



## Research article

## A study of reading attitude and reading achievement among young learners in middle school

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## ABSTRACT

This study examines the relation between reading attitude and reading achievement in three languages among sixth- and eighth-grade students in Kazakhstan. Participants were randomly chosen from seven secondary schools in a major city. Their native languages were Kazakh or Russian (N = 1,505). Reading tests in English, Kazakh and Russian and a reading attitude questionnaire were administered via the eDia online assessment system. The results indicate that 85% of the sixth graders and 79% of the eighth graders enjoy reading. Correlations in reading achievement between English, Kazakh and Russian ranged from  $r = .55$  to  $r = .61$  ( $p < .01$ ). Kazakh native speakers performed better in the respective languages than speakers of Russian and other languages. A factor analysis demonstrated a three-factor model for Grade 6 and a four-factor model for Grade 8, corresponding to reading attitude and reliability coefficients for these factors from .71 to .86. In both grades, factor loading showed a good fit to the data. Regression analysis showed a weak relation between reading attitude and reading achievement among sixth and eighth graders in the targeted languages despite a positive attitude towards reading.

## 1. Introduction

There is considerable agreement that a positive reading attitude positively influences reading outcomes, although the literature claims that when students grow older and move on to middle or high school, reading attitude decreases (McKenna et al., 2012) and could affect reading achievement (Petscher, 2010; Woolly, 2011), thus furthering a negative trend. As reading is essential to knowledge acquisition and academic achievement, it is suggested that students should be provided necessary reading skills in the lower grades (Slavin and Madden, 1999) because they are at risk of dropping out if they fail to learn how to read earlier. Regular reading activity has a great impact on people's general language ability, such as vocabulary, speaking and communicative skills (Cain and Oakhill, 2011; Schatz and Krashen, 2006). Moreover, reading habits and love of reading promote reading literacy.

In bilingual and monolingual contexts, the quality of instruction, family and teacher support, and appropriate reading programs for underachievers are among the key factors for successful academic achievement and positive reading attitude (e.g., McCollin and O'Shea,

2005; Pemberton and Miller, 2015). However, additional options for recreation and knowledge acquisition are among the factors behind children no longer reading regularly for pleasure and in their attitude towards reading dropping significantly. This issue could pose a challenge in teaching children in languages other than their heritage language and/or language of instruction, which could be an impediment for further literacy development. Effective reading support and instruction is therefore recommended in the native language and in their foreign language. Likewise, McCollin, and O'Shea (2005) highlight that phonological awareness, fluency, comprehension and "closing the achievement gap" – i.e., supporting, helping and motivating students with "limited reading opportunities" (p. 44) – significantly influence reading achievement among students from "culturally and linguistically diverse backgrounds".

Following the principles of "catch-up programs" that bring stragglers "back on track", the No Child Left Behind Act of 2001 in the United States and the "Every Child Matters" Act 2003 in the United Kingdom are aiding in narrowing the achievement gaps between good and poor performers in school (OECD, 2014, pp. 79–80). To narrow the performance gap

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between children in academic achievement, the “Factors Influencing the Quality of 9th-grade Students' Knowledge” (MESRK, 2012) has noted that the quality of language instruction, equity for all students from various socio-economic backgrounds, school resources, type of school, teacher's support and appropriate assistance to students may promote success in academic achievement and reading literacy.

As several studies (e.g., Bialystok, 2002; Koda, 2007; Verhoeven, 2007) have shown, reading skills in one's native language and in English as a foreign language in young learners can operate in both directions as learners' previously acquired resources are accelerated to master new skills. These interaction processes in language learning positively influence reading attitude and affect reading achievement. However, it is necessary to ascertain how reading attitude among bilingual and monolingual learners impacts reading achievement in various languages.

## 2. Theoretical framework

### 2.1. Attitudes towards reading

Attitude towards reading mainly depends on learners' psychological state of mind and emotions (McKenna, 2001; Smith and Li, 2020). Attitudes are also defined as the “predispositions to respond in a consistently favorable or unfavorable manner with respect to a given object” (Cunningham, 2008, p. 20). A learner's attitude can change due to environmental influence, conditions, interests and peers' motivation and influence, or the way the person currently feels. The “object” in the definition can be a thing, process or behavior, which has a direct or indirect effect on attitude with respect to a learner's personal experience and belief towards the object and the norms for this object in society (McKenna et al., 2012, p. 284). Reading attitude is an affective domain (Kush et al., 2005; Yamashita, 2004, 2013), which includes feeling, thought, belief and intention (McKenna et al., 2012). These constituents make up the basic construction of meaning.

It is assumed that regular reading activity can positively influence reading attitude and motivation and that a positive attitude towards reading supports reading achievement in the future (Grabe, 2009; Yamashita, 2013). Researchers (McKenna and Kear, 1990; Stanovich, 2000) have shown that primary school learners show a positive attitude towards recreational and academic types of reading but that their reading attitudes become less positive and drop significantly when students move on to middle secondary school. Moreover, some researchers (Csapó and Nikolov, 2009; Nikolov and Csapó, 2010, 2018; Wigfield et al., 2016) state that reading for pleasure and enjoyment may develop a positive attitude in reading in an effective classroom context and with appropriate instruction. Therefore, teachers' instruction and skillful scaffolding in the classroom context, and parents' and peers' motivation in reading in and outside of school should be underpinned, albeit this takes great effort and cooperation on the part of teachers, parents and other stakeholders.

There are many discussions as to whether reading attitude affects reading achievement or whether it is mostly the other way around. Some researchers (Kush et al., 2005; Schatz and Krashen, 2006) assume that if the relationship between reading attitude and reading achievement is moderate and/or weak, this is not because of students' negative feeling towards reading, but because of a lack of practice and poor abilities in reading, which cause difficulties in achievement. However, other researchers (McKenna et al., 2012; Mullis, 2019) claim that a positive attitude in reading could affect high achievement in reading, while still other researchers (Graham et al., 2012) maintain that reading attitude is primarily influenced by reading achievement. Hence, reading attitude and reading achievement could impact each other in the reading process.

### 2.2. Reading achievement

Reading achievement is performance in reading and ability to utilize reading skills with fluency and comprehension (Matsumura et al., 2013). The literature points out that reading achievement may be affected by

certain factors. For example, researchers (Cunningham, 2008; Kush et al., 2005; McKenna, 2001) have demonstrated that the affective domain – i.e., attitude – could affect reading attainment positively if reading activity is well developed. Baker and Wigfield (1999) state that reading achievement relates to motivation and posit “achievement motivational theory”, where a reader's intentions and goals are crucial for achievement because his/her achievement in reading is more successful if he/she is motivated (pp. 452–453).

However, poor reading skills and constant failure in reading achievement could negatively influence learners' attitude towards reading activity. Hence, this negative feeling could increase negative attitude to reading as the learner grows older (Kush et al., 2005; McKenna, 2001; McKenna et al., 1995). In addition, Baker and Wigfield (1999) demonstrated that students from middle income families scored higher in reading achievement than students from families with a low income (pp. 25–26), albeit they did not find any differences in ethnicity. However, it has been suggested (Baker and Wigfield, 1999; Matsumura et al., 2013) that students' poor scores in reading achievement may be tied to home support, teacher's competence, previous knowledge background, school resources, classroom discussion and numerous other external and internal factors.

### 2.3. Bilingual situation in Kazakhstan

Kazakhstan is a bilingual country where two languages, Kazakh and Russian, are widely used. However, before 1940, Kazakhs were pure monolinguals and did not know Russian (Fierman, 2005; Kenzhekhanuly, 2012; Khasseneyeva, 2018). Even after World War II, the majority of Kazakhs only communicated in their native language. The process of intensive Russian influence on the Kazakh nation began in 1954, when many Russians were sent to Kazakhstan to cultivate the land in a process known as “Osvoyeniye tselinnykh zemel”, which translates to the “Virgin Lands Campaign”. Then, during the *perestroika* period from 1983 to 1991, Kazakhs experienced the powerful impact of Russification as teaching and learning in most schools and universities shifted entirely to Russian.

