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## **BILINGUAL EDUCATION: ANALYSIS OF SCIENTIFIC PUBLICATIONS IN SCOPUS**

**Abstract:** The article considers bilingualism as one of the main trends in the linguistic development of society. Bilingual education is an important component of the educational process. The purpose of the work is to analyze the dynamics and content of scientific publications in order to identify the main directions of development and trends in the field of bilingual education. The research methodology includes the collection of data on the keywords "bilingualism" and "education", processing and analysis of 7609 publications using the statistical package SPSS and qualitative analysis programs, which allows for a multi-level analysis of thematic, geographical, and temporal aspects. The theoretical significance of the research lies in the systematization of knowledge about bilingual education, deepening understanding of the multidisciplinary nature of this field of research. The practical significance is expressed in the possibilities of using the results to develop strategies for preserving linguistic diversity and promoting intercultural communication. The results of the study showed a significant increase in the number of studies on bilingual education. Geographical and industry analysis of publications show the global and interdisciplinary nature of the research area. The conclusions of the study are that, in the context of globalization and digitalization of public space, it is important to continue research related to bilingual education in order to better understand the relationship between language, society, and culture.

**Key words:** bilingualism, education, Scopus, scientific publications, multidisciplinary, quantitative analysis, intercultural education.

### **Introduction**

In the modern multicultural world, the issue of bilingualism is becoming particularly relevant, especially in the context of educational processes. Learning two languages can significantly affect students' cognitive development, social adaptation, and academic success. The article is aimed at analyzing scientific papers published in the Scopus database, which allows us to assess the current state of research in this area. The use of VOSviewer and Bibliometrix tools for bibliometric analysis, as noted by Cruz-Lovera et al. (2017), as well as in-depth search for specific keywords in Scopus, highlighted in the works of Pakkan et al. (2022) and Akkaya & Ertekin (2021), has become standard practice in scientific research. This not only provides comprehensive coverage of citations and literary excerpts, but also expands the profile of journals, improving access to scientific publications and contributing to citation analysis. Special attention is paid to how bilingualism affects learning in different educational systems, as well as which methods and approaches are most effective in teaching bilingual students. This research will help scientists and educators better understand the potential of bilingualism and adapt educational strategies to support multilingual students.

The importance of bilingualism in the educational field is continuously confirmed by scientific research that highlights its beneficial effects on cognitive abilities and academic performance. Bialystok (2017) indicates an improvement in executive functions due to proficiency in several languages. Han (2011) focuses on the role of bilingualism in the academic trajectory of children in primary school. Lindholm-Leary (2016) also links

bilingualism with increased cognitive abilities and academic achievement. Chin (2015) emphasizes the importance of bilingual education in ensuring cultural inclusion and diversity, while Cervantes-Soon et al. (2017) draw attention to its importance in promoting equality and equity through bilateral immersive programs. Mendis et al. (2021) propose considering bilingualism as a global public health strategy for maintaining cognitive health in old age. Duncan & Phillips (2016) argue that bilingualism can serve as a cognitive reserve that slows down the processes of deterioration of cognitive functions, and Perquin et al. (2013) provide new data to support the hypothesis of cognitive reserve associated with prolonged multilingualism.

An analysis of publications from the period 2000 to 2023 on the topic of bilingualism and education, based on the keywords "bilingual" and "education," reveals a noticeable increase in scientific interest in this area. The total number of studies found on these parameters was 7,609. The number of publications started at 66 in 2000 and reached its peak at 775 papers in 2023. This upward trend reflects scientists' increased attention to the issues of bilingual education, likely due to globalization processes, migration flows, and the recognition of the importance of multicultural education. This trend confirms the significance of bilingualism in the modern educational discourse, as countries worldwide strive to integrate multilingual strategies into their educational systems to enhance education quality and strengthen intercultural communication.

Our research aims to comprehensively analyze academic papers selected based on the keywords "bilingual" and "education" for the period 2000 to 2023. The study seeks to identify and analyze key trends and methodologies influencing the bilingualism and education debate in linguistic research. The tasks include quantitatively analyzing the pace of publication activity, determining the geographical distribution of research, identifying leading scientists and organizations in the field, and analyzing contributions from significant scientific journals. This study will identify the main research centers focusing on bilingualism in the educational context, uncover existing knowledge gaps and poorly studied aspects of the topic. The gathered information will help steer future research and contribute to a deep understanding of the interaction between bilingualism and educational practice, crucial for developing effective educational strategies in multilingual and multicultural settings.

### **Literature review**

The study of bilingualism in education is inextricably linked to the cognitive processes of students. Studies by Bialystok et al. (2012), Grundy & Timmer (2016), and others emphasize that bilingualism has a significant impact on the cognitive development of children and adults. Special attention is paid to improving executive functions and working memory, where the language used during tasks affects cognitive outcomes (Bialystok & Craik, 2010). The efforts of scientists such as Festman et al. (2010) and Cox et al. (2016) point to the benefits of bilingualism, which manifest themselves in various aspects of cognitive control, including improved phonetic learning and thinking flexibility (Antonioni et al., 2014). These studies allow us to better understand how bilingual education can promote literacy and language achievement by supporting cognitive development in various educational contexts (Sefedini, 2018; Adnyani et al., 2023).

The effectiveness of bilingual education is closely linked to the use of methods and strategies that ensure successful bilingual education for students. Research by Kenner et al. (2008) and Yeh et al. (2002) points to the cognitive and cultural benefits that bilingual educational programs can offer. Pedagogical strategies developed and implemented by teachers contribute to strengthening student learning. Rolstad et al. (2005) demonstrated the effectiveness of an approach in which reading is first taught in the student's native language and then in English. For children of the second generation of immigrants, bilingual education

is vital for preserving the first language and acquiring the language of the country of residence (Schwartz et al., 2012). The importance of specific bilingual learning strategies aimed at reducing the cognitive load of students and improving learning outcomes is emphasized in the works of Ashton-Hay et al. (2021). Guglielmi (2012) also links bilingual education to the enhancement of academic achievement through the preservation and development of native language skills. The use of a variety of teaching strategies promotes the understanding and assimilation of academic content (Martínez et al., 2019), which emphasizes the need for careful planning, effective implementation, and continuous evaluation in the process of teaching two languages simultaneously.

