of *state expenditure* on education includes:

a) Direct state financing of educational institutions;

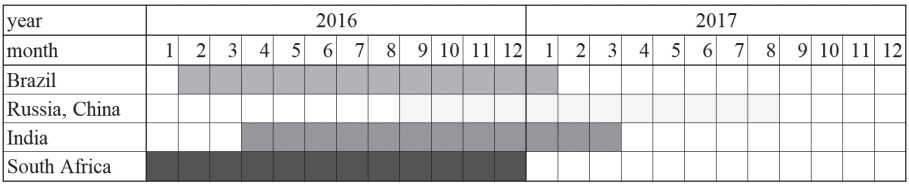
b) Interbudgetary transfers for education;

c) State subsidies (scholarships, loans, etc.) to families and enterprises (including non-profit organizations).

• *Setting the collection period.*

1. The accounting period for non-monetary indicators – such as the number of students, applicants and staff – is one academic year. One of the key factors affecting the comparability of data is the establishment of a data collection and reporting period for all countries. The main problem here is that the school year in the BRICS countries starts at different times. The beginning of the school year in Brazil is in February, in Russia and China in September, in India in April, in South Africa in January. The training calendar is shown in Diagram 3.

Diagram 3: BRICS Study Calendar



Source: compiled by the authors.

According to the diagram, the last month in the 2016–2017 school year is August. Consequently, a request for data to countries can be sent in September, with the proviso that on 1 December 2018 countries will have to provide relevant statistics for the completed 2016 academic year.

2. Data on the number of students is presented on a certain date at the beginning of the academic year, for example, at the end of the first month of training.

3. Data on education workers generally refers to a specific date at the beginning of the school year.

4. To obtain data on expenses for the base, the financial year is taken (in most cases it is a calendar year).

5. If financial and non-financial indicators are taken into account, for example when calculating the costs per student, the data without material costs is adjusted in the reporting period of the fiscal year.

6. Determining the time of data storage: in the databases of international organizations one can find data from as far back as the 1890s. The data storage horizon can be agreed on by the countries participating in the project.

The main sources of information are the national statistical agencies of the BRICS countries. State statistical observation of the education sector covers all levels of education from preschool to higher professional and postgraduate education in all BRICS countries. The main respondents in this field are educational institutions that implement programs in the field of general and additional education for children, as well as programs for secondary vocational education (SVE) and higher professional education (HPE).[27]

The sources and methods of collecting statistics in the field of education include, in addition to information on forms of state statistical observation coming from educational institutions, and other instruments, in particular the Population Census, as well as sample surveys (e.g. on employment issues, etc.).

In addition, information sources may be data from population surveys that are conducted by specialized marketing agencies commissioned by statistical

[27] Statistical tools in the Russian Federation are various forms of the Federal Statistical Observatory (forms of the FSN) in 2016 – SPO-1, SPO-2, VPO-1, VPO-2, etc., which are approved by the government.

agencies or other interested organizations (e.g. the executive bodies of the BRICS countries).[28]

Development of reporting forms: to collect statistical data it is proposed to develop tabular forms for each indicator. Table 6 is an example of such a form.

It is assumed that countries will provide the data needed to calculate the indicators in absolute terms that will automatically be converted into relative figures by the BRICS executive bodies using the Standard Data Delivery Form below. Filling out the form graph in absolute terms will be a prerequisite for providing data.

Table 6: Statistical Indicators Presentation Form

<table>
<tr><td colspan="6">Section: Section name, indicator number</td></tr>
<tr><td colspan="6">The organization that provided the data (e.g. Rosstat)_____
Description of the index, indicator _____</td></tr>
<tr><td colspan="2">Period of data provision</td><td colspan="3">Data and methods of collection</td><td rowspan="2">Contacts</td></tr>
<tr><td>Date of Request</td><td>Date of Provision</td><td>Registration</td><td>Method of data collection</td><td>Frequency of information collection</td></tr>
<tr><td>The 1st of September</td><td>The 1st of December</td><td>Registration form developed by the BRICS countries</td><td>Instruction (for example, one of the Institute of Statistics)</td><td>Annually</td><td>e-mail of the person in charge</td></tr>
</table>

Source: developed by the scientific team on the basis of OECD data, 2017. Statistical Database: Education, available at http://www.oecd.org/statistics/data-collection/educationandtraining.htm.

