

Peers' Problem Behaviours and Student Cognitive Development: The Moderating Effect of Educational Expectation

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Abstract

This study aimed to investigate the impact of peers' problematic behaviours on students' cognitive development, considering potential moderating effects based on students' educational expectations. As of our current understanding, there has been limited exploration into the impact of peers' problematic behaviours on cognitive development and the moderating effect of expectations. To close this gap, we utilized data from the China Education Panel Survey (CEPS) to assess the suggested measurements, such as the number of participants' close friends with problem behaviours, using linear regression models. SPSS (version 26) was used for data analysis. The findings suggest that student cognitive development can suffer due to peers' problem behaviours, and this influence is heightened by students' educational expectations. This study provides several main contributions. For instance, it offers new insights by examining how students' educational expectations may moderate these effects. In conclusion, practical implications for practitioners and policymakers are outlined.

Key words: China; cognitive performance; educational expectation; moderating effect; peer influence

Introduction

Peer groups play a substantial role in children's well-being and life quality (Matheson et al., 2007). Additionally, their importance in development is underscored by social science scholars like Ladd (1999). Additional validation for these findings comes from further evidence, showing that social interactions, particularly those within

the realm of friendship, are linked to positive developmental outcomes. For instance, friendships provide supportive environments for development, thereby facilitating the advancement of social, emotional and cognitive growth (Newcomb & Bagwell, 1996). During adolescence, the phenomenon of peer pressure surfaces as teenagers strive for acceptance within their peer groups, frequently resulting in the adoption of behaviours without a comprehensive understanding of their potential consequences, whether positive or negative (Moldes et al., 2019). Indeed, the social environment plays a crucial role during adolescence, as this phase is marked by heightened peer interaction. As children move into adolescence, they often lean more on their peers than on their families to make decisions and form moral values. (Uslu, 2013). Thus, fostering positive social networks among students is significant.

Research shows that peer influence greatly impacts various activities, including individual decisions (Boucher et al., 2024). This influence can lead to behaviour imitation among friends, neighbours and colleagues. Peers can positively impact cognitive development through a conducive learning environment (Gu, 2023), but antisocial behaviours can hinder it (Meehan et al., 2022). Additionally, a child's cognitive and language skills are influenced by their peers' ability level in the classroom, even when considering other factors like preschool resources and family characteristics (Henny & Rickman, 2007). While risk-taking experimentation is common in teenagers, research suggests that those indulging in such behaviours typically exhibit poorer adjustment compared to their counterparts who steer clear of risky behaviours (Willoughby et al., 2007). Indeed, there have been initiatives aimed at predicting and curtailing risky behaviours like substance abuse and premature sexual activity among students. Additionally, these efforts also focus on boosting academic performance among the youth (Lynskey & Hall, 2002). In accordance with this perspective, a number of scholarly investigations have scrutinized the influence of peers' detrimental behaviours on scholastic success. For example, a study by Gremmen et al. (2018) discovered an association between students' academic engagement and achievement and the scholastic performance of their friends, irrespective of their spatial placement within the classroom. Similarly, Wagner et al. (2021) found that peer competence serves as a moderating factor in the relationship between children's deficient self-regulation and substandard math performance, though the same was not observed for reading performance. In other words, children with low self-regulation are shielded to an extent by high levels of peer competence. Given the scarcity of existing research, it is crucial to further investigate the correlation between student cognitive ability and the problematic behaviours demonstrated by their peers.

In summary, this study offers two contributions to the existing knowledge by addressing the ensuing lacunae in comprehension. Initially, it responds to the research void, underscored by Gu (2023), concerning the inadequate investigation of peer influence on cognitive development. In this context, we augment the pedagogical literature by scrutinizing the effect of three innovative elements (peers engaged in skipping class, physical altercations and school attrition) on students' cognitive ability.

Secondly, the literature presents a mixed conclusion regarding the impact of expectations. The findings substantiate the premise that, particularly within Chinese culture, parents are instrumental in aiding the development of their children's cognitive abilities (Phillipson & Phillipson, 2012). Similarly, elevated parental expectations could potentially backfire on children's development if parents, constrained by their negative self-perceptions, fail to establish an educational environment and distribute resources vital for their children's academic success. To summarize, prior studies have primarily concentrated on examining the direct relationship, with minimal attention given to the moderating effect of expectations. Hence, this research enriches the field of psychology by probing into the moderating role of students' educational expectations.

To bridge the identified gaps, the following research questions have been formulated.

RQ1: What is the effect of peers' problem behaviours, such as skipping classes, on the cognitive ability of students?

RQ2: How do students' educational expectations influence the connection between peers' problem behaviours and their cognitive ability?

Literature review

Peers' problem behaviours

Problem behaviours are defined as abnormal actions that impede an individual's social adaptation (Lin et al., 2004). These behaviours entail violating social norms or failing to adapt to societal life, which leads to negative impacts and even harm to societies and communities (Lassi et al., 2011). Examples of such behaviours include aggression, school discipline violations and antisocial behaviours. These behaviours can detrimentally affect students' mental health and hinder their development (Gross et al., 2009). Problem behaviours developed during childhood can indeed manifest later in life as adult personality disorders, thereby increasing the likelihood of substance abuse and involvement in illegal activities (Narusyte et al., 2017).

Existing research has explored the potential impact of problematic behaviour on students' academic performance. For example, a significant negative correlation was found between semester academic performance and various alcohol indicators, such as the frequency of breath alcohol concentration (BrAC) above .08, average BrAC and the highest recorded BrAC (Thombs et al., 2009). Similarly, subsequent research has investigated how peers' problematic behaviours might influence a student's academic performance. For example, research has shown harmful links between experiencing bullying as a victim and cognitive performance, behavioural issues and academic achievement (Menken et al., 2022). Studies also suggested that students who befriend peers with anti-school sentiments tend to perform poorly academically (Veronneau et al., 2008). Nelson and DeBacker (2008) reported similar findings, linking low-quality friendships to maladaptive achievement motivation. Additional risk factors include low socioeconomic status, inadequate parental supervision, increased family instability and instances of bullying (Resnick et al., 2004).

Peer Influence and cognitive development

The study of peer effects has received profuse attention in the area of education (Billings et al., 2014). According to Sacerdote (2011), peer influence encompasses various externalities in which peers' backgrounds, current behaviours or outcomes influence an individual's outcomes. The initial research stream highlighted a positive correlation between students' future expectations and learning outcomes. Indeed, positive behaviours of peers can improve students' academic performance by influencing students' cognitive ability formation (Gu, 2023), and emotional and behavioural engagement (Wang et al., 2018). Another avenue of research has delved into peer influence by examining peer characteristics, encompassing factors such as group home size interaction (Osei & Gorey, 2019), peer quality (Berthelon et al., 2019), peer relationships in learning communities (Brouwer et al., 2022), physical well-being (Huang et al., 2021), and the proportion of only-child peers in the classroom (Cai et al., 2022). These influences are also evident over the long term (Lépine & Estevan, 2021).

Peers can also negatively influence students through problematic behaviours. Kim et al. (2023) observed that children's math anxiety levels tended to align with their peers' over an academic semester, but no new peer groups formed based on this anxiety. Similarly, Sun and Sun (2021) found that adolescents' video game usage was associated with both direct and indirect impacts on their aggressive behaviour, with the indirect effect being influenced by their perception of peer norms around gaming and aggression. Negative influences can also stem from non-local students (Hu, 2018) and peer victimization (Fite et al., 2014). In summary, peers significantly influence students' learning outcomes, with both positive and negative effects.