The socio-cultural aspects of bilingualism in education determine the depth and diversity of the educational process, bringing elements of intercultural interaction and personality formation. Studies by AlShamsi & Alsheikh (2020) and Hamman-Ortiz & Palmer (2020) emphasize the importance of sociocultural competence, which influences educational experience and promotes intercultural interactions. Loginova & Gvozdeva (2019) examine the influence of bilingualism on national identity among various ethnic groups, emphasizing the close connection of language with culture and identity. In an educational context, it is important to take into account intercultural and multicultural competencies for effective navigation in diverse social landscapes (Hus & Hegediš, 2018). The work of Chapman et al. (2022) focuses on the importance of socio-cultural factors in bilingual education for the academic and socio-cultural development of students. Kharkhurin's (2010) studies explore the role of bilingualism in stimulating creativity, pointing out that the relationship between bilingualism and creativity depends on the sociocultural context. Bilingual education programs focused on the development of intercultural competence (Khuziahmetov & Valeev, 2018) and the introduction of socio-cultural pedagogies (Teemant et al., 2005) create inclusive educational environments that take into account the diversity of linguistic and cultural backgrounds of students, emphasizing the importance of developing bilingual curricula to prepare students for the role of intercultural citizens (Wang et al., 2017).

In examining the landscape of bilingual education in Kazakhstan, recent studies highlight the diverse approaches and challenges within the context of the country's trilingual policy. Goodman and Tastanbek (2020) discuss the shift from codeswitching to translanguaging, emphasizing the need for nuanced language policies to support multilingual education. Moldabekova et al. (2021) and Imambek (2023) focus on the development of polylingual communication skills and the adaptation of teaching methodologies to new demographic realities. The sociocultural dimensions of Kazakhstan's bilingual environment are explored by Salimgerey et al. (2023) and Tlemissov et al. (2020), who highlight the implementation of trilingual systems in secondary education. Innovative pedagogical methods, including the integration of linguocultural components and mind-mapping, are addressed by Kalizhanova et al. (2020) and Bakishev and Plumlee (2022). The practical implications of multilingual education in specific contexts, such as agricultural institutions, are discussed by Duisebayeva and Imasheva (2022). Collectively, these studies provide a comprehensive view of the challenges and opportunities in fostering effective bilingual and trilingual education in Kazakhstan (Abdulina, 2022; Danilov et al., 2020; Valieva, 2019).

In conclusion, of the literature review, it can be noted that bilingualism in education covers a wide range of cognitive, methodological, and socio-cultural issues, each of which makes a significant contribution to the general understanding and development of bilingual education. The reviewed studies emphasize not only the academic importance of bilingualism but also its impact on personal development in a multilingual and multicultural world. The interaction of these aspects provides valuable insights for the development of educational strategies that will contribute to the comprehensive development of students and prepare them for active life in a globalized society.

## **Materials and research methods**

### *Materials*

The research on the topic of bilingualism and education was conducted on the basis of a comprehensive analysis of academic papers registered in the Scopus database from 2000 to 2023. Based on the keywords "bilingual" and "education," 7,609 publications were selected, which represents a large volume of research data for analysis. The research material includes scientific articles (5,294), book chapters (1,149), conference reports (443), reviews (338), and other forms of scientific works. Such a variety of source materials makes it possible to cover many perspectives and provide an integrated approach to the topic under study, allowing you to trace the dynamics and development of research interest in the field of bilingualism during this period.

The data for the analysis reflect a wide range of studies conducted in different countries, which allows us to take into account the diversity of educational systems and cultural contexts in which bilingualism operates. The study of publications in reputable journals such as the international Journal Of Bilingual Education And Bilingualism, Bilingual Research Journal, and many others provides an opportunity to delve into the specifics of discourse and identify key topics that occupy the scientific community in the context of bilingual education. The body of scientific papers under consideration also includes publications from a variety of specialized journals and series that represent the main platforms for the exchange of knowledge in the field of linguistics and education. This provides an opportunity to conduct a thorough analysis of current research trends and scientific approaches to bilingualism.

Special attention in the study is paid to the careful selection of publications according to specified criteria to ensure the relevance and significance of the collected data. In addition to quantitative characteristics, such as the year of publication and the type of research, qualitative aspects of the work are also analyzed, including the depth of analytical coverage of the topic, the methodological approach of the researchers, as well as specific conclusions and recommendations presented in the research. All this allows us to create a complete picture of the state of research in the field of bilingualism and education, identify the main directions and gaps in existing knowledge, as well as determine the potential for future scientific work.

### *Instrument*

The selection of appropriate analytical tools plays an important role in the study of bilingualism and education. The SPSS program was chosen as the basis for quantitative analysis because of its ability to process data arrays and perform complex statistical analysis. This tool is designed for deep analysis of textual data, allowing the researcher to encode, classify, and analyze qualitative data while identifying key concepts and topics. It is particularly valuable for research in the field of education and bilingualism, where contextual and cultural aspects must be taken into account. Qualitative analysis programs facilitate the process of identifying common thematic patterns and individual characteristics in large text arrays, which deepens understanding of the topic under study and reveals unique relationships between bilingualism and educational processes.

In addition to SPSS, specialized data visualization programs such as Tableau and Excel were integrated into the study. These tools allow for the creation of interactive charts and graphs to visually demonstrate the results. They not only facilitate the interpretation of complex statistical data but also enhance the effectiveness of presenting analysis results to the scientific community. Visualizing statistically significant relationships and trends in data becomes critically important when presenting conclusions in a scientific article.

