frontiers | Frontiers in Education

TYPE Original Research
PUBLISHED 01 May 2024
DOI 10.3389/feduc.2024.1265946

Check for updates

OPEN ACCESS

EDITED BY
Douglas F. Kauffman,
Medical University of the Americas—Nevis, United States

REVIEWED BY
Cristian Ramos-Vera,
Cesar Vallejo University, Peru
Luis J. Martín-Antón,
University of Valladolid, Spain

*CORRESPONDENCE
Kuandyk M. Taibolatov
✉ Ktm080194@gmail.com

RECEIVED 24 July 2023
ACCEPTED 19 April 2024
PUBLISHED 01 May 2024

CITATION
Taibolatov KM, Pfeyfer NE, Burdina EI, Kudysheva AA and Bolatov AK (2024) The role of emotional intelligence on academic motivation of schoolchildren.
Front. Educ. 9:1265946.
doi: 10.3389/feduc.2024.1265946

COPYRIGHT
© 2024 Taibolatov, Pfeyfer, Burdina, Kudysheva and Bolatov. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

The role of emotional intelligence on academic motivation of schoolchildren

Kuandyk M. Taibolatov[1]*, Nellie E. Pfeyfer[1], Elena I. Burdina[2], Ainash A. Kudysheva[3] and Aidos K. Bolatov[4]

[1]Toraighyrov University, Pavlodar, Kazakhstan, [2]Pavlodar Pedagogical University named after Alkey Margulan, Pavlodar, Kazakhstan, [3]South Kazakhstan State Pedagogical University, Shymkent, Kazakhstan, [4]Astana Medical University, Astana, Kazakhstan

Introduction: The purpose of this study was to inverstigate the relationship between emotional intelligence and academic motivation among secondary school students in Kazakhstan.

Methods: In total, 682 schoolchildren in grades 6 to 8, corresponding to the 11/12-year Kazakhstani curriculum, were interviewed, and their level of emotional intelligence was analysed using a scale that assessed the level of interpersonal and intrapersonal emotional intelligence, understanding emotions, managing emotions, and general level of emotional intelligence.

Results: The results showed that emotional intelligence levels varied by class and gender, with males scoring higher on intrapersonal emotional intelligence, emotion management, and general emotional intelligence, while females scored higher on interpersonal emotional intelligence. Levels of academic motivation were also found to vary by grade and gender, with 6th grade students and females having higher levels of motivation. There was a significant positive correlation between emotional intelligence and academic motivation. Moreover, the study described differences in the level of emotional intelligence in the predominance of the academic motivation (intristic or extrinsic), desire to achieve success in school or avoid failure, and in the implementation of motives in the schoolchildren's behavior.

Conclusion: This study indicates the relationship between the level of emotional intelligence and academic motivation of schoolchildren. The results of the study are important for policy makers in the field of school education and planning the academic life of schoolchildren.

KEYWORDS

emotional intelligence, academic motivation, schoolchildren, emotion management, secondary school

Introduction

Today's goal of modern schools is to prepare students for life, not only limited to subject education. It should be noted that the academic achievements of Kazakhstani schoolchildren, according to the results of the Programme for International Student Assessment (PISA) in 2018, showed a slightly lower level than in 2015 (Figure 1). Comparing PISA results, we observed a decline in Kazakhstan's educational achievement in all three areas (The National Report on the State and Development of the Education System of the Republic of Kazakhstan for the 30 years of Independence and 2021, 2022). These changes are associated with various factors, including the academic motivation of students since academic motivation plays an

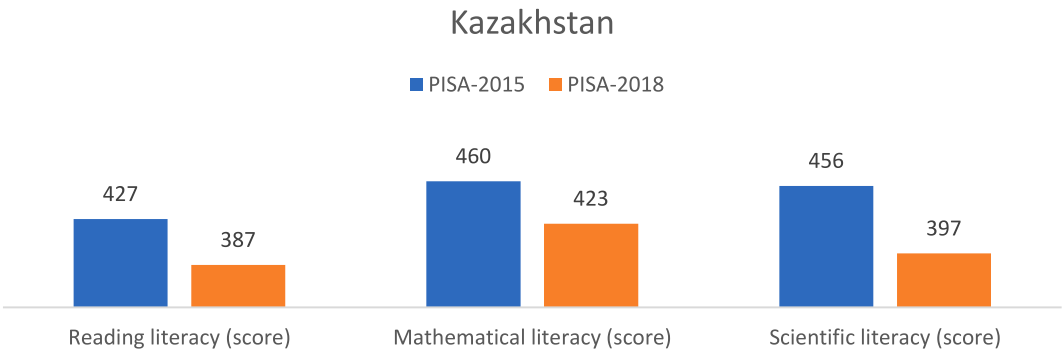

FIGURE 1
Results of the Programme for International Student Assessment (PISA) in 2015 and 2018 in Kazakhstan.

important role in the educational process. If students are not sufficiently motivated, they may not be interested and engaged in their studies (Gordeeva et al., 2018). The decline in PISA results in 2018 compared to 2015 may indicate the need to pay attention to the academic life of schoolchildren in Kazakhstan.