Expectations and cognitive development

In addition to the aforementioned studies, existing research has also examined the impact of personal expectations on students' academic performance. In addition, it was suggested that by interventions in college and fatalistic expectations of students who have experienced adversity may reduce the likelihood of their involvement in violent behaviours (Brumley et al., 2017). Indeed, positive expectations from other individuals are associated with students' learning outcomes. For example, Rubie-Davies et al. (2006) found that teachers generally held higher expectations for students' reading performance than what was actually achieved, with the exception of Maori students, who showed the least progress by the end of the year. A similar effect can also be observed in relation to parental expectations. Specifically, parental expectations were found to have a positive correlation with favourable school outcomes, exerting a more influential effect than parents' educational attainment and household income (Froiland & Davison, 2014). A similar relationship has been observed within the context of immigrant families. For instance, Areepattamannil and Lee (2014) found that immigrant parents' hopes and aspirations for their children's educational achievements were positively associated

with the academic performance of immigrant-origin children in school. In essence, this body of research has identified a positive correlation between external expectations and academic performance. It underscores the crucial role of positive expectations from teachers and parents in fostering students' academic success.

Hypotheses development and proposed conceptual framework

Peers' problem behaviour and cognitive performance

Prior research has examined the ways in which peers can impact students' cognitive development. Overall, students studying alongside more intelligent peers tend to develop higher abilities (Gu, 2024). A positive learning environment is crucial for students' cognitive growth, while associating with peers exhibiting poor behaviour can negatively impact their cognitive development (Gu, 2024). Similarly, peers can play a role in motivating and guiding students toward academic achievement (You, 2011). Additionally, peers can impact adolescent decision-making due to changes in their brain's reward system during adolescence, in relation to the developing cognitive control, which creates a complex interplay (Albert et al., 2013). In summary, through dialogue, collaboration, play and conflict resolution with peers, children acquire new knowledge and skills, and while the role of adults in cognitive development is crucial, the learning derived from peer interactions, a potential source of knowledge and skill often overlooked, can be equally informative.

In a separate avenue of study, researchers have investigated how the problem behaviour of peers can impact students' cognitive development. Balsa et al. (2016) indicated that parental influence remains beneficial for students, fostering both academic growth and overall life contentment. However, parents have a more substantial impact on less observable and peer-judged outcomes like life satisfaction, while their effect on peer-influenced outcomes, such as academic performance, is noticeably less than that of the students' peers. Balsa et al. (2015) found modest yet statistically meaningful influences from peers on academic grades (reflecting cognitive ability), involvement in shoplifting or fights, self-satisfaction (indicators of non-cognitive abilities) and signs of depression. Goller et al. (2023) discovered that dropouts who had re-enrolled in the same subject had negative effects on the academic success of their new peers, while there were positive effects of dropouts changing subjects. In a similar vein, Lee (2022) confirmed that peer discrimination toward migrant students is negatively associated with their academic performance. In summary, the studies mentioned above indicate that peer behaviours play a crucial role in shaping student academic performance. Positive behaviours tend to enhance academic outcomes, while problem behaviours have a detrimental impact on overall performance. In our context, peers' negative behaviours (skipping classes, fighting, dropping out of school) have an adverse impact on student academic outcomes. Drawing from the discussions above, we formulated the following hypothesis.

First hypothesis (1H): There is a negative relationship between the number of peers with problem behaviours and student cognitive development.

First hypothesis (1Ha): There is a negative correlation between the number of peers skipping classes and student cognitive performance.

First hypothesis (1Hb): There is a negative association between the number of peers fighting with others and student cognitive performance.

First hypothesis (1Hc): The number of peers quitting school negatively influences student cognitive performance.

The moderating effect of educational expectation

Drawing from existing literature, a significant body of scholarly research has extensively explored how students' psychological factors moderate the educational outcomes of students. Villavicencio and Bernardo (2013) discovered that the experience of enjoyment and pride plays a moderating role in the positive relationship between self-regulation and academic achievement. The relationships between curriculum attendance and entrepreneurial intention and mindset are positively moderated by intrinsic motivation (Sun et al., 2023). Zhang and Wang (2023) found that students' personal characteristics moderate the relationship between English learning motivation and academic achievement. In particular, agreeableness strengthens the positive impact of English learning motivation on academic achievement, while openness enhances this relationship. However, neuroticism does not moderate this association. Indeed, students' psychological factors play a pivotal role in shaping learning outcomes.

To our knowledge, another area of research has centred on exploring how self-expectations can counteract the impacts of problem behaviours and potential risks. For instance, in a study by Chang (2002), it was discovered that optimism had a moderating effect on the association between perceived stress and psychological symptoms, indicating that individuals with higher levels of optimism exhibited fewer symptoms under high-stress conditions compared to those with lower optimism levels. Likewise, it was discovered that adolescent self-educational expectations and connections with deviant peers mediate the relationship between parental educational expectations and problem behaviours, with both parental and adolescent self-educational expectations acting as protective factors against problem behaviours (Ouyang et al., 2023). McDade et al. (2011) determined that students with higher college attendance expectations were more likely to exercise regularly and smoke fewer cigarettes in young adulthood. Harris et al. (2002) found that students with lower expectations of graduating from college are more likely to engage in risky behaviours. Expectations appear to have the capacity to amplify anxiety during final exams (Burns, 2004), enhance the positive effects of parental support (Gerard & Booth, 2015) and mitigate the negative impact of teacher expectations on students' academic performance (Benner & Mistry, 2007). A similar impact can also be observed over the long term within students' personal development (Harris et al., 2002). Applying this to our context, it can be seen that

students with higher self-expectations experience fewer negative consequences from the influence of problem behaviours. Based on the discussions above, the following hypothesis is developed.

Second hypothesis (2H): Educational expectation negatively moderates (i.e., mitigates) the negative relationship between peers' problem behaviours and academic performance.

Second hypothesis (2Ha): Educational expectation negatively moderates the negative relationship between peers skipping classes and cognitive development performance.

Second hypothesis (2Hb): Educational expectation negatively moderates the negative relationship between peers fighting with others and cognitive performance.

Second hypothesis (2Hc): Educational expectation negatively moderates the negative relationship between peers quitting school and cognitive performance.

Proposed Conceptual Framework

Below, Figure 1 illustrates the conceptual framework utilized in this study.

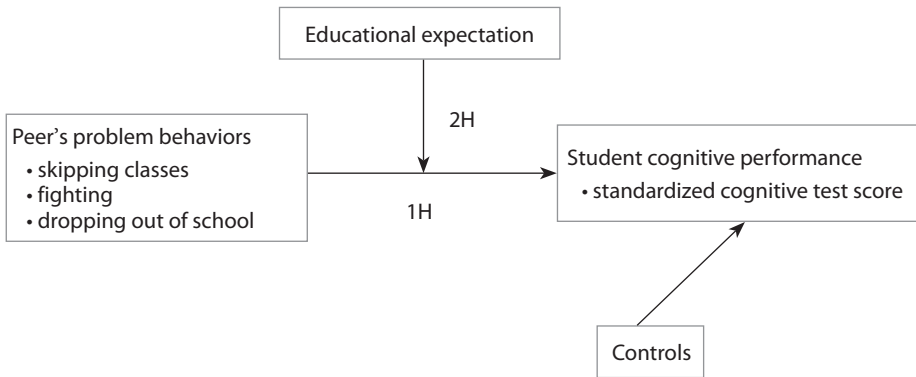


Figure 1. Proposed conceptual framework

As illustrated in Figure 1, the factors (peer problem behaviours) exerting a negative impact on student cognitive performance (measured by standardized cognitive test score) are presented on the left-hand side, and the link between peer problem behaviours and student cognitive performance is moderated adversely by students' educational expectations.

Methodology

Data collection

Secondary data analysis is a research method that involves using pre-existing data to validate previous findings and explore new or supplementary research questions identified during the literature review (Johnston, 2014). The data used in this study were obtained from the China Education Panel Survey (CEPS). The survey collected data from over 10,000 students in 112 secondary schools across China. The survey was conducted by the Renmin University of China (CEPS, 2017). The dataset contains

a wide range of information, including students' mental health and study habits. We selected relevant variables for our analysis, resulting in over 8,500 observations after excluding those with missing data from the initial 10,750 surveyed eighth-grade students.