### *Procedure*

The analytical data processing began by extracting information from the Scopus database using complex queries for the keywords "bilingual" and "education". This stage identified

relevant studies that met the specified criteria within the specified period. Each selected work underwent a verification process to ensure it met the established research parameters, including thematic relevance and academic value. Spreadsheets were created to catalog the data, including metadata of publications such as the type of research, authors, year of publication, number of citations, and availability of the text. This provided a convenient platform for subsequent data extraction and analysis.

For detailed analysis, the SPSS statistical package was used. Descriptive data analysis was carried out to determine the distribution of publications by year, journal, country, and other key parameters. This allowed for the identification of main trends in the field of bilingualism and education, as well as a comparative analysis between different research groups and approaches. Comprehensive analysis was enhanced by combining data obtained using various methodological approaches to ensure maximum objectivity and reliability of the results. Upon completion of statistical and qualitative processing, the data was visualized for better perception and interpretation of the results. Graphs and diagrams illustrating key findings were created using data visualization programs, significantly enhancing the understanding of complex relationships and facilitating the presentation of results. The final stage involved synthesizing all the obtained data into an exhaustive report, which served as the basis for the development of a subsequent scientific publication.

The conclusion of the "Methodology" section reflects an integrated and multifactorial approach to the analysis of data on bilingualism and education. The applied methods and analysis tools provided depth to the research, accuracy to the results, and the possibility of interpretation within a broad academic context. The findings have the potential to shape further research, enrich academic dialogue, and be applied practically in educational policy and teaching practices.

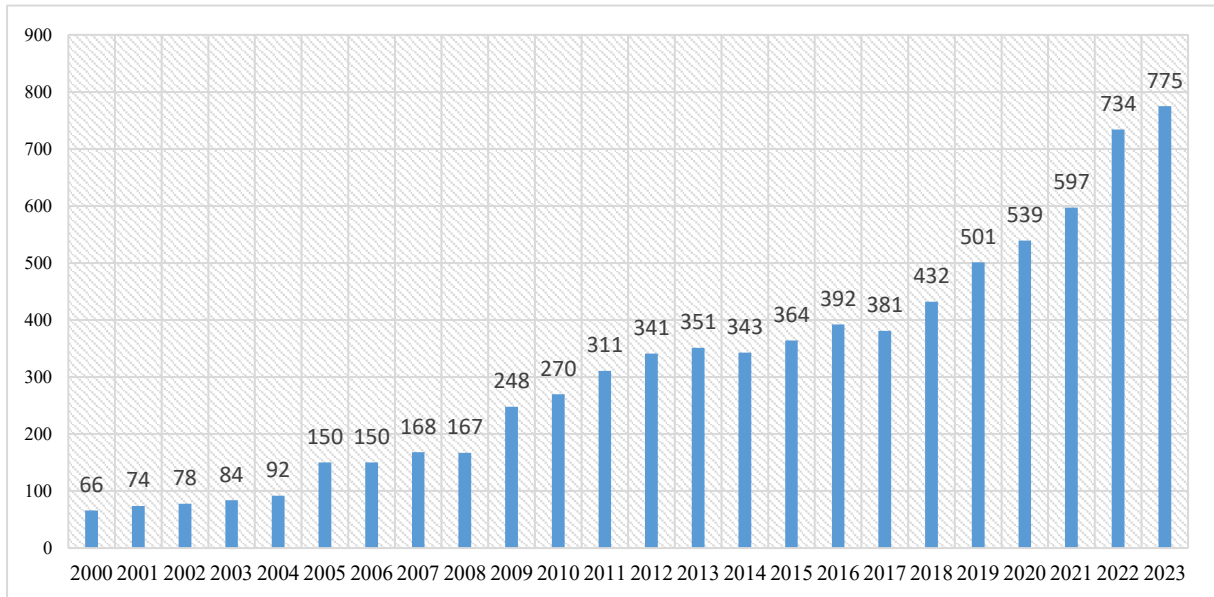
### **Results and discussion**

As part of the study, analytical procedures were carried out to assess the current state and dynamics in the field of bilingualism and education. Temporal analysis revealed a steady increase in the number of publications during the study period, which indicates a growing interest in bilingual education. The geographical analysis highlighted the global nature of research with the active participation of scientists from different cultural and linguistic contexts. The sectoral analysis pointed to the multidisciplinary nature of research involving a wide range of knowledge branches and approaches. The organizational analysis showed a variety of leading scientific centers that make a significant contribution to the development of the topic. The publishing analysis has identified key journals that actively publish scientific works on bilingualism and education. The analysis of keywords in the titles of publications gave an idea of the most discussed aspects in this field, while the evaluation of citations revealed the most influential studies shaping the directions of academic discourse. Taken together, these data illustrate a wide range of interests and priorities in the study of bilingual education and open up new horizons for further scientific research and practical developments in this direction.

A temporal analysis of publications indexed in the Scopus database on the topic of bilingualism in the educational field shows a significant increase in scientific interest since the beginning of the XXI century. From 66 papers registered in 2000, the number of publications has steadily increased, reaching 775 by 2023. This growth reflects not only an increase in the volume of research in the field of bilingual education, but also the expansion of theoretical and methodological approaches to the study of bilingualism, as well as increased interest in this topic in the light of globalization and migration processes (Figure 1).