Academic achievement is a complex phenomenon influenced by many factors, including teacher initiative, motivation, learning strategies, and teacher-student relationships. Understanding these factors and their interactions is essential to improve student outcomes and enhance the educational experience (Linnenbrink and Pintrich, 2002; Fomichenko, 2017; Arpentieva et al., 2018; Gasinets et al., 2022; Greenwald et al., 2023). To stimulate students, develop their interest in academic subjects, and increase their level of motivation, additional efforts may be required. This includes the development and implementation of a variety of approaches and strategies aimed at actively involving students, creating a motivational atmosphere in schools, and supporting the development of their learning interests and goals (Guay et al., 2010).

School performance can be influenced by factors such as self-regulation, engagement, and motivation for academic achievement (Ishmuratova et al., 2021). Gordeeva et al. (2017) examined the relationship between intelligence, motivation, coping strategies, and academic achievement of schoolchildren, emphasizing the importance of motivation for academic achievement and suggesting that motivated students tend to have better coping strategies. A study by Bouffard et al. (2003) suggests that changes in self-perception are strongly associated with changes in intrinsic motivation and academic achievement. Mok et al. (2007) study highlights the importance of considering the developmental trajectory of motivational and cognitive-metacognitive competencies when designing interventions to support student academic development. Taken together, these studies provide insight into the complex interplay between motivation, self-regulation, engagement, and academic achievement among schoolchildren.

It is also necessary to take into account the role of emotional intelligence in the academic success of schoolchildren. Thus, studying and understanding emotions and emotional reactions not only improve the psychological well-being of students but can also lead to more successful learning and achievement of learning goals (Alford, 2017). Emotional intelligence is defined as the ability to understand and manage one's own emotions, as well as the emotions of others (Mayer and Salovey, 1990; Goleman, 1996; Bar-On, 2006; Lyusin, 2006). Recently, the relationship of emotional intelligence in the lives of students and adolescents has been studied in various aspects: the relationships with subjective well-being (Martínez-Marín and Martínez, 2019; Azpiazu et al., 2022; Llamas-Díaz et al., 2022; Salavera and Usán, 2022), happiness (Abdollahi et al., 2019), optimism, and pessimism (Tejada-Gallardo et al., 2022), personal-social competence (Mavroveli et al., 2011; Vicent et al., 2022). Early research also highlights the relationship between emotional intelligence and academic achievement (Vidal Rodeiro et al., 2012; Jiménez-Blanco et al., 2020; Chamizo-Nieto et al., 2021; Bueno-Villaverde et al., 2022). Pulido Acosta and Herrera Clavero's (2018) study resulted that emotional intelligence has an impact on student achievement, and its development can improve academic achievement in various fields. Emotional intelligence and teacher-student relationships have also been found to play a significant role in the academic achievement of schoolchildren. Overall, these studies show that emotional intelligence is positively associated with academic achievement and can be developed and strengthened to improve student academic performance.

Thus, the purpose of this study was to investigate the relationship between emotional intelligence and academic motivation of secondary school students. In particular, the purpose of the study was to study differences in emotional intelligence and academic motivation in different classes and genders, as well as to study the relationship between various components of emotional intelligence and the overall level of emotional intelligence with the level of academic motivation. Additionally, the study aimed to determine whether the predominance of internal or external motivation, the desire to achieve success or avoid failure, as well as the level of implementation of motives in behavior, is associated with emotional intelligence among school students.

Methods

Participants and study design

A cross-sectional study was conducted among secondary school students in Kazakhstan. Participants were included in the study if they met the following criteria: students in grades 6 to 8, corresponding to the 11/12-year Kazakhstani curriculum, and those who voluntarily chose to participate in the study. Children with special educational

needs did not participate in this study. Before commencing the survey, the required sample size was determined to be 385. This estimation was based on a total population of 1,037,426 grades 6 to 8 secondary school students, with the objective of generalizing the findings and ensuring adequate statistical power within a 95% confidence interval.

Procedure

Data were collected using an online questionnaire-based approach via the Google Forms platform in March 2023. Participants were provided with a link to the questionnaire via email and school messengers. The utilization of internet-based methodology offered several advantages for this study. Firstly, it allowed for the efficient collection of data from a large sample size within a relatively short period. The online format provided flexibility for participants to complete the questionnaire at their convenience, reducing potential barriers such as time constraints and geographical limitations. Additionally, the use of online platforms facilitated data management and analysis, enabling prompt processing of responses and extraction of relevant information for statistical analysis. Participation in the study was voluntary. Participants were made aware of their rights, the aims and procedures of the study, and how their information would be used.

