

An Investigation of Gender Differences in Reading Development among Russian Students: Challenges and Perspectives¹

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Abstract

The role of gender in early reading development in Russian students was investigated. The longitudinal study was conducted from the middle of preparatory pre-school year to the middle of first grade. The rate and accuracy of reading words and pseudo-words of different length and degree of difficulty were measured in five successive measures. Gender is a term used to describe socially constructed roles for women and men. It is an acquired identity that is learned, changes over time, and varies widely within and across cultures. In contrast, the term sex is used to indicate the biological differences between men and women. The role of gender in community of the Russian federation development was not adequately investigated. It is clear that all this determines the specific course of socio-political processes among the Muslim Ummah, forms peculiar trends in their development. Questions related to the study of demographic predictors of political processes, as applied to the Muslim community of Russia, only partially became the subject of research in a number of works of Russian scientists. Foreign literature has addressed some aspects of this topic only occasionally in studies. The study was carried out on the basis of the analysis of statistical data of Russian organizations, a secondary analysis of materials from published Russian and foreign publications. In the course of the work, ideas were formed about the nature of the main demographic trends in the Muslim community of Russia, including in the regional context. The study of the data obtained made it possible to determine the nature of the impact of demographic processes in the Muslim environment on the socio-political sphere of Russian society. The results obtained are consistent with the conclusions of a number of researchers and expand the existing understanding of the nature of demographic processes among Muslims and the specifics of their influence in Russian society.

Keywords: Gender Differences; Reading Development Russia.

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1. Introduction

The research of the last 40 years shows that the achievements in the development of reading skills depend to some extent on gender. Many times, researchers pointed out that girls make faster progress in learning to read (e.g., Elley, 1992) than boys and less often have difficulties in reading (Rutter & Yule, 1975). Although most studies came from the United States and concerned achievements in reading among English-speaking children, nowadays more and more often differences in favour of girls are confirmed in many national studies in Europe as well as in international studies. Researchers show that the differences in favour of girls occur regardless of the specificity of the writing system and are found both in orthographic (transparent or opaque) and ideographic systems (Mullis, Martin, Foy & Drucker, 2012; Logan & Johnston, 2010; OECD, 2010). Most studies revealed bigger or smaller differences between girls and boys, in some studies the differences appeared to be irrelevant or were not found at all. However, there was no study in which the advantage of boys in reading was observed (Klinger, Shulha, & WadeWoolley, 2009; Ziafar & Namaziandost, 2019a).

Researchers' interest in the role of gender in the development of reading skills is not declining. On the contrary, their interest is being enhanced by the fact that the advantage of girls in reading has persisted for years, while the previously noticed advantage of boys in mathematics and natural sciences is consistently diminishing and, in some countries, no significant differences have been found yet (Klinger et al., 2009). Researchers frequently share the opinion that boys prevail in the group of children whose reading is the poorest (Stoet & Geary, 2013). Stoet and Geary (2013) found an interesting regularity proving that gender differences in mathematics and reading are inversely related. On the basis of data pertaining to 10-year-olds obtained by the Program for International Student Assessment (PISA) they showed that among schoolchildren worse at mathematics there were no differences, while among schoolchildren gifted at mathematics there were significant differences in favor of boys. Conversely in reading: there were no differences among schoolchildren who read well, while among schoolchildren who read badly there was a clear difference in favor of girls.

Reasons for faster progress of girls in reading remain unclear. Different biological and socio-cultural factors are considered. Some researchers emphasize the pace of biological and cognitive development. Girls develop earlier than boys. In speech development they outperform boys as early as in the first two years of life (Klinger et al., 2009). Speech and reading are two different ways of using language. As language development of boys is slower and assessment criteria are the same regardless of gender, that is why boys' performance is poorer in reading skills tests. Findings of research conducted on twins (Harlaar, Spinath, Dale & Plomin, 2005) provide evidence that the differences are caused by genetic factors to a greater degree than environmental factors. They also imply that the etiology of individual

differences and deficits in the initial years of learning to read depends on gender: the role of heredity is of greater importance in boys while in girls it is the role of environment.