**Figure 1**

*Trends in publication activity in the context of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from publications indexed by Scopus)*

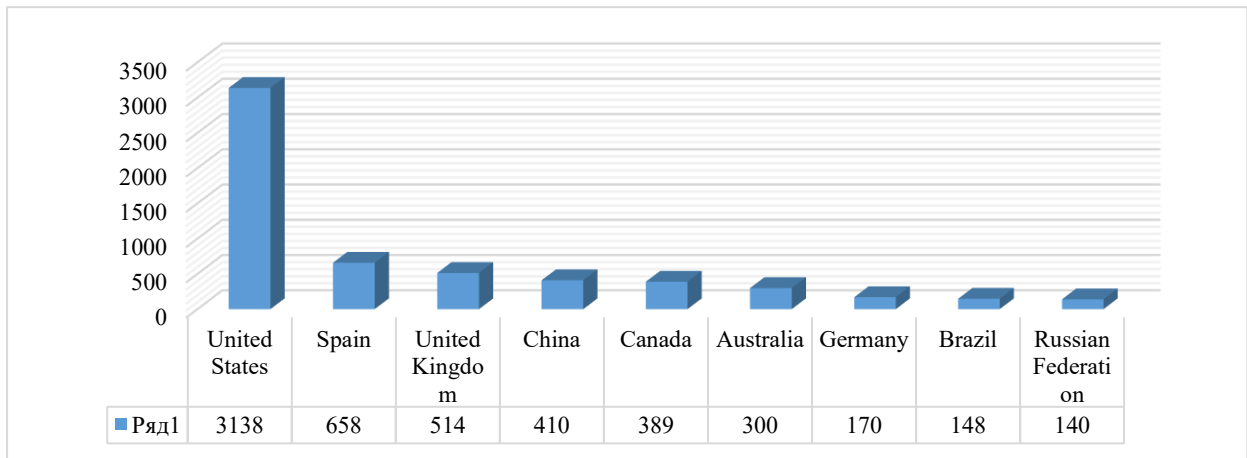


Of particular interest is the period after 2010, when there is a particularly noticeable increase in publication activity, which may be due to increased attention to bilingual education in the context of international educational policy and practice. The peak values in the period from 2021 to 2023, when the number of publications exceeded 500 annually, emphasize the importance of this topic in academic discourse and reflect the relevance of bilingualism as a key aspect in educational research.

An analysis of the number of publications by country on bilingualism and education shows significant differences in academic activity. The United States of America holds a leading position with 3,138 publications, highlighting its dominant role in scientific research in this area (Figure 2). Leading European countries, such as Spain and the United Kingdom, also demonstrate significant interest in the topic of bilingualism, with 658 and 514 publications respectively. The active participation of countries like China and Canada, with 410 and 389 publications, respectively, indicates the international and multicultural nature of research in this area.

**Figure 2**

*Top 10 countries by the number of publications in the field of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from publications indexed by Scopus)*

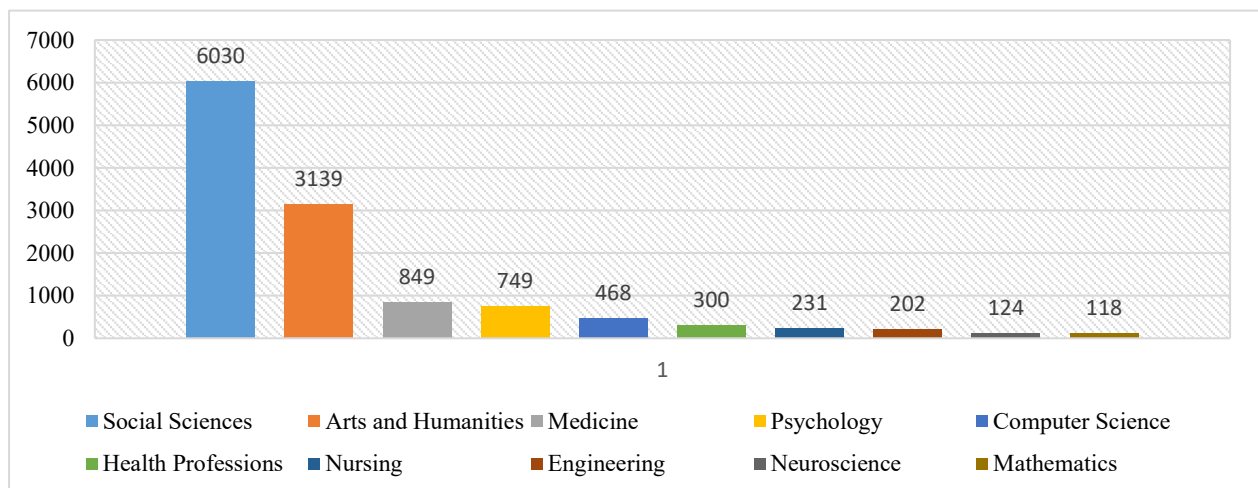


In addition to geographical leaders, there is a strong presence of research from developing countries and countries with economies in transition, indicating the expansion of the research field and interest in bilingual education beyond traditional academic centers. These data not only reveal the contribution of each country to the global science of bilingualism but also emphasize the importance of global cooperation and knowledge exchange between different cultural and linguistic communities.

An analysis of the number of scientific publications indexed in Scopus and devoted to the topic of bilingualism reveals a significant predominance of social sciences with 6,030 works, reflecting the multilayered and sociocultural significance of bilingualism in modern society (Figure 3). Arts and humanities occupy the second place with 3,139 publications, emphasizing the contribution of these areas to the understanding of intercultural communication and multilingualism. The field of medicine and psychology is also actively exploring bilingualism, with 849 and 749 publications respectively, reflecting its impact on cognitive processes and health.