Measurements

Table 1
The Definitions of the Variables

Name	Variable	Attribute	Definition
Panel A: Independent Variable (Peers' Problem Behaviour)			
Absent	The number of close friends of the participants who were absent from class(es)	Binary	A dummy variable represents the total number of close friends of the participants who were absent from class(es) (1= yes, 0=otherwise).
Fight	The number of close friends of the participants who were engaged in fighting with others	Binary	A dummy variable measures the total number of close friends of the participants who were engaged in fighting with others (1= yes, 0=otherwise).
Quit_School	The number of close friends of the participants who dropped out of school	Binary	A dummy variable indicates the number of close friends of the participants who dropped out of school (1= yes, 0=otherwise).
Panel B: Dependent Variable (Student Academic Performance)			
Cog_Score	Student cognitive test scores	Continuous	The standardized scores obtained by students in their cognitive tests (the maximum score of the tests is 35)
Panel C: Moderating Variable			
Expectation	Educational expectation	Binary	A dummy variable (1= College and above, 0=High school and below) represents the level of educational expectations reported by students.
Panel D: Control Variable			
Class_Size	The number of classmates	Continuous	The number of classmates
Registration_Type	The category of household registration	Binary	A dummy variable to indicate the students who reported their household registration status (1= Rural Hukou, 0= Non-rural Hukou).
Marriage	The marriage status of students' parents.	Binary	A dummy variable to indicate the marriage status of students' parents (1=married, 0=otherwise).
Class_Reallocation	Whether the student was reallocated to a different class	Binary	A dummy variable represents the status of students who were reallocated to a different class upon promotion to eighth grade (1= yes, 0=otherwise).

Once again, the primary objective of this study was to investigate the determinants of student cognitive performance. By doing so, we analysed the data by using SPSS (version 26). Consistent with this objective, as illustrated in Panel A, we utilized the count of participants' peers who were engaged in behaviours such as skipping class (*Absent*), engaging in fights (*Fight*) and dropping out of school (*Quit_School*) to serve as indicators of peers' behavioural tendencies.

Following the methodology of Li, Hu et al. (2019) and Li, Ren and Fan (2024), we used a binary coding system for our variables (e.g., educational expectation), where 1 represents 'College and above' and 0 represents 'High school and below'. In addition, according to Ceci (1994), evaluations of general cognitive ability predominantly gauge academic accomplishments or knowledge that has been assimilated. Therefore, we selected students' standardized cognitive test scores as the measurement of student academic performance.

Furthermore, as depicted in Panel C, we employed participants' educational expectations (*Expectation*) as a moderator to explore potential moderating effects. As presented in Panel D of Table 1, five control variables were incorporated. In particular, based on previous studies, three categories of control variables related to our context were chosen for this study. In line with previous studies (Jiang et al., 2021; Kang et al., 2021), the first and second categories encompass socio-demographic and family characteristic variables. These include indicators such as household registration category (*Registration_Type*) and parental marriage status (*Marriage*). The third category pertains to the attributes of social networks, as outlined by DeLay et al. (2016), encompassing variables such as the count of participants' close friends (*Friend_No*).

Regression models

In this section, the regression models adopted in this study are listed as follows.

Models 1 to 3 were used to test hypotheses 1a, 1b and 1c, respectively.

$$\text{Cog_Score} = \alpha_1 + \beta_1 \text{ Absent} + \delta_1 \text{ Expectation} + \zeta_1 \text{ Absent} + \iota_1 \text{ Controls} + \varepsilon_1 \quad (1)$$

$$\text{Cog_Score} = \alpha_1 + \beta_2 \text{ Fight} + \delta_2 \text{ Expectation} + \zeta_1 \text{ Fight} + \iota_2 \text{ Controls} + \varepsilon_2 \quad (2)$$

$$\text{Cog_Score} = \alpha_1 + \beta_3 \text{ Quit_School} + \delta_3 \text{ Expectation} + \zeta_1 \text{ Quit_School} + \iota_3 \text{ Controls} + \varepsilon_3 \quad (3)$$

Models 6 to 8 were introduced to test hypotheses 2a, 2b and 2c, respectively.

$$\text{Cog_Score} = \alpha_2 + \beta_4 \text{ Absent} + \delta_4 \text{ Expectation} + \zeta_2 \text{ Absent X Expectation} + \iota_4 \text{ Controls} + \varepsilon_4 \quad (4)$$

$$\text{Cog_Score} = \alpha_2 + \beta_5 \text{ Fight} + \delta_5 \text{ Expectation} + \zeta_1 \text{ Fight X Expectation} + \iota_5 \text{ Controls} + \varepsilon_5 \quad (5)$$

$$\text{Cog_Score} = \alpha_2 + \beta_6 \text{ Quit_School} + \delta_6 \text{ Expectation} + \zeta_1 \text{ Quit_School X Expectation} + \iota_6 \text{ Controls} + \varepsilon_6 \quad (6)$$

In the proposed models, three distinct problem behaviours displayed by the close friends of participants, namely skipping class, engaging in fights and dropping out of school, were chosen as independent variables. The dependent variable comprises the student's cognitive test performance. Additionally, the educational expectation of participants was selected as a moderating variable in Model 2.

Results

Correlation matrix

In this section, the empirical findings of the study are presented, followed by the explanations for the correlation matrix.

Table 2
Descriptive Statistics and Correlation

	Mean	S.D.	Cog_Score	Registration_Type	Class_Size	Class_Re-allocation	Marriage	Expectation	Absent	Fight	Quit_School
Cog_Score	21.07	8.97	1.00								
Registration_Type	0.53	0.50	-0.14**	1.00							
Class_Size	48.44	13.24	0.05**	-0.10**	1.00						
Class_Reallocation	0.17	0.38	-0.13**	0.22**	0.07**	1.00					
Marriage	0.92	0.28	0.01	0.04**	0.00	0.04**	1.00				
Expectation	0.79	0.41	0.31**	-0.12**	0.04**	-0.10**	0.02*	1.00			
Absent	0.11	0.31	-0.16**	0.06**	-0.02	0.07**	-0.02	-0.17**	1.00		
Fight	0.16	0.37	-0.13**	0.08**	-0.01	0.04**	-0.01	-0.18**	0.53**	1.00	
Quit_School	0.07	0.26	-0.15**	0.07**	-0.01	0.11**	-0.01	-0.16**	0.43**	0.37**	1.00

Note:** and * denote significance at the 1% and 5% levels, respectively.

Table 3 shows significant positive effects of positive factors, such as having high self-expectations, on students' cognitive ability. Conversely, when friends frequently engage in risky activities, such as fighting, skipping class and dropping out of school, it negatively impacts student cognitive performance.

Regression Statistics

This section presents the empirical results of the statistical analysis.

The moderating effects identified in Models 4, 5 and 6 are visually depicted in Figures 2, 3 and 4, respectively.

In Models 1, 2 and 3, as illustrated in Table 3, the results indicate that peer involvement in problematic behaviours, such as skipping classes, engaging in fights and dropping out, has a significant and negative impact on students' performance in cognitive abilities. Furthermore, when students' self-expectations act as a moderating variable across three peers' problematic behaviours, some specific effects are observed. Specifically, as shown in Figures 2 and 3, the green, blue and red curves illustrate the moderating effects of high, average and low levels of educational expectation, respectively. A comparison of the slopes indicates that the negative effects of fighting with others and skipping classes on students' cognitive abilities can be enhanced by high educational expectations, suggesting a positive moderating effect. Although educational expectation appears to weaken the negative relationship between quitting school and cognitive scores, the moderating effect is not statistically significant, as shown in Table 3.