Others (e.g., Below, Skinne, Fearington & Sorrell, 2011; Namaziandost, Sabzevari, & Hashemifardnia, 2018) emphasize differences in the way of processing information. Sequential processing is the ability to process successive pieces of information but simultaneous processing is the ability to integrate information in one coherent whole. The increased level of testosterone in the foetal period inhibits the development of the left cerebral hemisphere, that is why boys do better at simultaneous (visual) processing but worse at tasks requiring sequential (auditory) processing of data. The deficit in sequential processing hinders the process of phonological decoding which is particularly important in the early period of reading development. Camarata and Woodcock (2006) prove that the difference is determined by the rate of information processing. In the tasks of limited time girls obtained higher scores already in the pre-school period. The gap increased at further levels of education, which does not mean that boys have a slower time of reaction but they do worse at keeping attention and concentration while performing simple tasks under time pressure. The slower rate of processing information in boys has a negative influence on many school activities, causing poorer scores in reading fluency. McGeown, Goodwin, Henderson and Wright (2012) shift the stress from biological differences (sex differences) to the feeling of being a member of gender (gender differences) and the degree of identification with features commonly recognized as feminine or masculine. Reading is perceived as a rather feminine activity. In the household environment, it is usually the mother who reads more than the father and more often teaches children to read. The authors did research on children aged 8-11 and showed that the degree of identification with features commonly attributed to the male or female role allows a better prediction of internal motivation to read than biological differences, although does not allow a prediction of only the achievements in reading. The lack of motivation and engagement among boys in the activities connected with reading can indirectly contribute to the slower development of reading skills. In general, girls have a more positive attitude to reading and read more.

Many factors in the school environment contribute to differences in favour of girls. Researchers highlight, among other things, the predominance of women among teachers, different gender-related expectations of teachers towards children or stereotyped and frequently stricter assessment of boys than girls. Teaching methods can also affect children's performance in reading. The phonic method of learning to read, by which children learn correspondences between sounds and letters is more beneficial for boys (Logan & Johnston, 2010). The method facilitates concentration, is less dependent on earlier acquired skills, fosters integration of phonological and visual information, and trains phonological reading strategies. In consequence, the advantage of girls diminishes or disappears. Researchers more often observed

phonological strategies in boys and orthographic strategies in girls, suggesting that the preferences of strategies were naturally related to gender (Logan & Johnston, 2010). The study of the development of reading strategies showed that the phonological strategy is earlier in the development than the orthographic strategy in children learning to read (Sochacka, 2004). Girls outperform boys in reading development so they use more mature strategies.

Gender-related differences in the development of reading skills occur from the beginning of school education. As early as at the pre-school age children differ in terms of the level of basic skills, which are considered essential for the development of reading skills such as recognizing the initial and final sound in words, dividing words into sounds, which determine the level of phonemic awareness, or recognizing letters which measures orthographic processing. As far as further stages of education are concerned, researchers investigated the skills of recognizing words, decoding pseudo-words, the rate and accuracy of loud reading or reading fluency were also taken into account (Bellow et al., 2010). It is often acknowledged that the differences between girls and boys persist at the same level and even increase as years go on, although there is no consensus among researches in this matter. Chatterji (2006) showed in her longitudinal study of children between pre-school and the first grade that the differences in favor of girls exist already in the pre-school period and increase in the first grade. Other researchers prove that the differences between girls and boys persist throughout the whole school period and the level of reading fluency becomes equal only at the time of early adulthood (Camarata & Woodcock, 2006). On the other hand, Below et al. (2010) measured differences between boys and girls in the development of reading skills in the period from pre-school to the fifth grade. They found out that in the pre-school period girls' scores were substantially higher than boys' scores in all investigated skills determining success in learning to read. They confirmed that girls start school education with a higher level of skills connected with reading and writing. In the first grade the differences between girls and boys were not significant, so were they in the second and third grade. Small but significant differences appeared in the fourth grade. In the fifth grade the differences were again insignificant. In the fifth-grade boys made a considerable progress, so they nearly caught up with girls. The results concerning the stability of differences in the successive years of education obtained by the above-mentioned authors differ from those quoted earlier.

In a number of later studies significant differences in reading skills development were not found in zero grade or 1-3 grades. Wrońska (2005) found no relationship between reading skills and gender. Krasowicz-Kupis (1999) found minor and irregular influence of gender on reading achievement. However, Sochacka (2004) in her study found significant differences in favor of girls in pre-school grade, the so-called zero grade and the first grade. International research conducted by OECD/IEA1 within PISA/PIRLS2 programmes which included children aged 10-15

showed that girls obtain higher scores in reading in comparison with boys also among Polish participants (OECD, 2010).