At present, since 1991, when Kazakhstan declared independence, 92% of Kazakhs can speak, read and write in Russian. The proportion of Kazakhs who are proficient in reading, writing and speaking Kazakh increased significantly from 2009 to 2019 from 55% to almost 80% (Statistical Agency of the Republic of Kazakhstan, 2018, 2019). However, the percentage of communities that only speak Kazakh is higher in southern and western Kazakhstan, where Russian does not play a part in everyday communication. The Kazakh and Russian languages among the bilingual and monolingual students in Kazakhstan both have a shallow or transparent orthography, which is characterized by a one-to-one correspondence between graphemes and phonemes – as opposed to a deep or opaque orthography, e.g., that of English and French, where this correspondence is far less clear-cut. Thus, our current study aims to investigate the impact of a cross-sectional survey of reading attitude and achievement in three languages in two cohorts. The present study examines the relationship of young learners' reading attitude and test performance in their first and second languages (L1 and L2), Kazakh or Russian, and English as a foreign language (L3) in bilingual and monolingual contexts.

### 2.4. The present study

The multilingual context of learning reading in native and foreign languages in Kazakhstan offers a unique opportunity to explore the relations between reading attitude and reading achievement. Literature determines that the effect of multilingualism in reading attitude and language acquisition may provide an essential advantage for children's metalinguistic development (Griffin et al., 2020) if the reading process of native and foreign/learning languages is frequently stimulated, while other studies state that an interrelationship between social intercultural communication and linguistic self-confidence processes can be identified in learning a second or foreign language (e.g., Clément et al., 1994;

Dörnyei, 1998). In our current context, we examined reading development in two respective native languages (Kazakh and Russian) and learning second language reading in two respective languages (Russian for the Kazakh students and Kazakh for the Russian students, along with English as a foreign language for both groups). This opportunity for multiple comparisons offers possibilities to study the effects and benefits of reading attitude in performance in three languages among monolingual and bilingual learners in Kazakhstan, which represent phenomena that have not been extensively discussed in the literature to date. To explore the development and role of reading attitude in this specific context, we focus on the following research questions in the present study.

- (1) What are the differences on reading achievement tests in Kazakh, Russian and English with regard to age group, gender and relations between the tests among sixth and eighth graders?
- (2) To what extent does the native language influence the results of young learners' performance on the different reading tests?
- (3) How does the reading attitude of young learners' influence reading achievement in Kazakh, Russian and English?

To improve the validity of the study and increase the robustness of the results, we explore these questions in two age groups. Although a cross-sectional survey does not result in data that describes development, a comparison of the two age groups may offer an initial estimation of the developmental changes and help establish plausible hypotheses for further developmental studies. The responses to these questions allow us to draw some general conclusions on the role of attitude in reading in foreign languages.

### 3. Methods

The Review Board at the Doctoral School of Education of the University of Szeged and the Ministry of Education and Science of the Republic of Kazakhstan had provided all ethical approval before performing the research in Pavlodar. The authors confirm that informed consent was obtained from all Kazakhstani participants, teachers, and principals of the randomly selected secondary schools of Pavlodar.

#### 3.1. Research context

The assessed schools have both Kazakh and Russian as media of instruction. The sole medium of instruction in Schools A, B and C is Kazakh, whereas the four other schools (Schools D, E, F and G) have both Kazakh and Russian-medium classes. The teaching and learning in the mixed schools are designed for both bilingual and monolingual students, although the majority of the students there use Russian on a regular basis, as Russian-medium schools are dominant in northern Kazakhstan.

Ethnic Kazakh students are bilingual learners because they know both Kazakh and Russian, and they attend Kazakh-medium classes. They are proficient in Kazakh, and they are fluent in Russian because they learn Russian as a second language in addition to learning English as a foreign language. However, ethnic Russians and students of other ethnic groups (e.g., Ukrainians, Belarusians, Poles, Germans, Tatars, Koreans and Azeris) attend Russian-medium classes, are monolinguals, and use Russian as a native language but cannot speak Kazakh. They learn Kazakh as a second language and English as a foreign language. Although there are also ethnic Kazakh students who attend Russian-medium classes, most of them are not fluent in Kazakh and use Russian for everyday communication; however, they can understand, read and write in Kazakh.

#### 3.2. Participants

Data were collected from seven randomly chosen secondary schools in Pavlodar, northern Kazakhstan. The sample ( $N = 1,505$ ) consisted of

students from Grade 6 ( $N_{6th} = 810$ ) and Grade 8 ( $N_{8th} = 695$ ). The sixth graders comprised 531 Kazakhs, 257 Russians and 22 students from other ethnic groups. The eighth-grade sample contained 407 Kazakhs, 258 Russians and 30 students from other nations. The core curriculum for secondary education has two stages, basic/lower secondary (Grades 5–9) and upper secondary (Grades 10–11/12); primary education is made up of Grades 1–4 (MES, 2013). Before the data analysis, some outliers (23 from Grade 6 and 16 from Grade 8) were excluded from the main analysis, but they did not impact the results of the study, as most of the students did the tests and responded to the questionnaire items.

Previous experience (see, e.g., Csapó and Nikolov 2009; Nikolov and Csapó, 2010, 2018) indicates that the sixth grade is the earliest when relevant aspects of language skills are measurable. In particular, the research study examined “how cognitive variables contribute to learners' performance on language tests and their development over a period of two years” (Csapó and Nikolov 2009, p. 210). In this regard, we agree with Nikolov and Csapó (2010, 2018), who consider at least a two-year difference as appropriate for exploring age differences. Furthermore, the original English versions of the tests (Nikolov and Csapó, 2010, 2018) that we used for this study have already been administered to this age group, so we considered these grades as the most suitable for assessment to answer our research questions.

Before assessing students' reading skills in Kazakh, Russian and English as a foreign language (FL), we administered the reading tests in English a year in advance, developed by Hungarian researchers (Csapó and Nikolov 2009). The aim of those tests was to diagnose students' reading skills in English as a FL and reading comprehension while they performed the tasks in English. “All tasks focused on meaning (and not form) and were in harmony with curricular achievement targets for the four age groups” (Csapó and Nikolov 2009, p. 211). Both grades showed low results on the validated reading tests in English. Therefore, we created a modified version of the tests with similar tasks in Kazakh, Russian and English with an eye to the Kazakhstani national standard and core curriculum for secondary education (MES, 2013).

After a year of thorough critical review of the self-developed reading tests in three languages conducted by several language experts and language teachers in a secondary school in a major city in Kazakhstan, the modified version was entered into the eDia online assessment system. The parameters measured on the reading tests were focused on reading comprehension (i.e., inference and retrieval tasks) in English, Kazakh and Russian. Information on ethnicity was obtained from the background questionnaire (with the question: What is your native language? 1–Kazakh, 2–Russian, 3–Other); 22 in sixth grade and 30 in eighth grade who completed the questionnaire chose “Other”. However, all the students whose native language is Russian and/or “Other” speak Russian. The sample size of the students whose native language is Kazakh includes both students who are fluent in Kazakh and Russian and those who are fluent in Russian but cannot speak Kazakh fluently, although they can read and write in Kazakh and understand the spoken form. However, 44% of the students in Grade 6 completed the questionnaire in Kazakh, and 56% did so in Russian. While in the eighth grade, 37% did the questionnaire in Kazakh and 63% in Russian. This suggests that the number of Russian-speaking students is still higher in northern Kazakhstan compared to that of Kazakh-speaking students. Table 1 summarizes detailed information on the demographic variables in the sample.