**Figure 3**

*Top 10 industries by the number of scientific publications in the field of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from publications indexed by Scopus)*

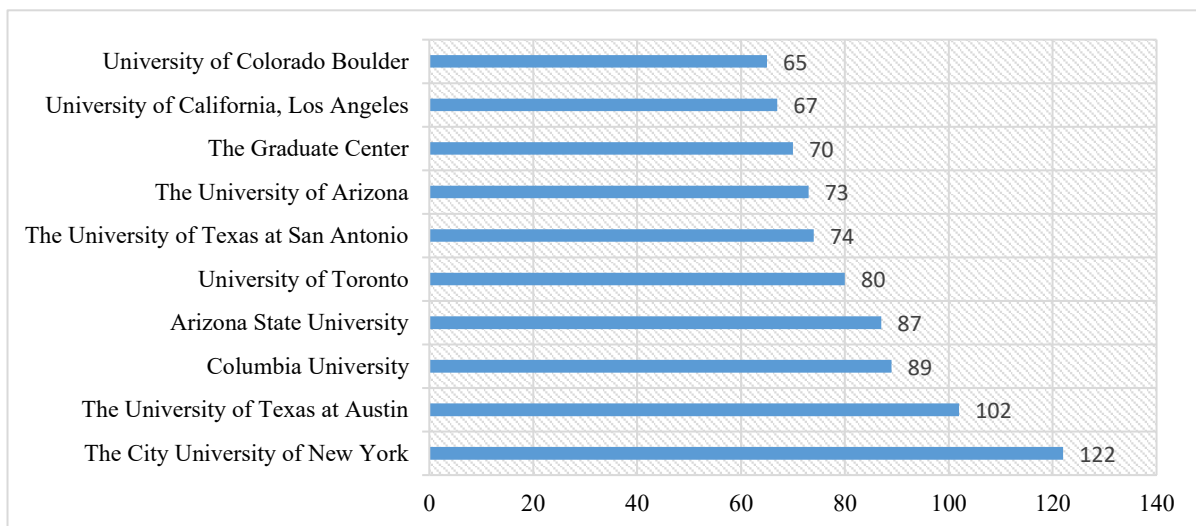


Disciplines such as computer science and engineering, with 468 and 202 publications respectively, reflect the contribution of the technical sciences to the development of technologies to study and support bilingualism. For example, in the creation of training programs and artificial intelligence for language education. All these data combined highlight the interdisciplinary and transdisciplinary nature of research in the field of bilingualism, indicating significant academic interest and the importance of integrating knowledge from various fields.

An analysis of the number of publications on organizations represented in the Scopus database and dealing with the topic of bilingualism revealed the activity of the world's leading universities. City University of New York tops the list with 122 publications, which highlights its significant contribution to the development of this field of research (Figure 4). Organizations such as the University of Texas at Austin and Columbia University also demonstrate high research activity, reflecting strong academic positions and innovative approaches in the study of bilingualism and education.

**Figure 4**

*Top 10 organizations by the number of scientific publications in the field of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from publications indexed by Scopus)*



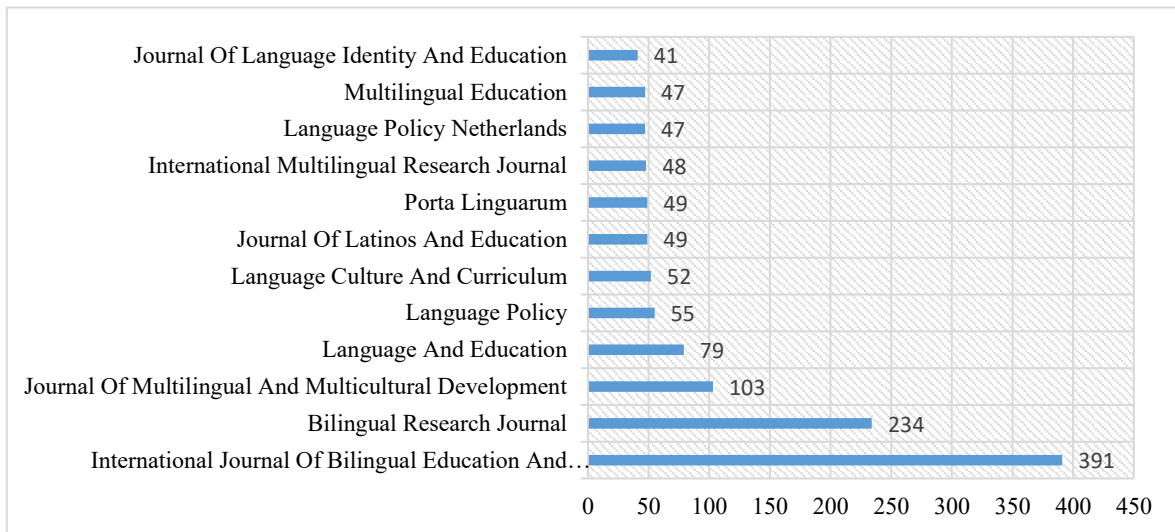
In addition to American universities, educational institutions from various parts of the world, including the University of Toronto and the University of Hong Kong, make significant contributions, indicating a global spread and multilateral interest in research in the field of bilingualism. The presence of universities from diverse cultural and linguistic contexts on the list of leaders confirms the international and multidisciplinary nature of bilingual education as a subject of research and reflects its importance in the global academic community.

An analysis of scientific publications dealing with the topic of bilingualism shows that the International Journal Of Bilingual Education And Bilingualism is the leader in the number of publications with 391 papers. This reflects the key role of the publication in shaping academic discourse in the field of bilingual education and bilingualism. The Bilingual Research Journal and the Journal Of Multilingual And Multicultural Development also significantly contribute to the expansion of the research field with 234 and 103 publications, respectively, emphasizing the multidisciplinary nature of the topic (Figure 5).



**Figure 5**

*Top 10 scientific publications by the number of publications in the field of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from publications indexed by Scopus)*



Publications such as Language And Education and Language Policy, with 79 and 55 publications, respectively, reflect the importance of these areas for the study of bilingualism and its impact on educational processes and policy. These journals and other leading publications, including the Journal Of Latinos And Education and the international Multilingual Research Journal, present a variety of approaches to the study of bilingualism and its aspects, from theoretical foundations to practical applications, and stand out as important platforms for the exchange of knowledge and ideas in this field. The study of keywords in the titles of scientific articles devoted to the topic of bilingualism reflects the accents and priorities in this field of research. The term "language" is present in 809 titles, which emphasizes the fundamental importance of language in the study of bilingualism. It is followed by the word "bilingual" with 610 mentions and "education" with 601, reflecting the centrality of the educational aspect in bilingualism and the importance of integrating a bilingual approach into curricula (Table 1).