An inconsistent picture of reading achievements in girls and boys emerges from the quoted studies. Some researchers show that the differences persist and even increase in the successive years (Camarata & Woodcock, 2006). Some data support early differences in favor of girls, which disappear in the first grade and recur in the later grades of primary school (Below et al., 2010). The data seem to be more interesting because similar conclusions can be drawn when Polish data are taken into consideration. Earlier studies revealed that differences appeared at the beginning of learning and tended to disappear in the initial grades (Włodek-Chronowska, 1985). Further studies showed no differences (Szczerbiński, 2001) supposedly because there is a time in children's development when the differences even out. They appear again after some time as it was confirmed in the data of international research (OECD, 2010) in which participated Polish children. Differences which appear in the preschool period can be caused by biological factors, whereas the differences seen after some years can appear as a result of socio-cultural factors. It seemed to be interesting to analyze differences between girls and boys in terms of earlier reading achievements, which were obtained in the study of children between zero and first grade owing to their stability.

2. Methods

The study was conducted on the basis of political and demographic analysis, including relying on the structural and demographic theory presented in the works by D. Goldstone (Goldstone, 2018), and the research approaches used to analyze religious demography in the works by Brown Grim (Johnson & Grim, 2013).

The source of the study was the current data of Rosstat and published statistics, in particular, "Demographic Yearbook of Russia" (Demograficheskii ezhegodnik Rossii, 2017), "Russian Statistical Yearbook" (Rossiiskii statisticheskii ezhegodnik, 2017) and the collection "Regions of Russia. The main socio-economic indicators of cities" (Regionu Rossii, 2016).

When conducting the study, the authors faced the problem of determining its scope. There is a difficulty in defining the concept of "Muslims". How the boundaries of the concept of "Muslim environment" can be determined, given that it is based on religious identity, which is difficult to fix feature? Here, two approaches are possible: sociological (based on self-identification) and statistical. The latter includes the conditional term "ethnic Muslims" - that is, peoples traditionally professing Islam, and includes both "practicing Muslims" and "secular Muslims". In our study, when determining the boundaries of the Muslim community, we will rely on a statistical approach.

The study was carried out through analysis of demographic processes in regions where “ethnic Muslims” make up 50% or more of the population: The Republic of Tatarstan, the Republic of Bashkortostan, the Chechen Republic, the Republic of Ingushetia, the Kabardino-Balkarian Republic, the Karachay-Cherkess Republic, and the Republic of Dagestan.

3. Results

Learning to read consists in identifying individual orthographic and phonological particles and assigning them to each other because it enables reading a large number of words. The particles vary in different kinds of languages. The awareness of individual phonemes is of fundamental importance in the development of reading skills in Russian children (Sochacka, 2004). In early reading in Polish children as in other shallow orthographies, phonological strategies are more effective. The greater changeability of word forms and length of words, which make it difficult to remember their graphic image is not in favor of applying global strategies. That is why phonetic methods are prevailing in learning to read (Jaszczyszyn, 2010). The ability of decoding is necessary for the successful development of reading skills. Decoding consists in recognizing subsequent letters in the word, associating each letter with the right sound and performing a synthesis of the sounds in order to read the whole word correctly. The progress in early development of reading skills is tested most often by the rate and accuracy of decoding words and pseudowords. It is acknowledged that the ability of decoding words allows for prediction of reading comprehension (Araujo, Morais, & Costa, 20013). Although in regular orthographies phonological strategy enables effective decoding without comprehension (Jukes, Vagh, & Kim, 2006). Pseudo-words enable the assessment of learning the reading technique, which enables reading unfamiliar words. The rate of reading words is determined by the number of words read in one minute, and the accuracy of reading by the number or percentage of errors. In case of early stages in the development of reading skills and children with learning difficulties in reading, the rate of reading is usually expressed by the number of words read correctly in one minute, while the accuracy by the proportion of words read correctly to all words read during a determined time.

As for the coefficient of natural population growth, it is higher in all regions, and in Chechnya, Ingushetia and Dagestan it exceeds the all-Russian indicator by more than 10 times (Rossiiskii statisticheskii ezhegodnik, 2017). That is, almost all of these regions are regions with a growing population.

At the same time, in all the republics of the North Caucasus, unlike Tatarstan and Bashkortostan, the infant mortality rate is higher than the all-Russian one, and in Chechnya, Ingushetia and Dagestan it exceeds by more than 1.5 times (Rossiiskii statisticheskii ezhegodnik, 2017). This indicator is the most important criterion that

reflects the level of development of medicine, the well-being of the population, and socio-economic development. Thus, these regions, de facto, can be attributed to socially disadvantaged regions.