#### 3.3. Instruments

##### 3.3.1. Reading attitude questionnaire

The survey used the questionnaire for reading attitude based on the National Literacy Trust (NLT) of Children's and Young People's Reading Habits and Preferences (cf. Clark and Foster, 2005). The reading attitude questionnaire was adapted from the NLT with some modifications, including a five-point Likert scale. The sixth- and eighth-grade students were asked to choose how much they agree or disagree with certain

**Table 1.** Study sample.

Grade	N	Age		Gender %		Native language (%)		
		Mean	SD	Boys	Girls	Kazakh	Russian	Other
6	810	11.99	0.22	49.9	50.1	64.6	31.8	2.7
8	695	14.00	0.21	51.2	48.8	58.6	37.1	4.3

statements on a scale: 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree) and 5 (strongly agree). The questionnaire consisted of twelve items and was in the students' native language (Kazakh or Russian). The questionnaire was the first part of the assessment, albeit, before completing the main part of the questionnaire, the students also responded to background questions on gender, native language and age, which took 10–15 min altogether (see Table 1).

The questionnaire was composed of the following items: (1) I read because it is fun; (2) I read because it relaxes me; (3) Reading broadens my knowledge; (4) I only read when I have to; (5) Reading is more for girls than boys; (6) Reading is boring; (7) I like going to the library; (8) I prefer reading in my native language to reading in English; (9) I prefer reading e-books; (10) Reading is necessary to be able to use a computer and the Internet; (11) I mostly read at home; and (12) My groupmates motivate me to read more. After some breaks, students did the tests in the three languages, so there were two sessions in all.

### 3.3.2. Reading tests

The reading tests were prepared similarly in three languages, Kazakh, Russian and English. Both the bilingual and monolingual students did the tests in the three languages, as they are compulsory in Kazakhstan. The reading tests were based on the present program of the core curriculum for secondary education (MES, 2013) for Kazakh, Russian and English; additionally, the PISA framework requirements were taken into consideration. Both the sixth and eighth grades had different reading tests in the targeted languages; thus, in the sixth grade, the number of items in English, Kazakh and Russian all consisted of twelve items. In the eighth grade, the tests differed somewhat: they involved 17 items in English, 17 items in Kazakh and 14 items in Russian. The content of each language test was different although with a similar format (i.e., multiple-choice tasks and closed questions). The reading tests consisted of continuous and non-continuous texts with graphs and images similar to those on the PISA tests. The tests were exactly at the same level. The test items were carefully matched both in content and structure. The graphic tasks contained posters and invitation cards, where the right answer should be found. Tables 2 and 3 present a detailed description of the tests.

The format of the tests was adapted from the test battery developed by Hungarian language experts and researchers (see Csapó and Nikolov 2009; Nikolov and Csapó, 2010, 2018). The modified version of the tests involved similar tasks created for all target languages in both grades. All rubrics on the tests were familiar to the students, while the level of the

**Table 2.** The reading tests in English, Kazakh and Russian in Grade 6.

Skill	Task	Input content	No. of items
Reading 1 in English	Match the right answer to the question	Invitation card	4
Reading 2 in English	Match words to the definition	Describing professions	8
Reading 1 in Kazakh	Match the right answer to the question	Invitation card	4
Reading 2 in Kazakh	Match words to the definition	Defining words	8
Reading 1 in Russian	Match the right answer to the question	Poster information	4
Reading 2 in Russian	Match notices to the meaning	Describing notices	8

**Table 3.** The reading tests in English, Kazakh and Russian in Grade 8.

Skill	Task	Input content	No. of items
Reading 1 in English	Mark statements true or false	Advertisement information	7
Reading 2 in English	Match words to the definition	Defining words	10
Reading 1 in Kazakh	Mark statements true or false	Advertisement information	7
Reading 2 in Kazakh	Match the right answer to the question	Quiz texts	10
Reading 1 in Russian	Match the right answer to the question	Dialogue interview	7
Reading 2 in Russian	Mark the statement true or false	Advertisement information	7

tests corresponded to the A1–A2 levels on the Common European Framework of Reference for Languages (Council of Europe, 2001). Before the final versions of the tests in Kazakh, Russian and English were administered to the sixth and eighth graders, they were sent to several language experts for review: three PhDs in English, two PhDs in Kazakh (one of them a full professor) and two PhDs in Russian. The tests were then sent to a small group of secondary school teachers in each language, where minor modifications were provided. The online test items are illustrated in more detail in Figures 1, 2, and 3.

The reliability of the questionnaire for Grade 6 ( $\alpha = .745$ ) and Grade 8 ( $\alpha = .749$ ) pointed to a good level of acceptance. Both grades completed the same questionnaire for reading attitude. The results showed that the questionnaire and the tests were appropriate for young learners in Kazakhstan (see Table 4).

### 3.4. Procedures

The tests and questionnaires were delivered online via the Electronic Diagnostic Assessment System, the eDia platform (Csapó and Molnár, 2019). The instruments were administered in the computer rooms at the participating schools with the Internet connection available there and using the operating system and browsers the participants normally use and are familiar with. Before the assessment, each school was visited, and a number of technical issues were discussed regarding the availability of the computer labs and schedule preparation for the sixth and eighth grades in the selected schools. As this measurement project commenced in 2018, an agreement with the Departments of Education in the region and the city as well as with principals, administrators and teachers in the randomized schools was reached the year before.

Before each assessment session, schools were informed of the dates and times almost three to four months ahead. Participating students were also informed in advance that they were taking part in a survey to measure adolescents' reading literacy skills in Kazakh, Russian and English and their attitudes towards the reading process for further research to facilitate improvement in reading skills. As the participants were from different grades, the assessment timetable was organized separately for the sixth- and eighth-grade students. On the assessment day, each participant was given an eDia link and a personal password to enter so he or she could first complete the questionnaire and then do the tests in Kazakh, Russian and English. As the respondents were not proficient in

Төмендегі берілген сөздердің мағыналарын тап. Ескерту: қарап шық, бір жауап үлгі ретінде жасалынды. Тізімде бір артық сөз бар.

- A. Ауада ұшатын қанаты бар әуе келігі.
- B. Дүкендерде заттарды сататын адам.
- C. Ақпараттық ізденістерді гипермәтін мүмкіндіктерімен біріктіретін Интернет жүйесі.
- D. Азаматтың жеке басын куәландыратын негізгі құжат.
- E. Әнді шебер орындайтын адам.
- F. Жолаушыларды, жүк пен поштаны тасымалдайтын, ұшақ ұшып, қонатын кәсіпорын.
- G. Азаматтардың құқықтарын сотта қорғайтын адам.
- H. Медициналық операцияларды орындайтын адам.
- I. Мейрамханаларда, қонақ үйлерде кәсіби түрде тамақ пісіретін (дайындайтын) адам.

- 1. әуежай
- 2. ғаламтор

Жауаптар

	A	B	C	D	E	F	G	H	I
4	<input type="checkbox"/>								

Artqa      Kelеси

Figure 1. A sample item on the test in Kazakh.

English, the questionnaire was in Kazakh or Russian. The duration of the tests and the questionnaire in both grades was approximately 30–50 min. The Internet connection was good, so the students did not have any difficulties during their assessment process.