Table 3
Regression Statistics

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Class_Size	0.02** (0.01)	0.02** (0.01)	0.02** (0.01)	0.02** (0.01)	0.02** (0.01)	0.02** (0.01)
Registration_Type	-1.26** (0.14)	-1.25** (0.14)	-1.26** (0.14)	-1.26** (0.14)	-1.26** (0.14)	-1.25** (0.14)
Marriage	0.09 (0.24)	0.10 (0.24)	0.09 (0.24)	0.08 (0.24)	0.09 (0.24)	0.08 (0.24)
Class_Reallocation	-0.38* (0.19)	-0.38* (0.19)	-0.34 (0.19)	-0.37* (0.19)	-0.46* (0.19)	-0.34 (0.19)
Absent	-2.16** (0.22)			-1.50** (0.36)		
Fight		-1.26** (0.18)			-0.72** (0.32)	
Quit_School			-2.44** (0.27)			-1.99** (0.42)
Expectation	4.56** (0.17)	4.64** (0.17)	4.61** (0.17)	4.70** (0.18)	4.84** (0.19)	4.70** (0.18)
Absent×Expectation				-1.04* (0.45)		
Fight×Expectation					-0.80* (0.39)	
Quit_School×Expectation						-0.76 (0.54)
Adjusted R ²	0.11	0.11	0.11	0.11	0.11	0.12
P-value	0.01	0.01	0.01	0.01	0.01	0.01
N	9,080	9,093	9,090	9,079	9,092	9,089

Note:** and * denote significance at the 1% and 5% levels, respectively.

The moderating effects identified in Models 4, 5 and 6 are visually depicted in Figures 2, 3 and 4, respectively.

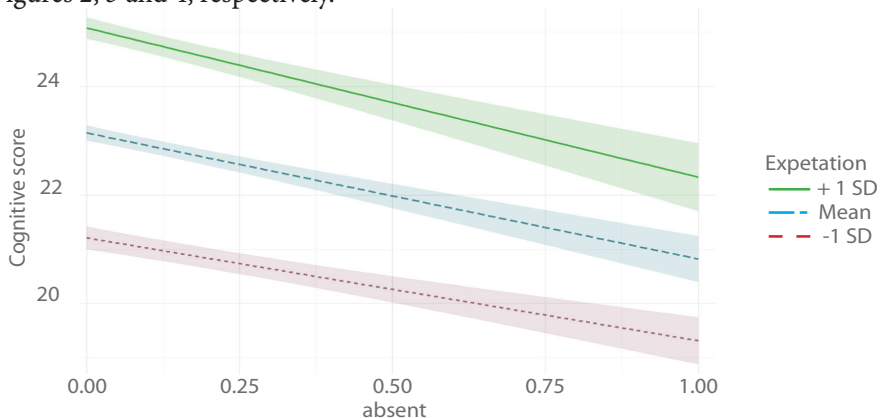


Figure 2. Moderating effect of educational expectation: absent to cognitive score

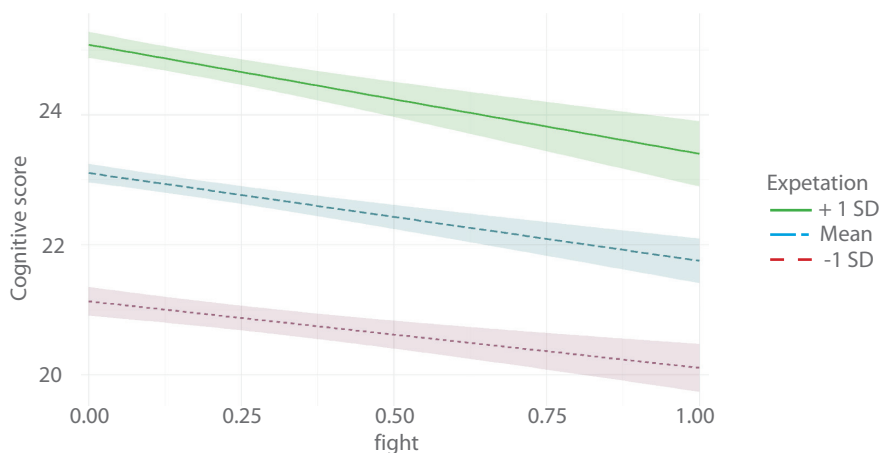


Figure 3. Moderating effect of educational expectation: fight to cognitive score

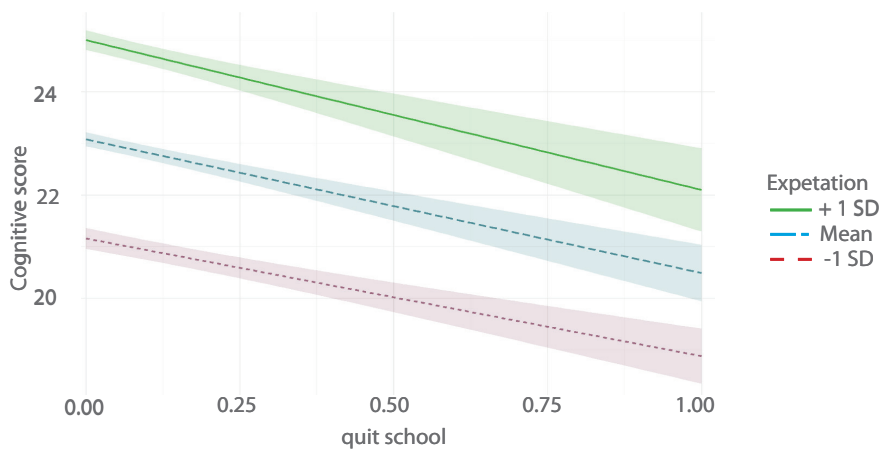


Figure 4. Moderating effect of educational expectation: quit school to cognitive score

Robustness checks

This section outlines our rigorous testing process to verify our model's robustness. Following Demir et al. (2021), we included two more control variables in our models: Nearsighted (a binary variable indicating whether the student is nearsighted: 1 for 'Yes', 0 for 'No') and Parent_Separation (a binary variable indicating whether the student's parents live together: 1 for 'Yes', 0 for 'No').

Table 4 demonstrates the robustness of the models used in this study, with the inclusion of two control variables: Nearsighted and Parent_Separation. The consistency of the independent and moderating variables validates the robustness of our analytical models, thereby reinforcing the credibility of our results.

Table 4
Robustness Checks

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Class_Size	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**
Registration_Type	(0.01) -1.06	(0.01) -1.05**	(0.01) -1.05**	(0.01) -1.05**	(0.01) -1.03**	(0.01) -1.05**
Marriage	(0.15) 0.48	(0.15) 0.48	(0.15) 0.43	(0.15) 0.51	(0.15) 0.53	(0.15) 0.44
Class_Reallocation	(0.28) 0.25**	(0.30) -0.34	(6.28) -0.22	(6.27) -0.25	(6.30) -0.33	(6.28) -0.22
Nearsighted	(0.20) 1.94**	(0.20) 1.97**	(0.20) 1.94**	(0.20) 1.94**	(0.20) 1.98**	(0.20) 1.95**
Parent_Separation	(0.14) 0.35	(0.14) 0.38	(0.14) 0.30	(0.14) 0.35	(0.14) 0.38	(0.14) 0.30
Absent	(0.30) -1.97**	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
Fight	(0.23)	-1.12**				
Quit_School		(0.19)	-2.33**			
Expectation	4.32**	4.39**	(0.28) 4.35**	4.52**	4.69**	4.43**
Absent×Expectation	(0.18)	(0.18)	(0.18)	(0.20) -1.25**	(0.20)	(0.19)
Fight×Expectation				(0.48)	-1.23**	
Quit_School×Expectation					(0.41)	0.68
Adjusted R ²	0.13	0.13	0.13	0.13	0.13	0.13
P-value	0.01	0.01	0.01	0.01	0.01	0.01
N	8,157	8,167	8,166	8,156	8,166	8,165

Note:** and * denote significance at the 1% and 5% levels, respectively.