4. The Results of the Study on the Harmonization of Indicators of the Education Systems of the BRICS Countries

As a result of the above analysis, a system of eight key statistical indicators was proposed, monitoring of which ensures the comparability of statistical data of the BRICS countries and allows making operational decisions on the development of educational policy in the Russian Federation. The scorecard is represented by the following list of indicators.

The system displays a comparison of indicators of the number of students and teachers, indicators of the duration of training, as well as in the general form of educa-

[28] Delia North et al., *Building Capacity for Developing Statistical Literacy in a Developing Country: Lessons Learned from an Intervention*, 13(2) Statistics Education Research Journal 15 (2014).

tional programs by level of education. Indicators 7 and 8 are aimed at overall tracking of funding in different education systems of the BRICS countries. The characteristics of these indicators are given below:

1) Cumulative gross graduation rate (CGGR). Purpose: to determine graduation structure by levels;

2) Cumulative entry rate (GER). Purpose: to determine entry structure by levels;

3) Cumulative gross enrolment rate (CGER). Purpose: to reflect the overall enrollment level of the population at each ISCED level;

4) Cumulative net enrolment rate (CNER). Purpose: to reflect the education coverage level of certain age population for each ISCED level;

5) Government expenditure on education as % of GDP (GEE). Purpose: to determine the education expenditure share;

6) Government expenditure per student as % of GDP per capita (GEPS). Purpose: to determine the education expenditure per citizen;

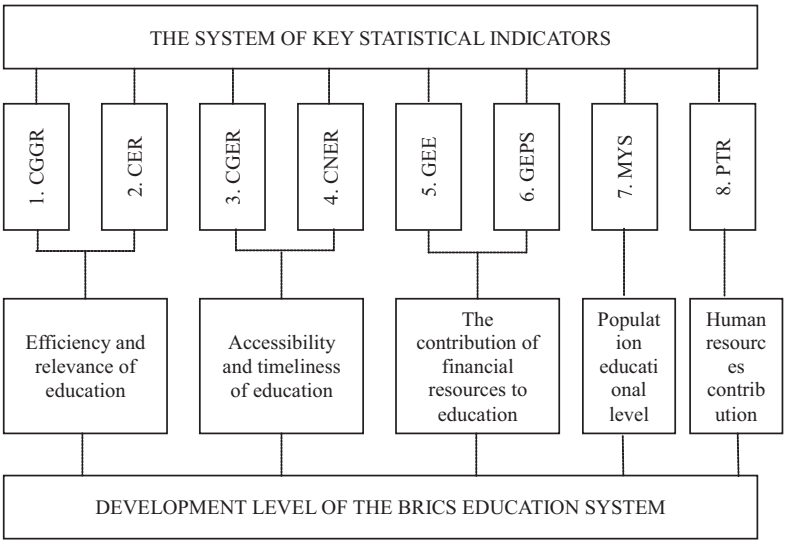
7) Mean years of schooling (MYS). Purpose: to determine the educational level of the population;

8) Pupil-teacher ratio (PTR). Purpose: to measure the level of human resources input in terms of the number of teachers in relation to the size of the pupil population.

The system displays a comparison of the indicators of the number of students and teachers, the indicators of the duration of training, as well as in the general form of educational programs by level of education. Indicators 7 and 8 are aimed at overall tracking of funding in the different education systems of the BRICS countries.

Diagram 4 shows the final scheme of indicators and their informational purpose. The coefficients of the system of indicators are combined according to the principle of determining the basic positions of the education systems of the BRICS countries. The insignificant number of indicators (in comparison with the statistical bases of the leading international organizations UOE) is explained by the fact that it is necessary to take the first step to harmonize the indicators of the education systems. As mentioned above, the education systems of the BRICS countries are noticeably spread. The selected indicators are collected by all BRICS countries and are quite convenient for the initial phase of comparison. At the same time, these indicators characterize important directions of the education systems of the BRICS countries.

Diagram 4: The System of Harmonization of Indicators
of the Education Systems in the BRICS Countries



I. Cumulative gross graduation rate (CGGR). Total number of graduates at the specified level of education divided by the population at the typical graduation age from the specified ISCED level. The data allow the assessment of the level of population education in general.

II. Cumulative entry rate (GER). Number of students in the theoretical age group for a given level of education enrolled in that level.