### 3.5. Data analysis

Answering the first research question called for descriptive statistics in both grades, with the differences in reading achievement in three languages scaled with Item Response Theory (IRT) and Rasch model analysis using ConQuest. In addition, independent samples t-tests were conducted to compare the differences in gender in the two age groups. Furthermore, we computed the relations between the three languages separately for the sixth and eighth graders. One-Way Analyses of Variance between Groups (ANOVAs) were performed in the sixth and eighth grades separately to assess the impact of the students' native language on reading performance. The effect size  $\eta^2$  (eta squared) of native language while taking the tests in English, Kazakh and Russian was also calculated. The estimations of exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and, finally, regression analysis were conducted to analyse the influence of students' reading attitude on the reading achievement tests. This procedure was assessed using Mplus statistical software. The data were analysed with SPSS, Mplus and ConQuest.

## 4. Results

### 4.1. Differences in reading achievement in the three languages by age group and gender, and relations between the tests in the sixth and eighth grades

The sub-scales for the questionnaire and test performance were compared separately for each grade. The level of test difficulty and its appropriateness to the level of the sixth- and eighth-grade students' ability on each reading achievement test (English, Kazakh and Russian)

was confirmed with Rasch (IRT) analyses. The item-person maps for the reading achievement tests indicated a convincing overlap between test item difficulty and students' ability distribution in both age groups. As regards the test achievement of the students, both grades did better on the Russian test than on the Kazakh and English ones. However, it was observed that performance was slightly higher in English as a FL in the eighth grade than in the sixth, but the results were lower in Kazakh and Russian.

The score of 73 for the sixth graders was a relatively good one, while 67 was seen as satisfactory for the eighth graders. The test-takers received a score of 1 for a correct answer and 0 for an incorrect one. The sixth graders' reading tests had 36 items, while the eighth graders had 48 items. If the students perform all the tasks correctly, they receive the maximum score (100%). Table 5 presents the results of the score in percentage form (%).

The item-person map in the Rasch analysis showed better outcomes for the sixth graders on the text tasks than on the graphic ones. The graphic tasks seemed difficult for the twelve-year-olds in all three languages. However, the graphic tasks were better in English than in Kazakh and Russian for the eighth graders, whereas the text tasks did not cause any problems for the Grade 8 students.

Although Table 6 illustrates that the girls performed somewhat better in the three languages than the boys in both grades, the differences were statistically non-significant ( $p > .05$ ). Interestingly, the PISA2018 report for Kazakhstan (OECD, 2019a), published on 3 December 2019, underlined that the gender aspect in the performance of 15-year-old boys and girls was not significant. Our finding is consistent with the PISA results, indicating that, unlike most participating countries, there is no large gender difference in reading achievement.

The Rasch analysis showed that students' ability level and test difficulty were appropriate. The Rasch analyses showed that test difficulty and student ability in English, Kazakh and Russian did not show big differences, although test achievement in both grades was lower in

Внимательно прочитайте информацию в объявлении ниже и укажите, Верно или Не верно данное утверждение? Смотри, один ответ выполнен для вас в качестве примера.

1. Образовательный центр ведет набор на специализированные курсы кройки и шитья.	<input type="radio"/> Верно	<input checked="" type="radio"/> Не верно
2. В центре ведется набор детей дошкольного возраста по изучению казахского языка.	<input type="radio"/> Верно	<input type="radio"/> Не верно
3. Центр ведет набор на курсы рисования песком.	<input type="radio"/> Верно	<input type="radio"/> Не верно
4. Центр предлагает большой выбор языковых курсов для детей и взрослых.	<input type="radio"/> Верно	<input type="radio"/> Не верно
5. Центр осуществляет подготовку детей к школе.	<input type="radio"/> Верно	<input type="radio"/> Не верно
6. В центре работает логопед.	<input type="radio"/> Верно	<input type="radio"/> Не верно
7. Центр предлагает широкий спектр изучения английского языка для детей и взрослых.	<input type="radio"/> Верно	<input type="radio"/> Не верно
8. Центр ведет подготовку к сдаче международных языковых экзаменов.	<input type="radio"/> Верно	<input type="radio"/> Не верно

Figure 2. A sample item on the test in Russian.

English than in Kazakh and Russian. Thus, to compare one test form to another in English, Kazakh and Russian, the tests involved a number of anchor items to differentiate the reading abilities in all three languages. In Grade 6, four anchor items on the English, Kazakh and Russian tests (items 1, 2, 3 and 4 on each test) assessed how students dealt with non-continuous texts with graphs or images. A further eight anchor items (5, 6, 7, 8, 9, 10, 11 and 12) in English, Kazakh, and Russian examined continuous texts without images or graphs. The results in the Rasch analysis showed that the non-continuous texts with the images were more difficult to comprehend in all target languages, whereas the items with continuous texts were easier. For instance, two items (1 and 4) on the English test and one item (3) on the Kazakh one were difficult for the sixth graders. However, all difficult items on the sixth-grade tests were from the same anchor items.

In Grade 8, there were seven anchor items (1, 2, 3, 4, 5, 6 and 7) in English and Kazakh, while the anchor items (8, 9, 10, 11, 12, 13 and 14) in Russian evaluated the non-continuous texts with graphs. Certain items (8, 9, 10, 11, 12, 13, 14, 15, 16 and 17) in Kazakh and English, and others (1, 2, 3, 4, 5, 6 and 7) in Russian were the anchor items that assessed continuous texts without images and graphs. The findings showed that the former tasks were more difficult for the eighth graders to perform than the latter ones. However, in the eighth grade, the items in the three languages were in the middle distribution. This may suggest that tasks with images or graphs for young learners should be used more frequently on reading tests in Kazakh, Russian and English. However, Guo et al. (2020) have recommended using graphs in reading tasks for young learners with “some caution” (p. 16) because they are mainly focused on defining the meaning of the written text (Guo et al., 2020; Renkl and Scheiter, 2017) and not on decoding the graphs. In addition, the findings of Guo et al. (2020) showed a moderate effect of graphs on reading comprehension, but they suggest teachers should use texts with

mixed graphics in the classroom because they “better facilitated students’ reading comprehension” (p. 13). Moreover, the difference in reading achievement was also observed in the moderate correlations between the Kazakh, Russian and English reading tests (see Table 7), where the very weak and very strong groups were supposedly mixed in the samples.

#### 4.2. The influence of the native language on the results of the young learners’ reading performance

The results in the sixth grade for the ANOVA (Analysis of Variance between Groups) showed the main effect of the students’ native language on their performance on the tests in Kazakh:  $F(2, 801) = 20.29, p < .001, \eta^2_p = .049$ ; Russian:  $F(2, 794) = 7.29, p < .001, \eta^2_p = .018$ ; and English:  $F(2, 779) = 7.75, p < .001, \eta^2_p = .019$ .

In the eighth grade, statistical analysis showed a significant difference between Kazakhs, Russians and other ethnic groups taking the test in Kazakh:  $F(2, 692) = 14.87, p < .001, \eta^2_p = .041$ ; in Russian:  $F(2, 689) = 3.35, p < .036, \eta^2_p = .009$ ; and in English:  $F(2, 682) = 6.61, p < .001, \eta^2_p = .019$ . Although the actual effect of the mean scores between groups was quite small, the students’ native language did influence their outcomes in Kazakh, Russian or English.

In both grades, post hoc testing demonstrated significant differences on the Kazakh-language test between pairs of nations whose native language is Kazakh ( $M = 63.59, SD = 28.96$ ), Russian ( $M = 52.35, SD = 27.02$ ) and Other ( $M = 47.84, SD = 28.26$ ). Although non-significant differences between the nations were found on the Russian-language test, the Kazakhs performed significantly better than the Russians and others on the English-language test. Therefore, the effect size of the native language was small in both grades but close to intermediate on the Kazakh-language test ( $\eta^2 = .018-.049$ ).

Read the following advertisements and find the missing bit from the list for each gap. Put the numbers in the box next to the missing bit. See the example.