Discussion

Peers' problem behaviours and cognitive performance

The regression analysis revealed a negative correlation between the number of close friends exhibiting problematic behaviours (such as skipping classes, dropping out of school and fighting) and students' cognitive development. Indeed, both school environment and peer influence play significant roles in students' academic performance (Korir & Kipkemboi, 2014). The quality of peer friendships and the academic progress of friends can forecast students' learning engagement and academic success (Lessard & Juvonen, 2018). Our results support the idea that students with more close friends

involved in problematic behaviours are less likely to enhance their cognitive abilities. Consistent with Espelage et al.(2013), our study also found that bullying and peer victimization are associated with lower cognitive abilities, as evidenced by academic performance. Our findings indicate a significant negative correlation between students having more close friends involved in physical altercations and their cognitive abilities. Viewed from this standpoint, should the peer group of the participants engage in acts of violence, it could conceivably result in a diminution of cognitive abilities.

Research on the impact of parental attachment on academics has also uncovered potential cultural and ethnic differences, which may be associated with the collectivist nature of the culture or the adolescent's reliance on self-discipline coping strategies (Liang & Bogat, 1994). As students transition from familial relationships towards peer interactions, the influence of peers not only on their social behaviours but also on their cognitive structures is expected to intensify, underlining the crucial role peers play in cognitive development (Brown et al., 1993). Such impacts can be construed as the effects emanating from collective entities like family and social networks. In the field of cultural studies, Western countries typically show high levels of individualism, while Asian countries like China often score higher in terms of collectivism. Individualism emphasizes competition and self-reliance, while collectivism values interdependence, family unity and cooperation (Triandis, 2018).

Numerous studies have found that general social support has a positive effect on overall academic achievement from elementary school to college (Riggio et al., 1993; Gerdes & Mallinckrodt, 1994). On the other hand, low peer acceptance or peer rejection during adolescence has been identified as a risk factor for poor school adjustment, including academic failure (Buhs & Ladd, 2001). According to Tan et al. (2021), collectivism remains a prominent feature in Chinese society, and despite the growing trend of individualistic orientation among Chinese youth, the education system still stresses the nurturing of collectivistic values in students. In simpler terms, in our context, the values, behaviours and learning outcomes of students are more susceptible to the influence of the environment they are in. In this context, it's clear that students who have more friends who drop out of school may experience a more negative impact on their own cognitive abilities. This could happen as these friends might convey certain values or attitudes that are not conducive to academic achievement or cognitive development. According to Tan et al. (2021), both collectivistic and individualistic orientations exist among Chinese youth, with collectivism being more prevalent than individualism. Consequently, students are inclined to evaluate themselves against the preferences of their peers, which influences their acquisition of social values and cognitive development (Zhao & Zhao, 2022). In summary, the findings of this study offer additional insights by revealing that increased associations with peers or close friends who are involved in physical conflicts or who drop out of school have a negative correlation with cognitive ability.

The moderating effect of personal educational expectation

According to the regression results, the negative effects of fighting with others and skipping classes on students' cognitive abilities can be enhanced (i.e., positively moderated). Conversely, the negative impact of engaging in fights on cognitive ability can be enhanced by student educational expectations. Low educational expectations or lack of encouragement for children have been identified as factors that put students at risk for poor educational outcomes (Okun et al., 1996). Our results are supported by several studies. For instance, certain studies suggest that high expectations can sometimes have adverse effects. In particular instances, the elevated expectations of others can lead to a deterioration in performance under pressure, especially when individuals are required to perform in front of spectators or possess a significant aspiration to perform competently (Beilock & Carr, 2005; DeCaro et al., 2011; Flynn & Amanatullah, 2012). Similarly, Brown and Josephs (1999) discovered that male participants performed more poorly on a mathematics examination when they were informed that the test would discern those with exceptional mathematical talent as opposed to when they were told the test would identify those with relative weakness in the subject, a result which can likely be attributed to heightened anxiety. The existing literature and our findings align with goal-setting theory, which suggests that while challenging goals can boost performance, goals perceived as unattainable may result in negative effects such as disengagement, frustration and learned helplessness (Locke & Latham, 1990).

In addition, Tan et al. (2021) suggested that collectivism continues to play a major role in Chinese society, with education aiming to promote collectivistic values among students, even though there has been a growing trend of individualistic orientation among Chinese youth. They also discovered that both collectivistic and individualistic orientations are present among Chinese youth, with collectivism being more prominent than individualism. Our findings align with this study, indicating that the adverse association between the presence of peers exhibiting problem behaviours and cognitive performance can be strengthened by the educational expectations held by students.

According to identity control theory (Peter, 1991), parental education expectations reflect evaluations of important others, while self-education expectations serve as personal standards for current social roles; incongruence between the two can lead to stress, affecting development and intrinsic motivation (Moè, 2016). To put it differently, when there's a mismatch between personal and group expectations, individuals could feel stressed as they work to meet their goals. In essence, when considering students' educational expectations (individualistic orientation) in contrast to peers' behaviour (collectivistic orientation), the latter holds more sway (signifying that students tend to be more influenced by group dynamics), which results in the limited mitigation of the negative correlation. The findings enhanced our comprehension of the significance of educational expectations, indicating that students with higher levels of such expectations experience stronger negative influences from their peers.

Conclusion

To reiterate, the primary aim of this study was to investigate the relationship between peers' problematic behaviours and students' cognitive abilities. In addition, the study delved into the potential moderating effect of students' educational expectations on this relationship. In summary, the results of this study suggest that student cognitive abilities can be negatively impacted by their peers' problematic behaviours, such as skipping classes, engaging in fights and dropping out of school. The regression results indicate that high educational expectations exacerbate the negative effects of skipping classes and dropping out of school on a student's cognitive ability. Also, these same high educational expectations can enhance the adverse impact of engaging in fights on a student's cognitive ability.

These findings are in line with some studies. For instance, investigations into performance degradation under stress have indicated that the anticipation of elevated performance by observers can induce anxiety, particularly when the individuals in question lack confidence in their ability to achieve success (Baumeister, 1985; Beckmann et al., 2013). In a similar vein, recent studies have found that individuals who are the recipients of high expectations are more prone to discontinuing their efforts when their performance is subpar, driven by the potential humiliation associated with failure (Dai et al., 2018). Based on these insights, this study makes two contributions. Firstly, by evaluating peers' behaviours, this study provides a pioneering exploration into the effects of peers who skip classes, drop out or engage in fights. Secondly, building upon Moè (2016), this study offers fresh insights by investigating the potential moderating role of students' educational expectations.

Consistent with our results, various theoretical and practical implications can be inferred. In terms of theoretical contribution, this study expanded our existing knowledge about the relationship between peers' problem behaviours and students' educational expectations, highlighting that students' academic performance can be negatively impacted by behaviours like skipping classes and conflicts among peers. Moreover, the influence of these behaviours is amplified by students' educational expectations.

Furthermore, it was found that peer influence on disruptive behaviour was lower when students perceived their teacher's instruction to be more supportive and interesting, but higher when the teacher used more ability differentiation (Müller et al., 2018). Thus, educators and school personnel are advised to offer assistance and guidance to individuals grappling with friendships involving problem behaviours. For example, implementing a buddy scheme within the school can offer students additional supportive resources for cultivating their social networks. Furthermore, education policymakers are recommended to establish informal guidelines that assist family members and educators in offering support to students in bridging expectation gaps.