Measures

The questionnaire included:

- Socio-demographic characteristics (gender, age, and year of study)
- Lyusin's emotional intelligence scale (Lyusin, 2006) was used to assess the level of emotional intelligence. This scale consists of 46 items with four-point Likert-type agreement scale (not at all agree, rather disagree, rather agree, and strongly agree) that represent 4 subscales interpersonal emotional intelligence (IeEI, Cronbach's alpha = 0.737), intrapersonal emotional intelligence (IaEI, Cronbach's alpha = 0.766), understanding emotions (UE, Cronbach's alpha = 0.771); managing emotions (ME, Cronbach's alpha = 0.755), and overall general level of emotional intelligence (GLEI) with maximal score 138 and reasonable internal consistency (Cronbach's alpha = 0.825). The Barlett's sphericity test result was significant ($p < 0.001$), and the KMO measure of sampling adequacy exceeded 0.868. According to the confirmatory factor analysis (CFA), the model fit indices of the sacle was ambiguous: χ^2/df 3.51 ($p < 0.001$); RMSEA = 0.0652; CFI = 0.582.
- Lukyanova's Academic Motivation Scale (Lukyanova, 2001) was used to assess the level of academic motivation. This scale consists of 18 qualitative items in the form of unfinished sentences, whiched to determine not only the level of motivation quantitatively, but also to conduct a qualitative analysis of indicators (Cronbach's alpha = 0.742). Lukyanova's Academic Motivation Scale made it possible to determine the predominance of the student's academic motivation (intrinsic, intermediate, or extrinsic), desire to achieve success in school or avoid failure, the level of implementation of motives in the behavior, and the overall level of academic motivation. Internal consistency of academic motivation subscale was robust (Cronbach's alpha = 0.828), subscales for predominance of the student's academic motivation showed not satisfactory internal consistency (Cronbach's alpha = 0.124–0.419) due to the limited number of items (3) in each subscale. However, according to the CFA analysis, the scale achieved good levels of goodness-of-fit indices: χ^2/df 1.63 ($p < 0.001$); RMSEA = 0.0327; CFI = 0.962. Moreover, the Barlett's sphericity test result was significant ($p < 0.001$), and the KMO measure of sampling adequacy exceeded 0.900.

The study was approved by the Local Ethics Committee of Toraighyrov University (extract from protocol no. 7 of November 17, 2022).

Data analysis

Descriptive statistics were performed using mean (M), standard deviation (SD) for quantitative variables. *t*-test and ANOVA were performed to compare the effect of different variables; additionally Bayes factor analysis used to quantify the strength of evidence for or against the hypotheses. Pearson's correlation coefficients, amd linear regression analysis were performed to evaluate relationships and associations of the independent variables with academic motivation. General linear model was used to assess the effect of gender and grade separately and in combination on emoutional intelligence and academic motivation.

Data analysis was conducted using SPSS version 20.0 and Jamovi version 1.2.17. A statistically significant difference was accepted at a *p*-value less than 5%.

Results

In total, 682 secondary school students from 12 schools in 4 regions (Pavlodar, Aktobe, Kostanay and Abai) took part in the study. More than half (63.2%) of the participants were female. The mean age of the respondent was 13.1 years (SD = 2.74) and ranged between 11–16 years old. Among the respondents, 169 (24.8%) were 6th grade students, 232 (34%)—7th graders, and 281 (41.2%) were 8th graders under the 11/12-year Kazakhstani curriculum. The sex ratio in the three classes did not have significant differences ($p = 0.660$). The distribution by gender and age in the three grades is shown in Supplementary Table S1.

The used scale of emotional intelligence made it possible to evaluate such characteristics as interpersonal (IeEI, M = 39.4 ± 7.98) and intrapersonal (IaEI, M = 39.7 ± 8.83) emotional intelligence, understanding emotions (UE, M = 37.5 ± 7.24), managing emotions (ME, M = 41.7 ± 8.25) and the general level of emotional intelligence (GLEI, M = 79.2 ± 14.0). Comparative data of these indicators in three grades and by gender are presented in Tables 1, 2, respectively.

The IeEI level was significantly lower among 7th grade students compared to 6th and 8th graders ($p < 0.05$). The ME and GLEI levels were significantly lower among 7th graders compared to 6th graders ($p < 0.05$). Moreover, IaEI ($p < 0.001$), ME ($p < 0.001$) and GLEI ($p < 0.05$) levels were higher among male students compared to girls, while UE did not differ by gender, and IeEI was higher among girls

TABLE 1 The level of emotional intelligence by grades.