III. Cumulative gross enrollment rate (CGER). Total enrollment for a given level of education. Total number of students enrolled in a given level of education, regardless of age, divided by the age from the specified ISCED level.

IV. Cumulative net enrollment rate (CNER). Complementary indicator that shows total number of new entrants to a given level of education, regardless of age, expressed as a percentage of the population of theoretical entrance age to this level. The value will be calculated separately for each level of education.

V. Government expenditure on education as % of GDP (GEE). The indicator provides information on the total financing of the education system.

VI. Government expenditure per student as % of GDP per capita (GEPS). The indicator shows the relative value of education expenditure in the BRICS countries.

VII. Mean years of schooling (MYS). Average number of completed years of education of a country's population aged 25 years and older. High MYS indicates high education level of the population, the level of society and economy development, and shows the importance of qualified personnel.

VIII. Pupil-teacher ratio (PTR). Purpose: to measure the level of human resources input in terms of the number of teachers in relation to the size of the pupil population. Average number of pupils per teacher at a given level of education. Low PTR indicates high relative access of the student to the teacher. Comparison:

a. with established national norms on the number of pupils per teacher

b. to develop a standard for the BRICS countries.

This method involves filling out standard forms with statistical committees (bureaus, institutes) of each country in absolute terms for national education levels and the corresponding intervals for the BRICS Central Committee of Statistics. Then the central committee will provide the data.

In addition, to ensure the quality of the data the obtained indicators can be compared (or, in the absence of data, borrowed) with the indicators calculated by the UNESCO Institute of Statistics. Equivalents of indicators:

1) Total graduation ratio (equivalent in the UNESCO base – Gross graduation ratio);

2) Total net enrollment ratio (equivalent in UNESCO base – Net enrollment rate by level of education);

3) Total gross enrollment ratio (equivalent in UNESCO base – Gross enrollment ratio by level of education);

4) Total gross entry ratio (equivalent in UNESCO base – Gross entry ratio by level of education);

5) The coefficient "student/teacher" (equivalent in the UNESCO database – Pupil-teacher ratio by level of education);

6) Average duration of studies (equivalent in the UNESCO database – Mean years of schooling);

7) The ratio of expenditure on education to GDP (equivalent in UNESCO base – government expenditure on education as a percentage of GDP);

8) Unit expenditure on education (equivalent in the UNESCO database – government expenditure on education per student as a percentage of GDP per capita).

Harmonization of education indicators of the BRICS countries will make a significant contribution to even greater integration within this association. In the future, it will be possible to create a single educational space in which to combine the competencies and strengths of all of the countries. Undoubtedly, such efforts will lead to the development of each country of the association, and will strengthen its position at the international level.

Conclusion

The harmonization of the activities of any international associations always causes certain difficulties. This applies to both the collection and the provision of statistical information. The main problems of the harmonization process, first of all, include the goals and motivation of the participants in associations. The simple question about

the necessity of such a process is not an easy question to find an answer to. It can be assumed that competition in the global economic and political space is a powerful engine. Alone, it is difficult to confront modern challenges.

In addition to the problem of goal-setting, the question arises of the coordination and technical execution of procedures for collecting and providing information. According to the research data, Eurostat has the most complete base of indicators, as it operates within the framework of the EU association, where there is a strict discipline. What can be said about other international associations? Even the UNESCO bases have significant information gaps. The process of collecting information in modern conditions does not represent technical difficulties.

To meet the challenges of developing methodological principles for the harmonization of the indicators of the BRICS countries, it is necessary to have a simple system of comparing data from the education systems of the BRICS countries and the possibility of developing a common standard for evaluating the education systems. Moreover, it is advisable to take as a basis the experience of creating such a system of the developed countries (the UOE system). Although, it should be noted that the three leading international organizations do not give up their own bases for the evaluation of education and training, since the data collection points are different from them: social, economic and political-economic.

In the presented work, a methodology for harmonizing the indicators of the education systems of the BRICS countries is proposed, which can be considered to be the first step towards combining efforts to improve the competitiveness of the populations of these countries.

Acknowledgements

This article was prepared with the financial support of RFFR in the framework of the research project "Development of the Program to Improve the International Competitiveness of Russian Universities Innovative Systems in the Scientific Environment of BRICS," project No. 18-010-01174.

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