<p style="text-align: center;"><b>Altyn Adam</b></p> <p style="text-align: center;"><b>Restaurant</b></p> <p>Situated in one of Almaty's most popular streets, serving fine <b>Asian Kazakh cuisine</b> in elegant &amp; cosy surroundings.</p> <p>27 Zein Shashkin st, Almaty, 010000</p> <p>Tel.: +7708 822 5366</p> <p><a href="http://www.altynadam.kz">www.altynadam.kz</a></p>	<p><b>THE SOCIETY OF KAZAKH THEATRE</b></p> <p>The only official half price ticket booth</p> <p><b>2</b></p> <p>Monday-Saturday 12.00-6.30PM</p> <p>call</p> <p><b>+7 771 248 8282</b></p>	<p><b>3</b></p> <p>Prospect Dostyk 52/2 corner. Kurmangazy Street, Almaty</p> <p>Book now on</p> <p>Tel.: <u>+7 (727) 291 96 00</u> Fax.: <u>+7 (727) 291 91 01</u></p> <p><b>Single £45</b></p>	<p style="text-align: center;"><b>sun, sea and ... sand</b></p> <p>Looking for the holiday of a lifetime <b>with parties</b>, and <b>sun-drenched beaches?</b></p> <p>Brochure order: <b>+9 007 007 007</b></p> <p>look no further than</p> <p style="text-align: center;"><b>KazClubMed</b></p> <p><a href="http://www.kazclubmed.kz">www.kazclubmed.kz</a></p>
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Figure 3. A sample item on the test in English.

Table 4. Reliability (Cronbach's alpha) of the reading tests.

	Grade 6	Grade 8
English	.88	.90
Kazakh	.89	.89
Russian	.84	.84

Table 5. Achievement on the reading tests.

Language	Grade 6		Grade 8	
	Mean	SD	Mean	SD
English	49.26	30.92	52.85	30.18
Kazakh	65.16	30.61	58.74	28.79
Russian	73.20	24.62	66.56	26.13

#### 4.3. The influence of reading attitude on reading achievement in Kazakh, Russian and English

The results showed 85% of the sixth graders and 79% of the eighth graders enjoy reading, albeit they pointed to a low influence of reading attitude on the reading tests in the three languages. The overall score for the questionnaire on reading attitude involved twelve statements. These statements were evaluated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Interestingly, young learners have a positive attitude towards reading, but this did not have any impact on their performance. More detailed information on reading attitude is presented in Table 8, where both grades disagree that reading is boring and that they read when they have to, which can be a good sign. However, more than six percent think that reading is boring.

Factor analysis showed a three-factor model in the sixth grade and a four-factor model in the eighth. Factor loadings in both grades correlated well, and reliability coefficients for these factors ranged from .71 to .86. The models fitted well to the data in both grades: the sixth ( $\chi^2 = 154.33$ , CFI = .95, TLI = .93,  $df = 51$ , RMSEA = .05, SRMR = .04) and eighth ( $\chi^2 = 148.33$ , CFI = .97, TLI = .95,  $df = 48$ , RMSEA = .06, SRMR = .04). The factor loading for the items in Grade 6 produced three factors: positive reading attitude, non-positive reading attitude and reading preferences (see Table 9). These factors can be distinguished in terms of preferences or experiences in reading (e.g., feelings, beliefs, reasons and enjoyment).

The regression analysis showed a good fit to the model in all three languages in Grade 6 ( $\chi^2 = 196.75$ , CFI = .96, TLI = .94,  $df = 78$ , RMSEA

Table 6. Gender differences in English, Kazakh and Russian reading test performance.

Grade 6 (n = 810)			Grade 8 (n = 695)		
	Mean (%)	SD (%)		Mean (%)	SD (%)
English			English		
Boys	47.33	31.52	Boys	51.72	30.43
Girls	51.25	30.20	Girls	54.04	29.91
tEng (810) = -1.78, p > .05			tEng (695) = -1.00, p > .05		
Kazakh			Kazakh		
Boys	64.75	30.88	Boys	57.74	29.17
Girls	65.59	30.35	Girls	59.80	28.37
tKaz (810) = -.39, p > .05			tKaz (695) = -.94, p > .05		
Russian			Russian		
Boys	73.02	24.90	Boys	65.71	26.38
Girls	73.39	24.34	Girls	67.46	25.87
tRus (810) = -.21, p > .05			tRus (695) = -.88, p > .05		

**Table 7.** Correlations for reading tests in Grades 6 and 8.

Grade	Test	Test in Russian	Test in English
Grade 6	Test in Kazakh	.520**	.547**
	Test in Russian		.576**
Grade 8	Test in Kazakh	.509**	.582**
	Test in Russian		.551**

\*\*p < .01.

= .05, SRMR = .04) and Grade 8 ( $\chi^2 = 192.51$ , CFI = .97, TLI = .95,  $df = 72$ , RMSEA = .05, SRMR = .04). However, based on the results, reading attitude (RA) and reading achievement in both grades indicated that reading attitude did not influence students' reading achievement in all three languages in Grade 6 ( $r_{en} = .004$ ,  $r_{kaz} = .004$ ,  $r_{rus} = .040$ ,  $p > .05$ ) or Grade 8 ( $r_{en} = .013$ ,  $r_{kaz} = .006$ ,  $r_{rus} = .005$ ,  $p > .05$ ).

Table 10 illustrates four factors that emerged from the reading attitude questionnaire among the eighth-grade learners: positive reading attitude, non-positive reading attitude, reading preferences, and reading habits and activity. Interestingly, the correlation between the items in the factor loadings in Grade 8 was much stronger than that in Grade 6. Significant correlations were found between factors in Grades 6 ( $r = .21$ ,  $p < .01$ ) and 8 ( $r = .33$ ,  $p < .01$ ). Despite a positive attitude towards reading, the regression analysis found weak relations between reading attitude and reading achievement in the targeted languages in both grades.

### 5. Discussion

The low impact of reading attitude on reading outcomes is underlined in the literature (McKenna, 1994, 2001; McKenna et al., 2012), confirming that reading attitude declines significantly as children grow older. Firstly, in exploring the results of reading achievement in both

**Table 8.** Reading attitude Grades 6 and 8 (N = 1,505) (%).

Statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I read because it is fun.	3.4	28.9	22.3	45.5	0
2. I read because it relaxes me.	2.9	27.1	32.9	37.1	0
3. Reading broadens my knowledge.	1.9	34.0	28.0	35.9	0
4. I only read when I have to.	10.0	49.6	25.1	15.1	0
5. Reading is more for girls than for boys.	26.9	36.5	28.3	8.2	0
6. Reading is boring.	25.0	42.7	25.6	6.6	0
7. I like going to the library.	8.0	31.2	39.7	21.1	0
8. I prefer reading in my native language to reading in English.	3.9	33.8	28.4	33.9	0
9. I prefer reading e-books.	7.6	35.5	34.0	22.9	0
10. Reading is necessary to be able to use a computer and the Internet.	4.9	30.2	39.7	25.1	0
11. I mostly read at home.	2.9	34.7	31.1	31.4	0
12. My groupmates motivate me to read more.	14.4	36.3	33.0	16.3	0

**Table 9.** Factor loadings for reading attitude in Grade 6.

Item number	Positive reading attitude (PRA)	Non-positive reading attitude (NRA)	Reading preferences (RP)
1. I read because it is fun.	<b>0.672</b>	0.247	0.295
2. I read because it relaxes me.	<b>0.729</b>	0.077	0.296
3. Reading broadens my knowledge.	<b>0.604</b>	0.228	0.112
4. I only read when I have to.	0.126	<b>0.680</b>	0.112
5. Reading is more for girls than boys.	0.094	<b>0.610</b>	0.157
6. Reading is boring.	0.058	<b>0.733</b>	0.050
7. I like going to the library.	<b>0.460</b>	-0.021	0.312
8. I prefer reading in my native language to reading in English.	0.176	0.105	<b>0.428</b>
9. I prefer reading e-books.	0.289	0.148	<b>0.651</b>
10. Reading is necessary to be able to use a computer and the Internet.	0.270	0.201	<b>0.634</b>
11. I mostly read at home.	0.282	0.031	<b>0.546</b>
12. My groupmates motivate me to read more.	0.201	0.063	<b>0.597</b>

grades, considerable differences were demonstrated on the Kazakh and Russian-language tests compared to the ones in Kazakh and English, on the one hand, and in Russian and English, on the other. The outcomes were lower in the eighth grade compared to the sixth, whereas our analysis indicated no statistical differences between boys and girls in the three languages. In general, research studies (Kush et al., 2005; McKenna, 2001; McKenna et al., 1995, 2012) state that girls usually have a positive attitude towards reading and achieve better results in reading than boys.