EI	Grades			*F*, *p*	df2	Post-hoc test	Effect size η^2	BF_{10}
	6 (M ± SD)	7 (M ± SD)	8 (M ± SD)					
IeEI	40.2 ± 7.77	38.1 ± 8.17	40.1 ± 7.82	5.10, $p = 0.007$	412	6 vs. 7*, 7 vs. 8*	0.015	2.55
IaEI	40.9 ± 9.32	39.1 ± 9.00	39.6 ± 8.35	1.89, $p = 0.153$	401	–	0.006	0.121
UE	38.2 ± 7.30	36.5 ± 7.40	37.9 ± 6.99	3.31, $p = 0.038$	407	–	0.010	0.446
ME	42.9 ± 8.64	40.7 ± 8.33	41.8 ± 7.85	3.36, $p = 0.036$	402	6 vs. 7*	0.010	0.517
GLEI	81.1 ± 14.40	77.2 ± 14.33	79.7 ± 13.43	3.91, $p = 0.021$	404	6 vs. 7*	0.012	0.850

EI, emotional intelligence; IeEI, interpersonal emotional intelligence; IaEI, intrapersonal emotional intelligence; UE, understanding emotions; ME, maaging emotions; GLEI, general level of emotional intelligence.
*$p < 0.05$.

TABLE 2 The level of emotional intelligence by gender.

EI	Gender		*t*-test, *p*	df	Effect size η^2	BF_{10}
	Male (M ± SD)	Female (M ± SD)				
IeEI	38.3 ± 7.66	40.1 ± 8.10	2.83, $p = 0.005$	680	0.012	4.33
IaEI	42.4 ± 8.52	38.2 ± 8.64	6.23, $p < 0.001$	680	0.054	9.7×10^6
UE	37.6 ± 7.28	37.4 ± 7.21	0.38, $p = 0.701$	680	0.000	0.095
ME	43.1 ± 8.33	40.9 ± 8.09	3.46, $p < 0.001$	680	0.017	29.83
GLEI	80.7 ± 14.2	78.3 ± 13.89	2.22, $p = 0.027$	680	0.007	0.981

EI, emotional intelligence; IeEI, interpersonal emotional intelligence; IaEI, intrapersonal emotional intelligence; UE, understanding emotions; ME, managing emotions; GLEI, general level of emotional intelligence.

TABLE 3 The level of motivation by grades and gender.

Variable		Academic motivation level (M ± SD)	*t*-test/*F*, *p*	df/df2	Effect size η^2	BF_{10}
Gender	Male	41.5 ± 14.66	3.02, $p = 0.003$	680	0.013	7.56
	Female	44.8 ± 13.41				
Grade	6th	45.4 ± 14.21	3.62, $p = 0.028$	408	0.011	0.554
	7th	41.7 ± 13.82				
	8th	44.0 ± 13.81				

than boys ($p < 0.05$). The analysis of independent and combined models of the effect of gender and grade showed the following results: gender had a significant and largest effect size on IaEI and ME, grade—on IeEI and GLEI (Supplementary Table S2).

The mean level of motivation was 43.6 ± 14.0 and differed by grade and gender (Table 3). Thus, the level of motivation was higher among girls compared to boys, as well as among 6th graders compared to 7th grade students ($p < 0.05$). A comparison of the models of the influence of "gender," "grade" and "gender + grade" on the level of motivation revealed that gender had the greatest reliable effect size (Supplementary Table S2).

Correlation analysis of various components of EI and the GLEI with the level of academic motivation is presented in Table 4. The levels of various components of EI and the GLEI had a significant correlation with the level of academic motivation. In the linear regression model, only gender ($\beta = 0.282$, $p < 0.001$) and GLEI ($\beta = 0.213$, $p < 0.001$) were significant predictors of schoolchildren's academic motivation ($R^2 = 0.06$, $p < 0.001$), while grades and age had no significant effects.

The scale of academic motivation used in the study maked it possible to identify the predominance of the student's intrinsic or extrinsic motivation for learning, the adolescent's desire to achieve success in school or avoid failure, and whether all these motives are realized in the behavior of schoolchildren. The levels of different subtypes of the EI and the GLEI in different groups of schoolchildren, depending on the nature of academic motivation, are presented in Tables 5–7.

Table 5 shows the differences in the levels of various EI components and GLEI depending on the predominance of intrinsic or extrinsic motivation among schoolchildren. Schoolchildren with a predominance of intrinsic motivation had higher level of emotional intelligence in comparison with schoolchildren who had intermediate or extrinsic motivations.

Moreover, students who had a higher desire to achieve success versus avoid failure had higher levels of IaEI, ME, and GLEI (Table 6).

The level of implementation of motives in the behavior of schoolchildren was also associated with the level of emotional intelligence. So, students who realize their academic motives in behavior had higher levels of various components of EI and the GLEI (Table 7).

TABLE 4 Correlation analysis of various components of EI and the GLEI with the level of motivation.