However, this study is subject to certain limitations. Firstly, identity control theory (Peter, 1991) suggests that external individuals' (e.g., parental) education expectations

represent assessments of significant others, while self-education expectations function as individual benchmarks for present social roles; misalignment between the two can induce stress, influencing development and intrinsic motivation (Moè, 2016). Our study did not find evidence for the mediating role of stress and intrinsic motivation in the relationship between peers' problem behaviour and student academic performance. Future research could delve deeper into this topic by exploring the potential mediation of stress and intrinsic motivation. Secondly, the participants' ethnicity was not considered, suggesting the need for future research encompassing diverse ethnic backgrounds. Finally, the study solely utilized data from a single academic year, potentially benefitting from longitudinal data for more comprehensive insights in subsequent research.

Acknowledgment

We extend our sincere gratitude to the anonymous reviewers for their valuable insights and comments on previous versions of this paper.

This work was supported by the BNBU Start-up Research Fund [grant number: UICR0700043-23].

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Problematična ponašanja vršnjaka i kognitivni razvoj učenika: moderirajući učinak obrazovnih očekivanja

Sažetak

c vršnjaka na kognitivni razvoj učenika, uzimajući u obzir potencijalne moderirajuće učinke temeljene na obrazovnim očekivanjima učenika. Prema našem trenutnom razumijevanju, dosadašnja istraživanja su u ograničenoj mjeri ispitivala utjecaj problematičnih ponašanja vršnjaka na kognitivni razvoj te moderirajući učinak očekivanja. Kako bismo smanjili ovaj jaz, koristili smo podatke iz Kineskog panela za obrazovanje (China Education Panel Survey, CEPS) za procjenu predloženih mjera, poput broja bliskih prijatelja sudionika s problematičnim ponašanjem, primjenom linearnih regresijskih modela. Za analizu podataka korišten je SPSS (verzija 26). Rezultati upućuju na to da kognitivni razvoj učenika može biti narušen zbog problematičnih ponašanja vršnjaka, a taj utjecaj dodatno pojačavaju obrazovna očekivanja učenika. Ova studija donosi nekoliko ključnih doprinosa. Na primjer, nudi nove uvide pomoću ispitivanja načina na koji obrazovna očekivanja učenika mogu moderirati ove učinke. Na kraju studije izložene su praktične implikacije za praktičare i donositelje politika.

Ključne riječi: *Kina; kognitivna izvedba; moderirajući učinak; obrazovna očekivanja; utjecaj vršnjaka*

Uvod

Vršnjačke skupine imaju značajnu ulogu u dobrobiti i kvaliteti života djece (Matheson i sur., 2007). Dodatno, njihovu važnost u razvoju ističu znanstvenici društvenih znanosti poput Ladda (1999). Daljnju potvrdu ovih nalaza pružaju dodatni dokazi koji pokazuju da su društvene interakcije, posebno one unutar prijateljstava, povezane s pozitivnim razvojnim ishodima. Na primjer, prijateljstva osiguravaju potporna okružja za razvoj, čime se olakšava napredak socijalnoga, emocionalnoga i kognitivnoga rasta (Newcomb i Bagwell, 1996.). Tijekom adolescencije, fenomen vršnjačkoga pritiska dolazi do izražaja jer tinejdžeri teže prihvaćanju unutar svojih vršnjačkih skupina, što često rezultira usvajanjem ponašanja bez sveobuhvatnoga razumijevanja njihovih potencijalnih posljedica, bilo pozitivnih ili negativnih (Moldes i sur., 2019). Doista,

socijalno okružje tijekom adolescencije igra ključnu ulogu jer je ova faza obilježena pojačanom vršnjačkom interakcijom. Kako djeca prelaze u adolescenciju, često se više oslanjaju na svoje vršnjake nego na svoje obitelji pri donošenju odluka i formiranju moralnih vrijednosti (Uslu, 2013). Stoga je važno poticati pozitivne socijalne mreže među učenicima. Istraživanja pokazuju da se vršnjački utjecaj uvelike odražava na različite aktivnosti, uključujući individualne odluke (Boucher i sur., 2024). Taj utjecaj može dovesti do imitacije ponašanja među prijateljima, susjedima i kolegama. Vršnjaci mogu pozitivno utjecati na kognitivni razvoj putem poticajnog okružja za učenje (Gu, 2023), ali antisocijalna ponašanja mogu ometati kognitivni razvoj (Meehan i sur., 2022). Dodatno, djetetove kognitivne i jezične vještine ovise o razini sposobnosti njihovih vršnjaka u razredu, čak i kada se uzimaju u obzir drugi čimbenici poput predškolskih iskustava i obiteljskih karakteristika (Henny i Rickman, 2007). Dok je eksperimentiranje s rizičnim ponašanjima uobičajeno kod tinejdžera, istraživanja sugeriraju da oni koji se upuštaju u takva ponašanja obično pokazuju lošiju prilagodbu u usporedbi sa svojim vršnjacima koji izbjegavaju rizična ponašanja (Willoughby i sur., 2007). Doista, postojale su inicijative usmjerene na predviđanje i smanjenje rizičnih ponašanja poput zlouporabe supstanci i prerane seksualne aktivnosti među učenicima. Dodatno, ti naponi također se usredotočuju na poticanje akademskoga uspjeha među mladima (Lynskey i Hall, 2002). U skladu s ovom perspektivom, brojna znanstvena istraživanja ispitivala su utjecaj štetnih ponašanja vršnjaka na školski uspjeh. Na primjer, studija Gremmen i sur. (2018) otkrila je povezanost između akademske angažiranosti i postignuća učenika te školskoga uspjeha njihovih prijatelja, bez obzira na njihov prostorni smještaj u učionici. Slično tome, Wagner i sur. (2021) otkrili su da kompetencija vršnjaka služi kao moderator u odnosu između dječje deficitarne samoregulacije i slabijega matematičkog postignuća, iako isto nije primijećeno za postignuće u čitanju. Drugim riječima, djeca s niskom samoregulacijom do određene su mjere zaštićena visokom razinom vršnjačke kompetencije. S obzirom na oskudnost postojećih istraživanja, ključno je dalje istražiti korelaciju između kognitivnih sposobnosti učenika i problematičnih ponašanja njihovih vršnjaka.

Ukratko, ova studija nudi dva doprinosa postojećem znanju rješavajući nastale praznine u razumijevanju. Prvo, odgovara na istraživački jaz koji je naglasio Gu (2023) u vezi s nedovoljnim istraživanjem vršnjačkoga utjecaja na kognitivni razvoj. U tom kontekstu, dopunjujemo pedagošku literaturu proučavajući učinak triju inovativnih elementa (vršnjaci uključeni u izostajanje s nastave, fizičke sukobe i napuštanje školovanja) na kognitivnu sposobnost učenika. Drugo, literatura donosi mješovite zaključke o utjecaju roditeljskih očekivanja. Nalazi potvrđuju pretpostavku da su, osobito unutar kineske kulture, roditelji ključni u pomaganju djeci u razvoju subjektivnih kognitivnih sposobnosti (Phillipson i Phillipson, 2012). Slično tome, povišena roditeljska očekivanja mogla bi se potencijalno negativno odraziti na razvoj djece ako roditelji, ograničeni vlastitim negativnim samopoimanjem, ne uspiju uspostaviti obrazovno okružje i raspodijeliti resurse ključne za akademski uspjeh svoje djece. Ukratko, prethodne studije

prvenstveno su se usredotočile na ispitivanje izravnoga odnosa, s minimalnom pažnjom posvećenom moderatorskom učinku očekivanja. Stoga ovo istraživanje obogaćuje područje psihologije istražujući moderatorsku ulogu obrazovnih očekivanja učenika.

Kako bi se premostili identificirani nedostaci, formulirana su sljedeća istraživačka pitanja.

RQ1: Kakav je učinak problematičnih ponašanja vršnjaka, poput izostajanja s nastave, na kognitivne sposobnosti učenika?

RQ2: Kako utjecaj obrazovnih očekivanja učenika oblikuje vezu između problematičnih ponašanja vršnjaka i njihovih kognitivnih sposobnosti?