**Table 10.** Factor loadings for reading attitude in Grade 8.

Item number	Positive reading attitude (PRA)	Non-positive reading attitude (NRA)	Reading preferences (RP)	Reading habits and activity (RHA)
1. I read because it is fun.	<b>0.841</b>	0.089	0.239	0.224
2. I read because it relaxes me.	<b>0.880</b>	0.048	0.206	0.255
3. Reading broadens my knowledge.	<b>0.751</b>	0.240	0.228	0.154
4. I only read when I have to.	0.145	<b>0.856</b>	0.133	-0.001
5. Reading is more for girls than boys.	0.051	<b>0.766</b>	0.168	0.142
6. Reading is boring.	0.100	<b>0.841</b>	0.168	-0.014
7. I like going to the library.	0.176	-0.062	0.124	<b>0.651</b>
8. I prefer reading in my native language to reading in English.	0.163	0.078	<b>0.675</b>	0.137
9. I prefer reading e-books.	0.203	0.176	<b>0.642</b>	0.217
10. Reading is necessary to be able to use a computer and the Internet.	0.177	0.122	<b>0.682</b>	0.232
11. I mostly read at home.	0.247	0.052	0.18	<b>0.572</b>
12. My groupmates motivate me to read more.	0.184	0.041	0.310	<b>0.786</b>

International survey assessments, such as PISA and PIRLS, report that girls prefer to read more frequently outside of school than boys, which may be tied to the higher positive rate in reading attitude among girls, whereas boys' negative attitude towards reading is thought to increase in middle school and becomes clear in the upper grades. Moreover, the PISA results showed that students' reading attitude dropped significantly with only 24% of boys and 44% of girls saying that reading was their hobby (OECD, 2019a, p.32). Kazakhstan was among the countries where reading for pleasure was declining and where differences between boys and girls were statistically significant (OECD, 2019a, pp. 31–32).

However, as regards reading literacy, the PISA reports on Kazakhstan indicated no significant difference in performance between boys and girls, defining gender difference as “smaller than on average across the OECD” (OECD/The World Bank, 2015, p. 42). Interestingly, PISA results in 2018 on Kazakhstan showed non-significant gender differences in reading performance as the average gap was low in 2018 (i.e., 27 points) compared to 2009 (43 points) (see OECD, 2019b; 2019c). The PISA report identified this issue in reading with the statement that “boys' performance remained stable and girls' performance declined over the period” (OECD, 2019b, p. 6).

Secondly, the correlations between the three languages in Grades 6 and 8 were positively significant but moderate and weak. It seems that the poor relations might be due to varied levels of experience of the languages, on the one hand, and historical and cultural ties, on the other. Some research in Kazakhstan on the Trinity of Languages program suggested that the Kazakh language “will mostly likely now ‘get pushed to the background’ and ‘be forced to take a backseat to Russian and English’” (Neuendorf, 2019, p. 12). This may be one of the reasons why Russian-speaking students are reluctant to learn Kazakh in Kazakhstan. In addition, in the conference of *Central Eurasian Studies Society* in 2019, the qualitative study of Neuendorf (2019), informed several statements of citizens in Kazakhstan and pointed out that the regression of Kazakh might be due to the easy access and dominance of Russian in social media and in use with peers. Likewise, “Kazakhstani children hear the Kazakh language less frequently on television and in social settings”, whereas they “can easily learn Russian just by turning on the television or playing with their peers on the playground” (Neuendorf, 2019, p. 12).

As for historical and cultural ties, the use of the Cyrillic alphabet and shallow orthographies link Kazakh and Russian reading, so learning a novel (second or third) language (each of these target languages maybe novel to a certain group) may cause different kinds of difficulties, which determine reading attitude as well. Researchers (Hanley et al., 2004; Seidenberg, 2013, pp. 337–338) assume that children who speak languages with a shallow orthography start to read and pronounce words correctly earlier than those who grow up with English as their native language. In shallow-orthography languages, comprehension comes later, whereas, in deep-orthography languages, meaning comes first and then appropriate pronunciation. Other researchers (e.g., Perfetti and Liu, 2005) indicate a deficit of phonological awareness, which could cause difficulty in literacy skills in non-transparent-orthography languages.

There may be another issue with the requirements of the core curriculum for secondary education in Kazakhstan (MES, 2013), which focuses less on appropriate development of reading skills in target languages and more on fundamental skills for “seven subject areas: language and literature, mathematics, natural science, human and social sciences, arts, technology, and physical education” (OECD, 2014, pp. 91–92). The OECD report underlined that PISA “assesses the reading, math and science skills most important for young people to possess if they are to succeed in life and work” (OECD, 2014, p. 74). However, the core curriculum in Kazakhstan did not call for the teaching of “those aspects of reading, math and science” on which PISA is focused (OECD, 2014, pp. 73–74).

Thirdly, the probability of the Kazakh native speakers achieving well on the tests in Kazakh, Russian and English is significantly higher in all three languages than that of the Russian native speakers and others. This could suggest that the bilingual students performed better than the

monolingual ones in the respective languages, despite a small effect size on reading achievement in the native language. However, in general, bilingual and Russian monolingual students in Kazakhstan show poor reading skills in middle school. The low effect size of the reading-to-reading ratio has been shown to change attitudes towards reading as children grow older, which is also confirmed in the literature (McKenna, 1994, 2001; McKenna et al., 2012). Moreover, difficulties in reading skills might be linked to certain factors. For instance, PISA reports (OECD, 2019a, 2019b, 2019c) specify socio-economic status (SES) and parents' level of education as predictors of student achievement. However, 16% of students from modest-income families in Kazakhstan perform at the top level in reading literacy, “indicating that disadvantage is not destiny” (OECD, 2019a, p. 4; Seidenberg, 2013, p. 334).

Another issue may be the list of required readings in the core curriculum for secondary education for students in the middle and upper grades with the aim of facilitating reading literacy development in Kazakh literature and Russian literature (MES, 2013). Only a few students manage to read the books from the list because most of them find them boring and difficult. We suppose that this could also cause a negative attitude among the students towards reading in the middle and upper grades in Kazakhstan.

Finally, the latent factors of reading attitude on reading achievement in three languages demonstrated low and weak influence. Positive reading attitude and low impact on reading achievement (e.g., in Grade 8  $r_{en} = .013, p > .05$ ) may indicate infrequent or insufficient use of reading strategies in the target languages. This may also suggest the importance of classroom instruction and learning environment in reading skills among young adolescents in and outside of school despite a positive attitude towards reading. Moreover, this is also supported by other studies (McKenna, 2001; McKenna et al., 1995, 2012; Sainsbury and Schagen, 2004; Walpole and McKenna, 2012) which find that, as children move on to the upper grades, they foster a negative feeling and that external motivation to study for good grades starts to be a pivotal factor in the middle school.