Variable	Gender	Grade	Academic motivation	IeEI	IaEI	UE	ME	GLEI
Gender	–							
Grade	0.024	–						
Academic motivation	0.115*	−0.027	–					
IeEI	0.108*	0.013	0.233**	–				
IaEI	−0.232**	−0.051	0.111*	0.395**	–			
UE	−0.015	−0.001	0.165**	0.788**	0.710**	–		
ME	−0.132**	−0.040	0.199**	0.699**	0.831**	0.645**	–	
GLEI	−0.085*	−0.024	0.202**	0.816**	0.853**	0.894**	0.919**	–

EI, emotional intelligence; IeEI, interpersonal emotional intelligence; IaEI, intrapersonal emotional intelligence; UE, understanding emotions; ME, managing emotions; GLEI, general level of emotional intelligence.
*$p < 0.05$ and **$p < 0.001$.

TABLE 5 The level of various components of EI and the GLEI by predominance of the internal or external motivation.

EI	Predominance of the student's academic motivation (M ± SD)			*F*, *p*	df2	Post-hoc	Effect size η^2	BF_{10}
	Intrinsic	Intermediate	Extrinsic					
IeEI	42.2 ± 7.84	38.5 ± 7.77	33.6 ± 6.84	20.0, $p < 0.001$	37.8	1vs2**, 1vs3**, 2vs3*	0.054	1.42×10^6
IaEI	42.0 ± 9.64	39.1 ± 8.39	33.5 ± 5.41	16.0, $p < 0.001$	39.6	1vs2**, 1vs3**, 2vs3*	0.034	1,321
UE	39.7 ± 7.57	36.7 ± 6.95	33.7 ± 6.02	13.1, $p < 0.001$	37.8	1vs2**, 1vs3*	0.038	8,999
ME	44.6 ± 8.64	40.9 ± 7.78	33.4 ± 6.17	25.9, $p < 0.001$	38.2	1vs2**, 1vs3**, 2vs3*	0.063	2.26×10^7
GLEI	84.3 ± 14.8	77.6 ± 13.2	67.1 ± 10.3	23.7, $p < 0.001$	38.3	1vs2**, 1vs3**, 2vs3*	0.061	1.30×10^7

TABLE 6 The level of various components of EI and the GLEI by the adolescent's desire to achieve success in school or avoid failure.

EI	Desire to achieve success in school or avoid failure (M ± SD)			*F*, *p*	df2	Post-hoc	Effect size η^2	BF_{10}
	Achieve success	Intermediate	Avoid failure					
IeEI	40.0 ± 7.28	39.6 ± 7.82	38.2 ± 9.30	1.02, $p = 0.364$	117	–	0.004	0.102
IaEI	39.9 ± 8.63	40.1 ± 8.77	37.2 ± 9.08	3.86, $p = 0.024$	118	2vs3*	0.012	1.41
UE	37.1 ± 6.14	37.8 ± 7.15	36.0 ± 8.27	1.97, $p = 0.143$	120	–	0.007	0.302
ME	42.9 ± 7.31	41.9 ± 8.31	39.5 ± 8.18	4.28, $p = 0.016$	122	1vs3*, 2vs3*	0.012	1.31
GLEI	80.0 ± 12.3	79.7 ± 13.9	75.4 ± 15.2	3.11, $p = 0.048$	120	2vs3*	0.010	0.855

Discussion

Developing emotional intelligence will help students better understand and manage their own emotions, as well as the emotions of others. This is an important skill that can contribute to successful learning, cooperation, and emotionally supportive relationships in a learning environment. The combination of academic motivation, the development of learning interest and the emotional intelligence of students can have a positive impact on their educational achievements and results in international studies, including PISA. Therefore, in addition to efforts to stimulate motivation, it is also important to pay attention to the development of students' emotional intelligence by creating a favorable and supportive learning environment (Courtney et al., 2023). Thus, the aim of the current study was to investigate the relationship between emotional intelligence, academic motivation and various demographic factors among high school students.

TABLE 7 The level of various components of EI and the GLEI by the level of implementation of motives in the behavior of schoolchildren.

EI	Implementation of motives in the behavior (M ± SD)			*F*, *p*	df2	Post-hoc	Effect size η^2	BF_{10}
	Implemented	Rarely implemented	Lack of activity					
IeEI	41.3 ± 7.44	38.7 ± 7.82	41.0 ± 12.5	8.08, $p < 0.001$	51.5	1vs2**	0.022	60.12
IaEI	42.9 ± 8.53	38.8 ± 8.44	33.9 ± 12.3	17.0, $p < 0.001$	51.6	1vs2**, 1vs3**, 2vs3*	0.054	1.51×10^6
UE	39.4 ± 6.59	36.8 ± 7.05	36.3 ± 12.3	10.5, $p < 0.001$	51.4	1vs2**	0.027	318.96
ME	44.7 ± 7.83	40.7 ± 7.93	38.5 ± 11.9	17.5, $p < 0.001$	51.6	1vs2**, 1vs3*	0.050	5.01×10^5
GLEI	84.1 ± 13.1	77.5 ± 13.5	74.9 ± 22.6	17.1, $p < 0.001$	51.4	1vs2**, 1vs3*	0.047	1.84×10^5