Pregled literature

Problematična ponašanja vršnjaka

Problematična ponašanja definiraju se kao abnormalne radnje koje ometaju socijalnu prilagodbu pojedinca (Lin i sur., 2004). Ova ponašanja obuhvaćaju kršenje društvenih normi ili neuspješnu prilagodbu društvenom životu, što dovodi do negativnih posljedica pa čak i štete za društva i zajednice (Lassi i sur., 2011.). Primjeri takvih ponašanja uključuju agresiju, kršenje školske discipline i asocijalna ponašanja. Ova ponašanja mogu štetno utjecati na mentalno zdravlje učenika i ometati njihov razvoj (Gross i sur., 2009). Problematična ponašanja razvijena tijekom djetinjstva doista se mogu manifestirati kasnije u životu kao poremećaji ličnosti, čime se povećava vjerojatnost zlouporabe supstanci i uključenosti u nezakonite aktivnosti (Narusyte i sur., 2017).

Postojeća istraživanja istraživala su potencijalni utjecaj problematičnoga ponašanja na akademski uspjeh učenika. Primjerice, pronađena je značajna negativna korelacija između semestralnoga akademskog uspjeha i različitih pokazatelja konzumacije alkohola, poput učestalosti koncentracije alkohola u dahu (BrAC) iznad 0,08, prosječnoga BrAC-a i najviše zabilježene BrAC-a vrijednosti (Thombs i sur., 2009). Slično tome, kasnija istraživanja istraživala su kako problematična ponašanja vršnjaka mogu utjecati na akademski uspjeh učenika. Na primjer, istraživanja su pokazala štetne veze između iskustva zlostavljanja kao žrtve i kognitivnoga funkcioniranja, problema u ponašanju i akademskoga postignuća (Menken i sur., 2022). Studije također sugeriraju da učenici koji se sprijatelje s vršnjacima koji imaju negativne stavove prema škol istavove prema školi obično postižu lošiji akademski uspjeh (Veronneau i sur., 2008.). Nelson i DeBacker (2008) izvijestili su o sličnim nalazima, povezujući niske kvalitete prijateljstva s neprilagođenom motivacijom za postignućem. Dodatni rizični čimbenici uključuju niski socioekonomski status, neadekvatan roditeljski nadzor, povećanu nestabilnost obitelji i slučajeve zlostavljanja (Resnick i sur., 2004).

Vršnjački utjecaj i kognitivni razvoj

Proučavanje vršnjačkih učinaka privuklo je značajnu pažnju u području obrazovanja (Billings i sur., 2014). Prema Sacerdoteu (2011), vršnjački utjecaj obuhvaća različite eksternalije u kojima pozadina, trenutačna ponašanja ili ishodi vršnjaka utječu na

ishode pojedinca. Početni smjer istraživanja istaknuo je pozitivnu korelaciju između budućih očekivanja učenika i ishoda učenja. Doista, pozitivna ponašanja vršnjaka mogu poboljšati akademski uspjeh učenika utječući na formiranje njihove kognitivne sposobnosti (Gu, 2023), emocionalnu i bihevioralnu angažiranost (Wang i sur., 2018.). Drugi pravac istraživanja bio je usredotočen na vršnjački utjecaj ispitujući karakteristike vršnjaka, obuhvaćajući čimbenike kao što su interakcija veličine skupine u domu (Osei i Gorey, 2019), kvaliteta vršnjaka (Berthelon i sur., 2019.), vršnjački odnosi u zajednicama učenja (Brouwer i sur., 2022), fizičko blagostanje (Huang, Lu i Zhu, 2021.) te udio vršnjaka koji su jedino dijete u obitelji (Cai i sur., 2022). Ti su utjecaji također očitii dugoročno (Lépine i Estevan, 2021).

Vršnjaci također mogu negativno utjecati na učenike kroz problematična ponašanja. Kim i sur. (2023) primijetili su da su se razine anksioznosti kod djece u matematici tijekom akademskog semestra obično podudarale s onima njihovih vršnjaka, ali nisu se formirale nove vršnjačke skupine na temelju te anksioznosti. Slično, Sun i Sun (2021) otkrili su da je korištenje videoigara kod adolescenata povezano s izravnim i neizravnim utjecajima na njihovo agresivno ponašanje, pri čemu je neizravni učinak bio pod utjecajem njihove percepcije vršnjačkih normi vezanih uz igranje i agresiju. Negativni utjecaji također mogu proizaći od učenika koji nisu iz lokalnoga okružja (Hu, 2018) i viktimizacije od strane vršnjaka (Fite i sur., 2014). Ukratko, vršnjački utjecaj je značajno povezan s ishodima učenja, a učinci mogu biti pozitivni i negativni.

Očekivanja i kognitivni razvoj

Uz spomenute studije, postojeća istraživanja također su ispitivala utjecaj osobnih očekivanja na akademski uspjeh učenika. Nadalje, sugerirano je da se intervencijom u fakultetska i fatalistička očekivanja učenika koji su iskusili nedaće može smanjiti vjerojatnost njihova sudjelovanja u nasilnom ponašanju (Brumley i sur., 2017). Doista, pozitivna očekivanja od vanjskih pojedinaca povezana su s ishodima učenja učenika. Na primjer, Rubie-Davies i sur. (2006) otkrili su da su učitelji općenito imali viša očekivanja vezanim uz čitanje učenika od stvarno postignutoga, s iznimkom maorskih učenika, koji su pokazali najmanji napredak do kraja godine. Sličan se učinak može primijetiti i u odnosu na roditeljska očekivanja. Konkretno, utvrđeno je da roditeljska očekivanja imaju pozitivnu korelaciju s povoljnim školskim ishodima, pri čemu roditeljska očekivanja imaju utjecajniiji učinak od obrazovne razine roditelja i prihoda kućanstva (Froiland i Davison, 2014). Sličan je odnos primijećen i u kontekstu imigrantskih obitelji. Na primjer, Areepattamannil i Lee (2014) otkrili su da su nade i težnje roditelja imigranata za obrazovnim postignućima njihove djece bile pozitivno povezane s akademskim uspjehom djece imigrantskoga podrijetla. U suštini, ovaj korpus istraživanja identificirao je pozitivnu korelaciju između vanjskih očekivanja i akademskoga uspjeha te ističe ključnu ulogu pozitivnih očekivanja od učitelja i roditelja u poticanju akademskoga uspjeha učenika.

Razvoj hipoteze i predloženi konceptualni okvir *Problematično ponašanje vršnjaka i kognitivne sposobnosti*

Prethodna istraživanja ispitivala su načine na koje vršnjaci mogu utjecati na kognitivni razvoj učenika. Općenito, učenici koji uče s inteligentnijim vršnjacima obično razvijaju više sposobnosti (Gu, 2024). Pozitivno okruženje za učenje ključno je za kognitivni rast učenika, dok druženje s vršnjacima koji pokazuju loše ponašanje može negativno utjecati na njihov kognitivni razvoj (Gu, 2024). Slično tome, vršnjaci mogu motivirati i usmjeravati učenika prema akademskom uspjehu (You, 2011). Dodatno, vršnjaci mogu utjecati na donošenje odluka adolescenata zbog promjena u sustavu nagrađivanja njihovoga mozga tijekom adolescencije, u odnosu na razvoj kognitivne kontrole, stvarajući složenu međuigru (Albert i sur., 2013). Ukratko, kroz dijalog, suradnju, igru i rješavanje sukoba s vršnjacima, djeca stječu nova znanja i vještine, i dok je uloga odraslih u kognitivnom razvoju ključna, učenje proizašlo iz interakcija s vršnjacima, kao potencijalni izvor znanja i vještina, često je zanemaren, a može biti jednako poticajno.