On the one hand, on the background questionnaire, half of the students mentioned that the problem was a lack of free time and the absence of interesting books at home and in the school library. On the other hand, the results assumed that young learners in Kazakhstan in general have a positive attitude towards reading, but they read less as they move onto the upper grades. We also consider that this may be because the quantity of subjects and homework grows significantly and they have less free time for pleasure reading. In the current study, we did not stipulate a particular amount of time to complete the questionnaire and tests. The students had sufficient time to read the tasks, albeit the eDia platform fixed the time in the system. The average time the students used for the questionnaire and tests was 34 min ( $M = 2040.24$  s,  $SD = 976.36$ ).

The evidence of students' decreased reading literacy could be worrisome for the education system, economic progress and the welfare of Kazakhstan in general. In 2018, Kazakhstan showed declining results in reading literacy ( $M = 387$ ) compared to 2009 ( $M = 390$ ) and 2012 ( $M = 393$ ) (OECD, 2019a, 2019b, 2019c). Kazakhstan has participated in PISA since 2009. Furthermore, the PISA2018 survey reported that most 15-year-old students from 79 countries prefer reading digital messages to books (OECD, 2019a, 2019b, 2019c). Besides most other digital resources, the students read texts on their smartphones, tablets and chat apps. A large number of the students mentioned that they read when they have to and only use online resources to search for and learn more about certain information; in addition, it was noted that reading attitude and reading enjoyment for these young learners are on the decline (OECD, 2019a, 2019b, 2019c).

## 6. Implications for practice

It is clear that regular reading activity facilitates proficiency in the reading process, increases literacy, builds knowledge, provides fluency in language, etc., whereas those who read less can be assumed to have

limited knowledge in a certain field. However, researchers (e.g., McKenna, 2001; Yamashita, 2004, 2013) have determined that not all poor performers have a negative attitude to reading, as most of these poor performers suffer from several factors, such as basic classroom instruction, book accessibility and free choice of books to increase intrinsic motivation. Another issue could be the poverty of the students in rural areas with a weak Internet connection in the schools, as well as the scarcity of interesting books in the schools' libraries.

At present, the language situation in Kazakhstan has changed the status of the Kazakh language in Kazakhstan, where the number of Kazakh-medium classes in mixed schools has increased recently. However, still more work should be done in this area because the percentage of Russian-medium classes in the mixed schools is higher in the north and northeast of Kazakhstan, while Kazakh-medium classes prevail in the south and southwest. Thus, "Over half (53.1%) of general day schools offer instruction in Kazakh, while 17.5% offer instruction in Russian and 28.9% are schools with Kazakh- and Russian-medium instruction" (OECD, 2018, p. 8).

It is thus necessary to engage in a collaborative effort between school administrators, principals, teaching staff, parents, students, and other stakeholders in the schools of Kazakhstan. They should define and attend to individual learner differences and the quality of teaching and learning to monitor effective instruction in Kazakh- and Russian-medium classes and overcrowded (i.e., 30–35 students in one class) classes, particularly in urban areas. The results underline only a few crucial prerequisites for successful outcomes and the positive influence of reading attitude on reading achievement.

## 7. Limitations

There are several limitations to this study. The first is the location of the randomly selected schools. Based on the PISA surveys, students in rural Kazakhstan scored low and were one year behind those in urban schools (OECD/The World Bank, 2015, p. 42), which may be tied to school resources and facilities. The second limitation is the socio-economic background of the students, as the study did not provide any information on students from disadvantaged families or on those who are at risk of dropping out. The study population assessed bilingual and monolingual students in the sixth and eighth grades from seven randomly chosen public secondary schools in Pavlodar city (northern Kazakhstan). In addition, the study suffers from the absence of a qualitative analysis (i.e., interviews with teachers, parents and other stakeholders on the language situation in Pavlodar schools) as well as assessing the quality of teaching and learning languages in Kazakh- and Russian-medium classes.

## 8. Conclusion

The study shows significant problems in the development of the students' reading literacy through the relation of reading attitude and reading achievement in three languages. Because seven secondary schools were randomly chosen for data collection, information about general school ability, literacy level and reading skills were not available. Even though the reading tests follow the requirements for secondary education and the A1–A2 level in the target languages, we did not know how the students would perform on them in those languages.

The outcomes of this study have demonstrated that the problem of low achievement on the reading tests in the native and foreign languages could be related to the quality and style of teaching, teaching materials, task difficulty and/or classroom environment. In addition, such factors as the geographical location of the randomly chosen schools (only in Pavlodar, in northern Kazakhstan), and the students' home life, cultural diversity and educational background could also have affected the findings. We believe that the results of this study may help more teachers in Kazakhstan with the assessment process, assist them in improving reading skills in these languages in and outside of school and in

developing further teaching progress in the classroom. Therefore, further research in this field is called for.

## Declarations

### Author contribution statement

Aigul Akhmetova: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Gaysha Imambayeva: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Benő Csapó: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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### Data availability statement

Data will be made available on request.

### Declaration of interest's statement

The authors declare no conflict of interest.

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## References

- Baker, L., Wigfield, A., 1999. Dimensions of children's motivation for reading and their relations to reading activity and reading achievement. *Read. Res. Q.* 34 (4), 452–477.
- Bialystok, E., 2002. Acquisition of literacy in bilingual children: a framework for research. *Lang. Learn.* 52 (1), 159–199.
- Cain, K., Oakhill, J., 2011. Matthew effects in young readers: reading comprehension and reading experience aid vocabulary development. *J. Learn. Disabil.* 44 (5), 431–443.
- Clark, C., Foster, A., 2005. Children's and Young People's reading Habits and Preferences: the Who, what, Why, Where and When. National Literacy Trust.
- Clément, R., Dörnyei, Z., Noels, K.A., 1994. Motivation, self-confidence, and group cohesion in the foreign language classroom. *Lang. Learn.* 44 (3), 417–448.
- Council of Europe, 2001. Common European Framework of Reference for Languages: Learning, teaching, assessment. Cambridge University Press, Cambridge.
- Csapó, B., Molnár, G., 2019. Online diagnostic assessment in support of personalized teaching and learning: the eDia System. *Front. Psychol.* 10 (1522).
- Csapó, B., Nikolov, M., 2009. The cognitive contribution to the development of proficiency in a foreign language. *Learn. Individ. Differ.* 19 (2), 209–218.
- Cunningham, D.D., 2008. Literacy environment quality in preschool and children's attitudes toward reading and writing. *Literacy Teach. Learn.* 12 (2), 19–36.
- Dörnyei, Z., 1998. Motivation in second and foreign language learning. *Lang. Teach.* 31 (3), 117–135.
- Fierman, W., 2005. Kazakh language and prospects for its role in Kazakh "Groupness". *Ab Imperio* 2005 (2), 393–423.
- Grabe, W., 2009. Reading in a Second Language: Moving from Theory to Practice. Cambridge University Press, Cambridge.