**Table 1**

*Top 20 keywords found in the titles of scientific publications on bilingualism: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from the database of articles indexed by Scopus)*

Keywords	Number Of Keywords	Keywords	Number Of Keywords
language	809	school	114
bilingual	610	development	113
education	601	linguistic	105
bilingualism	413	cognitive	98
children	212	multilingual	96
english	206	teaching	95
learning	163	teachers	93
students	150	case	85
policy	132	languages	83
study	121	early	79

The analysis of citations of outstanding works on the topic of bilingualism and its impact on education demonstrates the special attention of the academic community to these issues. The leading place is occupied by the book "Immigrant America: A Portrait" by Portes, A. and Rumbaut, R.G., published in 2006 and cited more than 3,500 times, which reflects the importance and relevance of research on immigration and its impact on linguistic adaptation and social processes (Table 2).

**Table 2**

*Top 10 most cited works in the field of bilingualism and education: analysis of Scopus data for 2000-2023 (Source: own calculations based on data from the database of articles indexed by Scopus; Export Date: April 13, 2024)*

Authors	Title of the Work	Classification	Year	Citations
<b>Portes, A., Rumbaut, R.G.</b>	Immigrant America: A portrait	Sociology	2006	3593
<b>Marian, V., Blumenfeld, H.K., Kaushanskaya, M.</b>	The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals	Linguistics, Language Acquisition	2007	1195
<b>Otheguy, R., Garcia, O., Reid, W.</b>	Clarifying translanguaging and deconstructing named languages: A perspective from linguistics	Linguistics	2015	1004
<b>Carlson, S.M., Meltzoff, A.N.</b>	Bilingual experience and executive functioning in young children	Developmental Psychology, Cognitive Science	2008	714
<b>Bialystok, E., Craik, F.I.M., Freedman, M.</b>	Bilingualism as a protection against the onset of symptoms of dementia	Neuropsychology, Aging	2007	608
<b>Minow, M.</b>	Making all the difference: Inclusion, exclusion, and American law	Law, Social Policy	2016	539
<b>Anderson, L.M., Scrimshaw, S.C., Fullilove, M.T., Fielding, J.E., Normand, J.</b>	Culturally competent healthcare systems: A systematic review	Public Health, Health Services Research	2003	539
<b>Lewis, G., Jones, B., Baker, C.</b>	Translanguaging: Origins and development from school to street and beyond	Educational Theory, Linguistics	2012	487
<b>Hornberger, N.H., Johnson, D.C.</b>	Slicing the onion ethnographically: Layers and spaces in multilingual language education policy and practice	Educational Research, Anthropology	2007	462
<b>Hornberger, N.H., Link, H.</b>	Translanguaging and transnational literacies in multilingual classrooms: A biliteracy lens	Bilingual Education, Literacy Studies	2012	413

The article "The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals" by Marian, V., Blumenfeld, H.K., and Kaushanskaya, M., published in 2007 in the Journal of Speech, Language, and Hearing Research, has more than 1,000 citations demonstrating a deep interest in the study of language experience and competencies in the context of bilingualism. This highlights the importance of

developing effective tools for assessing the language profile of bilinguals and multilinguals in an educational environment.

An analysis of the methods, results, and conclusions of the five most cited articles in the field of bilingualism and education revealed a deep academic interest and a multidisciplinary approach to this topic. For example, the study "Immigrant America: A portrait" by Portes, A. and Rumbaut, R.G. uses both qualitative and quantitative methods to analyze the socio-cultural dynamics of immigration to the United States, revealing the typology of political scenarios regarding immigration and identifying the negative consequences of forced assimilation for immigrant communities. Meanwhile, the work of Marian, V., Blumenfeld, H.K., and Kaushanskaya, M. "The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals" demonstrates the importance of taking into account the history of language acquisition and recommends the use of objective measures of language performance in studies involving bilinguals (Table 3).

**Table 3**

*Top 5 comparative analysis of research in the field of bilingualism and education: methods, results, and conclusions (Source: own calculations based on data from the database of articles indexed by Scopus)*

Authors	The title of the work	Methods Used	Results	Conclusions
<b>Portes, A., Rumbaut, R.G.</b>	Immigrant America: A portrait	The authors employ a combination of qualitative and quantitative research methods to analyze the socio-cultural dynamics of immigration in the United States. They draw on historical data, case studies, and statistical analysis to explore the various ideologies and policies shaping immigrant integration.	The study reveals a typology of political scenarios regarding immigration, ranging from tolerant stances to militant nativism. It also highlights the negative consequences of forced assimilationism on immigrant communities, particularly in terms of cultural preservation and intergenerational dynamics. Additionally, the authors discuss the changing global context and the potential benefits of bilingualism in an interconnected world.	Portes and Rumbaut conclude that policies promoting forced assimilation can have detrimental effects on immigrant communities, leading to dissonant acculturation and weakening familial bonds. They argue for a more inclusive approach that values linguistic diversity and recognizes the benefits of bilingualism in a globalized society. The authors emphasize the importance of informed policymaking and community engagement to support the educational and cultural needs of immigrant populations.
<b>Marian, V., Blumenfeld, H.K., Kaushanskaya, M.</b>	The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals	The study involved administering the LEAP-Q questionnaire to bilingual participants to gather self-reported data on language proficiency and experience. Additionally, objective metrics of language performance were used to confirm the proficiency and dominance profiles identified by the LEAP-Q.	Bilinguals who rated their English proficiency as 7 or above performed similarly to monolinguals on the listening task. However, there were instances of false-positive cases where participants rated themselves as highly proficient but performed poorly on the task. Considering factors like language dominance and age of acquisition improved the grouping of bilinguals based on their behavioral performance.	The study emphasized the importance of considering aspects of bilinguals' language acquisition history, in addition to self-ratings of proficiency, to characterize bilingual participants accurately. It was recommended that researchers use objective measures of language performance to validate the proficiency and dominance profiles identified by the LEAP-Q. The study highlighted the significance of including measures of proficiency and experience in research protocols involving bilingual participants.
<b>Otheguy, R., García, O., Reid, W.</b>	Clarifying translanguaging and deconstructing named languages: A perspective from linguistics	The methods used in the study involved analyzing language practices that challenge the traditional boundaries of named languages. Researchers examined instances of translanguaging and deconstructed named languages to understand the fluidity and complexity of bilingual	The results of the study highlighted the interconnectedness of linguistic features across named languages. Researchers found that bilingual speakers often draw from their entire linguistic repertoire when communicating, blurring the lines between distinct languages. This fluid	In conclusion, the study emphasized the need to move beyond rigid notions of named languages and embrace the dynamic nature of language use in bilingual settings. By recognizing translanguaging as a valuable practice, educators and researchers can better support bilingual individuals in their language development and promote a more inclusive approach to language learning. The findings