We should emphasize here that Ingushetia, Chechnya, and Kabardino-Balkaria are among the ten most populated regions of the Russian Federation. In a number of cities in these regions, population density is comparable to that of St. Petersburg and the cities of the Moscow region. At the same time, these regions, as we have already indicated, show a serious natural increase in the population, which will cause in the future an influx of additional contingents of young people and, of course, will increase pressure on the labor market. Only migration can reduce this excess pressure, and all regions (with the exception of the Republic of Ingushetia) have a negative migration balance. In this regard, Ingushetia is a very specific case; the migration outflow of the population is practically not recorded here.

It should be especially noted that the cities of the North Caucasus republics have their coefficient of natural population growth several times higher than the all-Russian one (for example, in the cities of Dagestan and Chechnya, it amounts to the inconceivable for Russia values - from 9.0 to 17.0) (Regionu Rossii, 2016). Thus, the cities here are turning into centers of concentration of children and adolescents, which can provoke an increase in youth crime, because it is known that more than 45% of all crimes in Russia are committed by people under 29 years. To prevent this process, it is necessary to strengthen the socio-economic base and the socio-cultural sphere of cities, which requires serious financial resources.

Another important aspect of the political and demographic analysis is the share of the rural population. Statistics show a high share of the rural population: in Chechnya, Ingushetia, Karachay-Cherkessia, and Dagestan, it exceeds 50%; in Kabardino-Balkaria - 48%. Such a territorial structure of the population creates the potential for further active urbanization in the short and medium-term. Subject to the current overpopulation of cities in the North Caucasus republics, this additional influx will only increase pressure on urban infrastructures, competition in the labor market, provoke interethnic tension in a number of regions, and increase the proportion of people with a "traditional" type of thinking and the psychology of a rural person in the urban population (that is, in fact, marginalized). In fact, this is a regional "population bomb".

An additional criterion for our analysis is the share of youth. Here, we also observe a high share of youth in a number of cities (Grozny, Khasav-Yurt, Nazran - over 30% of the city's population), which is considered a factor that creates a potential for all kinds of socio-political disasters; in fact, this can be described as a "potentially explosive atmosphere". The situation is saved only by the migration outflow of youth but in some cities, it either does not exist at all (for example, Kaspiysk, Nazran) or is minimal (for example, Khasav-Yurt, Derbent) (Regionu Rossii, 2016).

Characteristics of the socio-economic situation in the North Caucasian regions: All of the above specific features of the demographic development of the North Caucasian republics are superimposed on an unfavorable socio-economic situation. The indicated regions statistically show the following: low average salary in the region (approximately 30% lower than the national average); low housing provision (Ingushetia - 60%, Chechnya - 70%, Dagestan - 75%, Karachay-Cherkessia and Kabardino-Balkaria - 80% of all-Russian indicators); a high share of the population with incomes below the subsistence level (Ingushetia - 32%, Kabardino-Balkaria and Karachay-Cherkessia - 25%, Chechnya - 18%, in general in Russia - 13%); the unemployment rate is 2-3 times higher than in the country as a whole (in the Russian Federation - 5.5% of the economically active population); the level of social support (up to there are federal budget expenditures per inhabitant) in all republics, except the Chechen Republic, is lower than all-Russian indicators (moreover, in Dagestan and Ingushetia it is almost 2 times lower); the level of medical care in Dagestan, Ingushetia, and Chechnya are 25-30% lower than the national level.

4. Discussion

The presented studies showed that gender significantly differentiates children in the early development of reading skills. Differences between girls and boys were observed between the middle of zero grade and the middle of first grade. In that period, girls obtained higher scores than boys in the rate and accuracy of reading word and pseudo-words of different length and thus of different degree of difficulty. The assessments are in accordance with reports presented by many authors (Chatterji, 2006; Below, Skinne, Rearington, & Sorrell, 2010). However, they do not confirm the reports by Polish researchers (Wrońska, 2005) with the exception of Włodek-Chronowska (1985), whose assessments are in accordance with the presented studies in terms of the advantage of girls on the onset of education as well as the observed tendency to even out differences between children. The analysis of stability differences between girls' and boys' achievements in reading rate and accuracy measured five times in the period covered by the study revealed its inconsistent picture, dependent on the applied kind of measure and material used in the study. Differences in the rate of reading between children appeared to be stable in most cases. Whereas differences in the accuracy of reading remained at the similar level in the course of four successive measures and diminished considerably in the last, fifth measure falling in the middle of first grade. The differences in reading accuracy diminished as a result of the slower rate of growth in accuracy among girls and at the same time the increased growth of accuracy among boys in comparison with earlier measures.