The results showed that there were significant differences in emotional intelligence at different levels of learning. Specifically, 7th grade students had lower levels of Interpersonal Emotional Intelligence, Emotion Management, and General Emotional Intelligence compared to 6th and 8th grade students. Moreover, male students demonstrated higher levels of intrapersonal emotional intelligence, emotion management, and general emotional intelligence compared to female students. On the other hand, emotion understanding did not differ significantly by gender, and girls had a higher level of interpersonal emotional intelligence than boys. The observed differences in emotional intelligence levels among secondary school students in Kazakhstan align with broader developmental and gendered dynamics outlined by psychosocial and gender theories. Males' higher scores in intrapersonal emotional intelligence and emotion management may reflect societal expectations for males to demonstrate emotional stoicism and self-regulation, while females' higher scores in interpersonal emotional intelligence may reflect norms valuing relational sensitivity and empathy among females. In support of this, Jiménez-Blanco et al. (2020) showed that girls 'scores in perception and emotional comprehension were consistently higher than boys. At the same time study among Spanish primary school children showed higher levels of emotional repair in girls compared to boys (Luque-González et al., 2022). Given the role of psychological development, features of cultural and educational systems, we are confident that the results of the current study will undoubtedly enrich the theoretical discourse and determine the directions of future research in this area.

In terms of academic motivation, the study found that levels of motivation varied by grade and gender. Girls had a higher level of motivation compared to boys, and 6th graders had a higher level of motivation compared to 7th graders. These results suggest that gender and grade play a role in shaping the level of student motivation.

In addition, the study examined the correlation between different components of emotional intelligence and overall academic motivation. The results showed a significant correlation between the various components of emotional intelligence and the level of academic motivation. In a linear regression model, gender and general level of emotional intelligence were identified as significant predictors of student academic motivation, while grades and age did not show a significant effect. In the course of the study, the relationship between the implementation of motives in the behavior of schoolchildren and emotional intelligence was studied. The results showed that students who implemented their academic motives in behavior had higher levels of emotional intelligence in various components and a general level of emotional intelligence.

These results are consistent with previous research on emotional intelligence, academic motivation, and student achievement (Arias et al., 2022). Research consistently showed that emotional intelligence was associated with academic achievement and student motivation. Marsono et al. (2019) emphasize that emotional intelligence has a significant impact on student motivation, especially in relation to success in mathematics. In addition, a study by Arias et al. (2022), found a positive relationship between emotional intelligence and academic motivation in primary school students. Moreover, studies conducted by Yahaya et al. (2012), Usán Supervía and Salavera Bordás, 2018, Amador-Licona et al. (2020) confirmed that emotional intelligence had a significant impact on academic motivation and performance. Thus, the current study complemented the existing literature by focusing on secondary school students and examining the role of demographic factors such as age, grade, and gender.

Study limitations

However, it is important to note that the study had some limitations. The results based on a cross-sectional study, and the identification of causal relationships is not possible. Future research using longitudinal design will provide a deeper understanding of the relationship between emotional intelligence, academic motivation, and student achievement. The study focused on secondary school students from a particular educational system, which may limit the ability to generalize the results to other contexts.

Conclusion

This study highlighted the complex relationship between emotional intelligence, academic motivation, and demographic factors among secondary school students. The results obtained indicate that emotional intelligence and motivation are interrelated and are influenced by factors such as grade, gender, and the realization of motives in behavior. Further research is needed to explore these relationships across educational institutions and develop effective

interventions to promote emotional intelligence and intrinsic motivation.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The study involving human participants was approved by the Ethics Committee of Toraighyrov University (extract 198 from protocol no. 7 of November 17, 2022). Written informed consent to participate in the study was not required from the participants or their legal guardians/next of kin in accordance with the local legislation and institutional requirements.

Author contributions

KT: Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft. NP: Conceptualization, Supervision, Writing – review & editing. EB: Methodology, Writing – review & editing. AK: Data curation, Investigation, Writing – review & editing. AB: Formal analysis, Investigation, Writing – review & editing.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2024.1265946/full#supplementary-material

References

Abdollahi, A., Hosseinian, S., Panahipour, H., Najafi, M., and Soheili, F. (2019). Emotional intelligence as a moderator between perfectionism and happiness. *Sch. Psychol. Int.* 40, 88–103. doi: 10.1177/0143034318807959

Alford, Z. (2017). Positive education: developing skills for school life and beyond. M. A. White, G. R. Slemp and A. S. Murray (Eds.), *Future directions in well-being. Education, organizations and policy*, 7–11. Cham, Switzerland: Springer