		language use. They also explored the concept of language repertoires and the unity of mental grammars in bilingual individuals.	language use was observed to be a natural and effective way for bilingual individuals to express themselves and navigate communication in diverse contexts.	suggest that understanding and appreciating the complexity of translanguaging can lead to more effective language education strategies and a deeper appreciation of linguistic diversity.
<b>Carlson, S.M., Meltzoff, A.N.</b>	Bilingual experience and executive functioning in young children	The study included three groups of children: Bilingual, Immersion, and Control. The Bilingual group consisted of children with equal exposure to Spanish and English, the Immersion group included children attending a language immersion school, and the Control group comprised English monolingual children with limited exposure to a second language. Various executive function tasks were administered to the children, and demographic information was collected through questionnaires. Tasks were conducted in English, Spanish, or a combination based on the child's preference.	The Bilingual group outperformed both the Immersion and Control groups on tasks requiring inhibition of attention to misleading stimuli. Specifically, they scored significantly higher on tasks like Visually Cued Recall, the Advanced DCCS, and the C-TONI. Pairwise comparisons indicated significant differences between the Bilingual group and the other groups on these tasks. However, there were no significant differences between the Immersion and Control groups on most tasks.	The findings suggest that bilingual experience may enhance certain aspects of executive functioning, particularly inhibitory control skills, in young children. Bilingual children demonstrated superior performance on tasks requiring attention and inhibition compared to monolingual controls. These results highlight the potential cognitive benefits of bilingualism and emphasize the importance of considering language experiences in early childhood education and development.
<b>Bialystok, E., Craik, F.I.M., Freedman, M.</b>	Bilingualism as a protection against the onset of symptoms of dementia	The study selected a sample of patients referred to a Memory Clinic with cognitive complaints. Language history information, including languages spoken, English fluency, place of birth, date of birth, and year of immigration to Canada, was collected. This information was provided to 11 judges who classified each patient as monolingual or bilingual based on criteria that required regular use of at least two languages from early adulthood. Inter-rater reliability for language classification was high. Patients who did not reach a consensus on their language status were eliminated from further analyses.	The final sample consisted of 184 patients, with 91 monolinguals and 93 bilinguals. Both language groups had a similar proportion of patients diagnosed with probable Alzheimer's disease (AD). Bilingual individuals showed a significant delay of 4.1 years in the age of onset of dementia symptoms compared to monolinguals. The mean values for relevant variables, such as age of onset, age at first appointment, years of education, and MMSE scores, were reported and compared between the two language groups.	The study suggests that bilingualism may act as a protective factor against the onset of symptoms of dementia, as bilingual individuals demonstrated a delayed onset of dementia symptoms compared to monolinguals. This finding highlights the potential cognitive benefits of bilingualism in aging and its impact on cognitive health.

Additional works, such as "Clarifying translanguaging and deconstructing named languages: A perspective from linguistics" by Otheguy, R., Garcia, O., and Reid, W., explore the practices of moving away from the traditional boundaries of named languages, emphasizing the dynamism of language use in bilingual settings and offering more inclusive language teaching methods. Research in the field of bilingualism and cognitive development, for example, "Bilingual experience and executive functioning in young children" by Carlson, S.M. and Meltzoff, A.N., highlights the potential cognitive benefits of bilingualism, especially in relation to inhibition skills in young children. Another important contribution to the understanding of bilingualism as a protective factor against the onset of dementia symptoms is the work of Bialystok, E., Craik, F.I.M., and Freedman, M. "Bilingualism as a protection

against the onset of symptoms of dementia". These studies reflect the depth and complexity of the issues of bilingualism and its effects, ranging from cognitive and social adaptation of immigrants to protection from cognitive impairment in old age. The totality of these works shows not only the importance of bilingualism for individual cognitive development, but also its role in social integration and cultural enrichment of communities.

The study conducted a comprehensive analysis of publications on the topic of bilingualism and education in the Scopus database for the period from 2000 to 2023. Based on data on the frequency of publications by year, country, scientific branches, organizations, and journals, significant trends and dynamics of interest in this topic in the academic community were identified. The analysis of keywords in the titles of the articles emphasized the emphasis on aspects such as multilingualism, learning, and cognitive development, reflecting a multidisciplinary approach in bilingualism research. The high citation of individual works indicates a deep interest in studying the influence of bilingualism on cognitive processes and educational practices. These results not only highlight the importance of bilingualism in the educational field but also point to the potential for further research aimed at optimizing learning and education in a multicultural context. The results confirmed the importance of global and interdisciplinary interest in bilingualism and education, which is emphasized in the works of authors such as Kayadibi (2022), whose bibliometric analyses highlight the prevalence of bilingualism research, especially in journals such as the *International Journal of Bilingual Education and Bilingualism*. The Sun et al. (2020) study highlights the importance of disseminating early bilingual education results in regions such as China, emphasizing the significant potential of bilingualism in shaping educational policy and practice. Ozfidan et al. (2016) focus on the positive impact of bilingual education programs on the development of inclusive language competence and the preservation of minority languages, which once again confirms the multicultural approach in education.