- Graham, S., Berninger, V., Abbott, R., 2012. Are attitudes toward writing and reading separable constructs? A study with primary grade children. *Read. Writ. Q.* 28 (1), 51–69.
- Griffin, R.A., Farran, L.K., Mindrila, D., 2020. Reading motivation in bi/multilingual Latinx adolescents: an exploratory structural equation model. *Read. Psychol.* 41 (8), 856–892.
- Guo, D., Zhang, S., Wright, K.L., McTigue, E.M., 2020. Do you get the picture? A meta-analysis of the effect of graphics on reading comprehension. *AERA Open* 6 (1), 233285842090169.
- Hanley, J.R., Masterson, J., Spencer, L., Evans, D., 2004. How long do the advantages of learning to read a transparent orthography last? An investigation of the reading skills and reading impairment of Welsh children at 10 years of age. *Q. J. Exp. Psychol.: Section A* 57 (8), 1393–1410.
- Kenzhekhanuly, R., 2012. Ideologies and alphabet reforms in Central Asia. In: Della Chiesa, B., Scott, B.J., Hinton, C. (Eds.), *Languages in a Global World: Learning for Better Cultural Understanding*. OECD Publishing, Paris, pp. 133–150.
- Khasseneyeva, A., 2018. A Case Study of the conception of Curriculum Internationalization in a Secondary School in Kazakhstan. Durham University (Doctoral dissertation).
- Koda, K., 2007. Reading and language learning: Crosslinguistic constraints on second language reading development. *Lang. Learn.* 57, 1–44.
- Kush, J.C., Watkins, M.W., Brookhart, S.M., 2005. The temporal-interactive influence of reading achievement and reading attitude. *Educ. Res. Eval.* 11 (1), 29–44.
- Matsumura, L.C., Garnier, H.E., Spybrook, J., 2013. Literacy coaching to improve student reading achievement: a multi-level mediation model. *Learn. InStruct.* 25, 35–48.
- McCollin, M., O'Shea, D., 2005. Increasing reading achievement of students from culturally and linguistically diverse backgrounds. *Prev. Sch. Fail.: Alternative Education for Children and Youth* 50 (1), 41–44.
- McKenna, M.C., 1994. Toward a model of reading attitude acquisition. In: Crammer, E.H., Castle, M. (Eds.), *Fostering the Love of reading: the Affective Domain in reading Education*. International Reading Association, Newark, DE, pp. 18–40.
- McKenna, M.C., 2001. Development of reading attitudes. In: Verhoeven, L., Snow, C.E. (Eds.), *Literacy and Motivation: Reading Engagement in Individuals and Groups*. Routledge, London, pp. 135–158.
- McKenna, M.C., Kear, D.J., 1990. Measuring attitude toward reading: a new tool for teachers. *Read. Teach.* 43 (9), 626–639.
- McKenna, M.C., Kear, D.J., Ellsworth, R.A., 1995. Children's attitudes toward reading: a national survey. *Read. Res. Q.* 30 (4), 934–956.
- McKenna, M.C., Conradi, K., Lawrence, C., Jang, B.G., Meyer, J.P., 2012. Reading attitudes of middle school students: results of a US survey. *Read. Res. Q.* 47 (3), 283–306.
- MES, 2013. Ministry of Science and Education of the Republic of Kazakhstan. Retrieved from: [http://adilet.zan.kz/kaz/docs/V17015605\\_1](http://adilet.zan.kz/kaz/docs/V17015605_1).
- MESRK, 2012. Factors Influencing the Quality of Knowledge of 9th Class Students. National Centre for Educational Statistics and Evaluation, Ministry of Education and Science of the Republic of Kazakhstan, Astana.
- Mullis, I.V.S., 2019. Introduction. PIRLS 2021–20 years of monitoring trends in international reading achievement. In: Mullis, I.V.S., Martin, M.O. (Eds.), *PIRLS 2021 Assessment Frameworks. TIMSS & PIRLS International Study Center*, Chestnut Hill, MA, pp. 1–3.
- Neuendorf, J., 2019. Kazakhstan's trinity of languages program—A model of success or failure. [Trilingualism or nativism? Questions of linguistic policies and realities in Kazakhstan]. In: Central Eurasian Studies Society, 20th Annual Conference. The Geor<sup>®</sup> Washington University, United States. <https://nomadit.co.uk/conference/cess2019/#8222>.
- Nikolov, M., Csapó, B., 2010. The relationship between reading skills in early English as a foreign language and Hungarian as a first language. *Int. J. BiLing.* 14 (3), 315–329.
- Nikolov, M., Csapó, B., 2018. The relationships between 8<sup>th</sup> graders' L1 and L2 readings skills, inductive reasoning and socio-economic status in early English and German as a foreign language programs. *System* 73, 48–57.
- OECD, 2014. *Reviews of National Policies for Education: Secondary Education in Kazakhstan*. OECD Publishing, Paris.
- OECD, 2018. *Education policy outlook: Kazakhstan*. available at: <http://www.oecd.org/education/Education-Policy-Outlook-Country-Profile-Kazakhstan-2018.pdf>.
- OECD/The World Bank, 2015. *OECD Reviews of School Resources: Kazakhstan 2015*. OECD Publishing, Paris.
- OECD, 2019a. *PISA 2018 Results (Volume I): what Students Know and Can Do*. OECD Publishing, Paris.
- OECD, 2019b. *PISA 2018 Results (Volume II): where All Students Can Succeed*. OECD Publishing, Paris.
- OECD, 2019c. *PISA 2018 Results (Volume III): what School Life Means for Students' Lives*. OECD Publishing, Paris.
- OECD/The World Bank, 2015. *OECD Reviews of School Resources: Kazakhstan 2015*. OECD Publishing, Paris.
- Pemberton, K.D., Miller, S., 2015. Building home-school relationships to enhance reading achievement for students from families with limited financial resources. *Educ. Urban Soc.* 47 (7), 743–765.
- Perfetti, C.A., Liu, Y., 2005. Orthography to phonology and meaning: comparisons across and within writing systems. *Read. Writ.* 18 (3), 193–210.
- Petscher, Y., 2010. A meta-analysis of the relationship between student attitudes towards reading and achievement in reading. *J. Res. Read.* 33 (4), 335–355.
- Renkl, A., Scheiter, K., 2017. Studying visual displays: how to instructionally support learning. *Educ. Psychol. Rev.* 29 (3), 599–621.
- Sainsbury, M., Schagen, I., 2004. Attitudes to reading at ages nine and eleven. *J. Res. Read.* 27 (4), 373–386.
- Schatz, A., Krashen, S., 2006. Attitudes toward reading in grades 1–6. *Knowl. Quest.* 35 (1), 46–48.
- Seidenberg, M.S., 2013. The science of reading and its educational implications. *Lang. Learn. Dev.* 9 (4), 331–360.
- Slavin, R.E., Madden, N., 1999. Effects of bilingual and English as a second language adaptations of Success for All on the reading achievement of students acquiring English. *J. Educ. Stud. Placed A. T. Risk* 4 (4), 393–416.
- Smith, S.A., Li, Z., 2020. Closing the enjoyment gap: heritage language maintenance motivation and reading attitudes among Chinese-American children. *Int. J. Biling. Educ. BiLing.* 1–18 (in press).
- Stanovich, K.E., 2000. *Progress in Understanding reading: Scientific Foundations and New Frontiers*. Guilford Press, New York.
- Statistical Agency of the Republic of Kazakhstan (2018), 2019. *The Agency of the Republic of Kazakhstan on Statistics*. Retrieved from: <https://stat.gov.kz/edition/publication/collection>.
- Verhoeven, L., 2007. Early bilingualism, language transfer, and phonological awareness. *Appl. Psycholinguist.* 28 (3), 425–439.
- Walpole, S., McKenna, M.C., 2012. *The Literacy Coach's Handbook: A Guide to Research-Based Practice*. Guilford Press, New York.
- Wigfield, A., Gladstone, J.R., Turci, L., 2016. Beyond cognition: reading motivation and reading comprehension. *Child Dev. Perspect.* 10 (3), 190–195.
- Woolly, G., 2011. *Reading Comprehension: Assisting Children with Learning Difficulties*. Springer, New York.
- Yamashita, J., 2004. Reading attitudes in L1 and L2, and their influence on L2 extensive reading. *Read. Foreign Lang.* 16 (1), 1–19.
- Yamashita, J., 2013. Effects of extensive reading on reading attitudes in a foreign language. *Read. Foreign Lang.* 25 (2), 248–263.