Amador-Licona, N., Guízar Mendoza, J. M., Briceño Martínez, I., Rodríguez Bogarín, B. A., and Villegas Elizarrarás, L. M. (2020). Emotional intelligence and academic motivation in high school students with adequate grade point average. *Nova Scientia* 12, 1–16. doi: 10.21640/ns.v12i24.2251

Arias, J., Soto-Carballo, J. G., and Pino-Juste, M. R. (2022). Emotional intelligence and academic motivation in primary school students. *Psicología Reflexão e Crítica* 35:14. doi: 10.1186/s41155-022-00216-0

Arpentieva, M. R., Geraskina, P. B., Lavrinenko, S. V., Zalavina, T. Y., Kamenskaya, E. N., and Tashcheva, A. I. (2018). Directions of psychological research of academic session. *Astra Salvensis* 6, 646–662,

Azpiazu, L., Fernández-Zabala, A., Rodríguez-Fernández, A., and Ramos-Díaz, E. (2022). Perceived emotional intelligence and subjective well-being during adolescence: the moderating effect of age and sex. *Curr. Psychol.* 42, 31048–31063. doi: 10.1007/s12144-022-04128-1

Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema* 18, 13–25

Bouffard, T., Marcoux, M.-F., Vezeau, C., and Bordeleau, L. (2003). Changes in self-perceptions of competence and intrinsic motivation among elementary schoolchildren. *Br. J. Educ. Psychol.* 73, 171–186. doi: 10.1348/00070990360626921

Bueno-Villaverde, Á., Zambrano-Vacacela, L. L., and Pérez-Sánchez, L. F. (2022). The teaching and reinforcement of emotional intelligence in adolescent students and its covariation with mathematics achievement. *Electron. J. Res. Educ. Psychol.* 20, 661–682,

Chamizo-Nieto, M. T., Arrivillaga, C., Rey, L., and Extremera, N. (2021). The role of emotional intelligence, the teacher-student relationship, and flourishing on academic performance in adolescents: a moderated mediation study. *Front. Psychol.* 12:695067. doi: 10.3389/fpsyg.2021.695067

Courtney, M. G. R., Hernández-Torrano, D., Karakus, M., and Singh, N. (2023). Measuring student well-being in adolescence: proposal of a five-factor integrative model based on PISA 2018 survey data. *Large-Scale Assess Educ.* 11, 1–28. doi: 10.1186/s40536-023-00170-y

Fomichenko, A. S. (2017). Teacher-student relationships as a factor of successful learning activity in schoolchildren. *Psychol. Sci. Educ.* 22, 39–47. doi: 10.17759/pse.2017220505

Gasinets, M., Kapuza, A., and Dobryakova, M. (2022). Teacher agency in shaping students' academic success: roles and beliefs. *Educ. Stud.* 1, 75–97. doi: 10.17323/1814-9545-2022-1-75-97

Goleman, D. (1996). *Inteligencia emocional [Emotional intelligence]*. Barcelona: Kairós.

Gordeeva, T. O., Sychev, O. A., Gizhitskii, V. V., and Gavrichenkova, T. K. (2017). Intrinsic and extrinsic academic motivation scale for schoolchildren. *Psychol. Sci. Educ.* 22, 65–74. doi: 10.17759/pse.2017220206

Gordeeva, T. O., Sychev, O. A., Pshenichnuk, D. V., and Sidneva, A. N. (2018). Academic motivation of elementary school children in two educational approaches - innovative and traditional. *Psychol. Russia* 11, 19–36. doi: 10.11621/pir.2018.0402

Greenwald, D. G., Shan, L., Boldt, T. A., Truong, B. B., Gonzalez, G. S., Chen, C. H., et al. (2023). Comparing intrinsic and extrinsic motivation in bilingual children and their monolingual peers. *Front. Educ.* 7:2022. doi: 10.3389/feduc.2022.1022729

Guay, F., Ratelle, C. F., Roy, A., and Litalien, D. (2010). Academic self-concept, autonomous academic motivation, and academic achievement: mediating and additive effects. *Learn. Individ. Differ.* 20, 644–653. doi: 10.1016/j.lindif.2010.08.001

Ishmuratova, Y. A., Potanina, A. M., and Bondarenko, I. N. (2021). Impact of conscious self-regulation, engagement and motivation on academic performance of schoolchildren during different periods of study. *Psikhologicheskaya nauka i obrazovanie = Psychological Science and Education* 26, 17–29. doi: 10.17759/pse.2021260502

Jiménez-Blanco, A., Sastre, S., Artola, T., and Alvarado, J. M. (2020). Emotional intelligence and academic achievement: A developmental model [Inteligencia emocional y rendimiento académico: Un modelo evolutivo]. *Revista Iberoamericana de Diagnostico y Evaluacion Psicologica* 56, 129–141. doi: 10.21865/RIDEP56.3.10