This kind of result supports the reports by researchers (Camarata & Woodcock, 2006) who prove that gender-related differences are determined by the rate of information processing. As revealed the present study, in tasks of limited time

girls obtained significantly higher scores than boys. Moreover, the significant differences between children persisted in decoding relatively simple material that is one and two-syllable words and pseudo-words. The observation confirms that boys do worse in simple tasks, in which performance time is taken into account. Reading one-syllable words in the middle of first grade was so easy for children that the ceiling effect was observed, while that was not the case with difficult material. Gender differences in the rate of reading three-syllable words and pseudowords which were the longest, so the most difficult, diminished in the middle of first grade. Increasing abilities of boys in reading accuracy contributed to the improvement of their scores in the rate of reading difficult words. The rate of reading did not influence the level of accuracy indicator, because accuracy was understood as the proportion of words and pseudo-words read correctly to all words and pseudo-words read in a given time. While in the rate of reading, only words read correctly in one minute were counted, thus considering not only the rate but also the accuracy of reading. Thereby, the faster increasing ability to read correctly in boys had a favorable influence on the scores obtained by them in the rate of reading. So, there is a chance that with this kind of counting, scores in the rate of reading among children in the successive years of education will also even out that is why some studies of first - third grade children did not reveal significant differences.

There might be many causes. The presented study showed that the scores concerning the stability of differences between boys and girls might be different because they depend on the kind of measure used in early reading achievement. Taking into account the time factor in tasks given to children contributes to indicating bigger differences in favor of girls. The rate and accuracy of reading can be understood and measured differently, so it can affect children's scores. The kind of material used in the tasks and the degree of its difficulty may also differentiate scores.

Children obtained higher scores in reading words than pseudo-words which can indicate that firstly they used not only phonological strategies but also global strategies and secondly that the meaning of words had a definitely favorable influence on children's achievements in reading. Regardless of this, curves illustrating average scores obtained by children in the accuracy and rate of reading are similar irrespective of whether they refer to words or pseudo-words. The kind of material in contrast with the degree of its difficulty did not have an influence on the stability of differences in the rate and accuracy of reading among boys and girls.

The results obtained in the present study are in accordance with results obtained by researchers (e.g. Below et al., 2010) who showed equalizing of gender related differences observed in the pre-school period. However, this study contradicts those showing that in comparison with the pre-school, differences between girls and boys at further levels of education increase or persist at similar level (Camarata & Woodcock, 2006; Chatterji, 2006).

5. Conclusions

Significant differences of scores in favor of girls in pre-school achievements in reading support the theories proving that at the early stages of development, the differences between girls and boys are conditioned by biological factors. On the onset of formal learning to read girls are in more favorable position than boys which contributes to their better scores in reading as it was revealed in many studies. In the first-grade differences between children diminish, probably as a result of development which slows down in girls but starts to speed up in boys which clearly reflected in reading accuracy in the middle of the first grade. Other factors, such as the phonics approach in learning to read, which in the view of Johnston & Watson (2005) is particularly beneficial for boys, can contribute to equalizing differences between boys and girls. That is why, significant differences might not have been found in Polish children in initial grades of primary school. Studies of children in further grades show a clear advantage of girls. It can be thought that the initial differences caused biological factors in the successive years of education are modified by overlapping socio-cultural factors, which as concerns reading, work in favor of girls to a considerable degree, similarly to biological factors at earlier stages. Inconsistent reports on gender-related differences in the early period of learning to read and their stability in the course of education arise from the complex character of the problem. Therefore, it is important to continue research of the issue considering all stages of education as well as different ways of skills assessment connected with efficient reading. This will enable undertaking activities aimed at giving equal opportunities to boys in learning to read effectively.

Summing up, it can be stated that modern conflicts in the North Caucasus, in particular in Ingushetia and Dagestan, associated, as is known, with changing borders, are primarily due to the demographic characteristics of the regions and the ongoing demographic processes. The regions of the North Caucasus continue to be “explosive territories” inside Russia, the conflict potential remains and can be triggered by any significant reason (this was shown by the situation with the demarcation of borders with Chechnya in these regions).

These risks can be overcome with two tools: Firstly, by improving the socio-economic situation and bridging the socio-economic “gap” with the rest of Russia; secondly, by stimulating internal and external migration from these regions. However, these features have their limitations. In particular, increased economic support for the regions of the North Caucasus may meet discontent and resistance in other regions of the country, where the slogan “Stop feeding the Caucasus!” is already quite popular. Migration from the regions of the North Caucasus to other Russian regions often provokes conflicts with local residents, even with local Muslims, as it recently happened in Bashkortostan, where there was a conflict between Bashkirs and Chechens.

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