The Poza (2017) study explores translanguaging in the context of bilingual education, emphasizing its role in training qualified workers for the global economy, reflecting the need to adapt educational programs to the requirements of the modern world. The Dubetz (2014) study highlights the importance of the participation of bilingual educators in professional organizations, contributing to a more active promotion of the interests of bilingual education. An analysis by Ilhan & Aydin (2015) shows that teachers of higher education institutions in Turkey have a positive perception of bilingual education, confirming its importance and potential for integration into curricula. The study of studies such as Yang's (2023) work highlights the increasing prevalence of bilingual education among children in modern society. Zhang's (2022) study analyzes the views of bilingual and monolingual parents on bilingualism and bilingual education, allowing for a better understanding of the diversity of approaches and attitudes in this area. The work of Kirsch et al. (2020) discusses the development of multilingual practices in early childhood education based on research in the field of bilingualism and neuroscience, indicating the importance of scientific support for the development of bilingual programs. These studies emphasize the importance of bilingualism not only as a linguistic but also as a cultural competence that promotes a deep understanding of different cultures, making bilingual education an important component of the modern educational system. In light of the data obtained, further development of research in the field of bilingualism is recommended, taking into account its impact on cognitive abilities, cultural interaction, and educational outcomes. Our research has revealed significant implications for the understanding and development of bilingual education. The analysis showed not only an increase in the number of publications but also an increase in international participation, which indicates the globalization of interest in this topic. This is especially noticeable in the increase in the number of studies from countries with different linguistic and cultural contexts, which enrich bilingual education with new methods and approaches. It also confirms the importance

of inclusive education that takes into account the linguistic and cultural characteristics of students. The results of our research can contribute to the development of policies aimed at supporting multilingualism in educational systems, as well as provide valuable data for the adaptation of curricula that will take into account the needs of bilingual and multilingual students.

Based on the results of the study, several key recommendations can be proposed for future research in the field of bilingualism and education. First, it is important to continue studying the impact of bilingualism on the cognitive development and academic success of students using advanced data and analytics methods. Second, attention should be paid to the development and testing of innovative educational programs that will contribute to a deeper and more effective mastery of two or more languages. In addition, the scientific community should strive to strengthen interdisciplinary cooperation to study bilingualism from the perspectives of various sciences — from psychology and neuroscience to sociolinguistics and educational policy. This will allow not only a better understanding of the processes occurring in bilingual education but also an effective implementation of the acquired knowledge into the practice of educational institutions.

In the context of globalization and multicultural societies, bilingualism and bilingual education are becoming particularly relevant. This study presents an analysis of scientific publications in the Scopus database, which allows us to assess the trends and main directions of development of this topic. In the light of the data obtained, a number of issues arise that require further consideration for a deep understanding of the problems and opportunities of bilingual education:

- 1. Which pedagogical approaches are most effective in the bilingual education of different age groups?*
- 2. Does the level of second language proficiency affect the cognitive abilities of children and adults in the long term?*
- 3. What are the psychological barriers to learning a second language and how can they be overcome?*
- 4. What factors contribute to the successful integration of bilingual programs into national educational systems?*
- 5. What methods can be used to assess and improve the quality of bilingual education?*
- 6. How does the interaction of cultures in bilingual educational institutions affect the socio-emotional development of students?*
- 7. What strategies can help teachers and educators work more effectively with bilingual students?*
- 8. What are the long-term socio-economic effects of the introduction of bilingual education in different regions?*
- 9. Does bilingualism affect the preservation and development of minority languages and cultures?*
- 10. What are the prospects for the development of online education to support bilingual education?*

This study highlights the importance of bilingualism and bilingual education in the modern multicultural world. An analysis of publications in Scopus has shown not only an increase in interest in this topic, but also the need for further research to gain an in-depth understanding of effective strategies and methods in the field of bilingual education. Researchers will have to answer many questions concerning both theoretical and practical aspects of teaching and learning in a bilingual environment. This will optimize educational processes and ensure deeper cultural and linguistic interaction in educational institutions around the world.

## Conclusion

In this paper, we sought to assess the dynamics and scope of academic research on bilingualism and bilingual education, as well as identify key aspects shaping modern approaches in this field. After analyzing the data from the Scopus database, we found a significant increase in the number of publications, which reflects the increased attention to bilingual education in the academic community. This interest is explained not only by globalization and migration processes but also by the growing understanding of the importance of bilingualism in cognitive development and intercultural communication.

The international nature of the research highlights that bilingualism is a global topic requiring collaboration and knowledge sharing between different cultures and language groups. The study of bilingual education in different countries and cultural contexts reveals unique methods and strategies that can be adapted and applied in other regions to improve language learning and cultural exchange.

Our study also showed that bilingualism has the potential to develop not only linguistic skills but also cognitive abilities. This is especially important in the context of educational programs aimed at supporting children and adults in multicultural societies. Bilingual education promotes not only language development but also cultural understanding, contributing to the formation of a more open and inclusive society.

In conclusion, the results of our study emphasize the need for further analysis of the effectiveness of bilingual educational programs and their impact on social adaptation and cognitive development. It is also important to continue research on the impact of bilingualism on cultural and linguistic diversity, which will contribute to the development of teaching methods and interaction in multilingual and multicultural contexts. We hope that our work will form the basis for future research and development in this exciting and important field.

## Conflict of interest Statement

The authors declare no potential conflicts of interest regarding the research, authorship, or publication of this article.

## Author Contributions

Zhanzhigitov Syrym: Conceptualization, Methodology, Data curation, Software, Formal analysis, Investigation, Visualization, Writing – Original Draft Preparation, Writing – Reviewing and Editing, Supervision, Project administration, Funding acquisition. Tasbulatova Gulnara: Validation, Resources, Methodology, Writing – Reviewing and Editing.

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