Linnenbrink, E. A., and Pintrich, P. R. (2002). Motivation as an enabler for academic success. *Sch. Psychol. Rev.* 31, 313–327. doi: 10.1080/02796015.2002.12086158

Llamas-Díaz, D., Cabello, R., Megías-Robles, A., and Fernández-Berrocal, P. (2022). Systematic review and meta-analysis: the association between emotional intelligence and subjective well-being in adolescents. *J. Adolesc.* 94, 925–938. doi: 10.1002/jad.12075

Lukyanova, M. (2001). Educational motivation of schoolchildren: a psychological and didactic aspect. *Uchitel* 4, 18–27,

Luque-González, R., Romera, E., Gómez-Ortiz, O., Wiza, A., Laudańska-Krzemińska, I., Antypas, K., et al. (2022). Emotional intelligence and school climate in primary school children in Spain, Norway, and Poland [Inteligencia emocional y clima escolar en escolares de primaria de España, Noruega y Polonia]. *Psychol. Soc. Educ.* 14, 29–37. doi: 10.21071/PSYE.V14I3.15122

Lyusin, D. V. (2006). A new method for measuring emotional intelligence: the EmIn questionnaire. *Psychological Diagnostics* 4, 3–22,

Marsono, M. B., Ashari, Z. B. M., Jumaat, N. F. B., Samah, N. B. A., Abdullah, A. H. B., and Ali, D. F. B. (2019). The relationship between self-determination emotional intelligence towards achievement motivation in mathematics. TALE 2019–2019 IEEE International Conference on Engineering, Technology and Education, art. 9226006

Martínez-Marín, M. D., and Martínez, C. (2019). Subjective well-being and gender-typed attributes in adolescents: the relevance of emotional intelligence. *Aust. J. Psychol.* 71, 296–304. doi: 10.1111/ajpy.12247

Mavroveli, S., Petrides, K. V., Rieffe, C., and Bakker, F. (2011). Trait emotional intelligence, psychological well-being, and peer-rated social competence in adolescence. *Br. J. Dev. Psychol.* 81, 112–134. doi: 10.1348/2044-8279.002009

Mayer, J. D., and Salovey, P. (1990). Emotional intelligence. *Imagin. Cogn. Pers.* 9, 185–211. doi: 10.2190/DUGG-P24E-52WK-6CDG

Mok, Y. F., Fan, R. M.-T., and Pang, N. S.-K. (2007). Developmental patterns of school students' motivational- and cognitive-metacognitive competencies. *Educ. Stud.* 33, 81–98. doi: 10.1080/03055690600948281

Pulido Acosta, F., and Herrera Clavero, F. (2018). Relaciones entre rendimiento e inteligencia emocional en secundaria. *Tendencias Pedagógicas* 31, 165–186. doi: 10.15366/tp2018.31.010

Salavera, C., and Usán, P. (2022). The relationship between eudaimonic wellbeing, emotional intelligence, and affect in early adolescents. *Curr. Psychol.* 41, 6945–6953. doi: 10.1007/s12144-020-01208-y

Tejada-Gallardo, C., Blasco-Belled, A., Torrelles-Nadal, C., and Alsinet, C. (2022). How does emotional intelligence predict happiness, optimism, and pessimism in adolescence? Investigating the relationship from the bifactor model. *Curr. Psychol.* 41, 5470–5480. doi: 10.1007/s12144-020-01061-z

The National Report on the State and Development of the Education System of the Republic of Kazakhstan for the 30 years of Independence and 2021, Astana: Ministry of Education of the Republic of Kazakhstan, Ministry of Science and Higher Education of the Republic of Kazakhstan, JSC "information-analytic center", (2022). 177, Available at: https://iac.kz/wp-content/uploads/2023/01/national-report-2021-en.pdf

Usán Supervía, P., and Salavera Bordás, C. (2018). School motivation, emotional intelligence and academic performance in students of secondary education. *Actualidades en Psicología* 32, 95–112. doi: 10.15517/ap.v32i125.32123

Vicent, M., Sanmartín, R., Cargua-García, N. I., and García-Fernández, J. M. (2022). Perfectionism and emotional intelligence: a person-centered approach. *Int. J. Clin. Pract.* 2022:8660575. doi: 10.1155/2022/8660575

Vidal Rodeiro, C. L., Emery, J. L., and Bell, J. F. (2012). Emotional intelligence and academic attainment of British secondary school children: a cross-sectional survey. *Educ. Stud.* 38, 521–539. doi: 10.1080/03055698.2011.643115

Yahaya, A., Ee, N. S., Bachok, J.@. D. J., Yahaya, N., Boon, Y., Hashim, S., et al. (2012). The impact of emotional intelligence element on academic achievement. *Arch. Sci.* 65, 95–110,