U zasebnoj studiji istraživalo se kako problematično ponašanje vršnjaka može utjecati na kognitivni razvoj učenika. Balsa i sur. (2016.) naveli su da roditeljski utjecaj ostaje koristan za učenike, potičući i akademski rast i opće zadovoljstvo životom. Međutim, roditelji imaju značajniji utjecaj na manje uočljive ishode koje procjenjuju vršnjaci, poput životnoga zadovoljstva, dok je njihov utjecaj na ishode učenja pod utjecajem vršnjaka, poput akademskoga uspjeha, primjetno manji od utjecaja samih vršnjaka. Balsa i sur. (2015.) otkrili su skroman, ali statistički značajan utjecaj vršnjaka na školski uspjeh (koji odražava kognitivne sposobnosti), uključenost u krađe ili tučnjave, samozadovoljstvo (pokazatelje nekognitivnih sposobnosti) i pojavu simptoma depresije. Goller i sur. (2023.) otkrili su da učenici koji su odustali i ponovno se upisali na isti predmet, imali negativne učinke na akademski uspjeh svojih novih vršnjaka, dok su postojali pozitivni učinci učenika koji su odustali, no koji su nastavili ali uz promjenu predmeta. Na sličan način, Lee (2022.) potvrđuje da je vršnjačka diskriminacija prema učenicima migrantima negativno povezana s njihovim akademskim uspjehom. Ukratko, gore navedene studije pokazuju da ponašanja vršnjaka igraju ključnu ulogu u oblikovanju akademskoga uspjeha učenika. Pozitivna ponašanja usmjerena su na poboljšanje akademskih ishoda, dok problematična ponašanja imaju štetan utjecaj na ukupni uspjeh. U našem kontekstu, negativna ponašanja vršnjaka (izostajanje s nastave, tučnjave, napuštanje škole) imaju negativan utjecaj na akademske ishode učenika. Na temelju gornjih rasprava, formuliramo sljedeće hipoteze :

Prva hipoteza (1H):: Postoji negativna veza između broja vršnjaka s problematičnim ponašanjima i kognitivnoga razvoja učenika.

Prva hipoteza (1Ha): Postoji negativna korelacija između broja vršnjaka koji izostaju s nastave i kognitivnih sposobnosti učenika.

Prva hipoteza (1Hb): Postoji negativna povezanost između broja vršnjaka koji se svađaju s drugima i kognitivnih sposobnosti učenika.

Prva hipoteza (1Hc): Broj vršnjaka koji napuštaju školu negativno utječe na kognitivne sposobnosti učenika.

Moderacijski učinak obrazovnih očekivanja

Oslanjajući se na postojeću literaturu, značajan dio znanstvenih istraživanja opsežno je istraživao kako psihološki čimbenici učenika moderiraju obrazovne ishode učenika. Villavicencio i Bernardo (2013) otkrili su da iskustvo uživanja i ponosa ima moderatorsku ulogu u pozitivnom odnosu između samoregulacije i akademskoga postignuća. Nadalje, unutarnja motivacija ima pozitivan moderatorski učinak u odnosu između pohađanja nastave i poduzetničkih namjera i načina razmišljanja (Sun i sur., 2023). Zhang i Wang (2023) otkrili su da osobne karakteristike učenika moderiraju odnos između motivacije za učenje engleskoga jezika i akademskoga uspjeha.¹ Konkretno, sklonost suradnji i podršci jača pozitivan utjecaj motivacije za učenje engleskog jezika na akademsko postignuće, a otvorenost ima još veću moderacijsku ulogu u tom odnosu. Međutim, neuroticizam ne moderira ovu povezanost. Doista, psihološki čimbenici učenika igraju ključnu ulogu u oblikovanju ishoda učenja.²

Prema našim saznanjima, drugo područje istraživanja usredotočilo se na istraživanje kako samoočekivanja mogu neutralizirati utjecaje problematičnih ponašanja i potencijalnih rizika. Na primjer, u studiji Changa (2002) otkriveno je da je optimizam imao moderatorski učinak na povezanost između percipiranoga stresa i psiholoških simptoma, što ukazuje na to da su pojedinci s višom razinom optimizma pokazivali manje simptoma u uvjetima visokoga stresa u usporedbi s onima s nižom razinom optimizma. Isto tako, otkriveno je da obrazovna očekivanja adolescenata i veze s devijantnim vršnjacima posreduju u odnosu između roditeljskih obrazovnih očekivanja i problematičnih ponašanja, pri čemu i roditeljska i adolescentna samoobrazovna očekivanja djeluju kao zaštitni čimbenici protiv problematičnih ponašanja (Ouyang, Ouyang i Xu 2023). McDade i sur. (2011) utvrdili su da su studenti s višim očekivanjima za pohađanje visokoga obrazovanja vjerojatnije redovito vježbali i manje pušili u ranoj odrasloj dobi. Harris i sur. (2002) otkrili su da su studenti s nižim očekivanjima za diplomiranje na fakultetu skloniji rizičnim ponašanjima. Čini se da očekivanja mogu povećati anksioznosti tijekom završnih ispita (Burns, 2004), povećati pozitivne učinke roditeljske podrške (Gerard i Booth, 2015.) te ublažiti negativni utjecaj učiteljskih očekivanja vezanih uz akademski uspjeh učenika (Benner i Mistry, 2007). Sličan se utjecaj može primijetiti i dugoročno unutar osobnoga razvoja učenika (Harris i sur., 2002).

Primjenjujući ovo na naš kontekst, može se vidjeti da studenti s višim samoočekivanjima doživljavaju manje negativnih posljedica utjecaja problematičnih ponašanja. Na temelju gornjih rasprava, razvija se sljedeća hipoteza:

Druga hipoteza (2H): Obrazovna očekivanja negativno moderiraju, tj. ublažavaju negativan odnos između problematičnih ponašanja vršnjaka i akademskoga uspjeha.

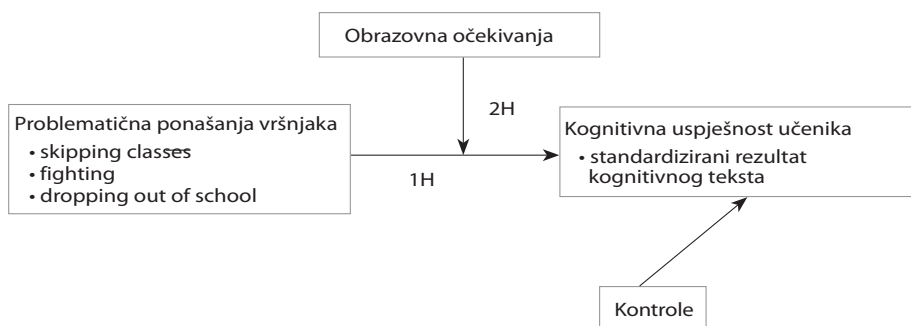
Druga hipoteza (2Ha): Obrazovna očekivanja negativno moderiraju negativan odnos između vršnjaka koji izostaju s nastave i rezultata kognitivnoga razvoja.

Druga hipoteza (2Hb): Obrazovna očekivanja negativno moderiraju negativan odnos između vršnjaka koji se svađaju s drugima i kognitivnoga uspjeha.

Druga hipoteza (2Hc): Obrazovna očekivanja negativno moderiraju negativan odnos između vršnjaka koji napuštaju školu i kognitivnoga uspjeha.

Predloženi konceptualni okvir

Slika 1. u nastavku prikazuje konceptualni okvir korišten u ovoj studiji.



Slika 1. Predloženi konceptualni okvir

Kao što je prikazano na Slici 1, faktori (problematična ponašanja vršnjaka) koji negativno utječu na kognitivne sposobnosti učenika (mjereno standardiziranim testom kognitivnih sposobnosti) prikazani su na lijevoj strani, a veza između problematičnih ponašanja vršnjaka i kognitivnih sposobnosti učenika nepovoljno je moderirana obrazovnim očekivanjima učenika, što je vidljivo na desnoj strani.

Metodologija

Prikupljanje podataka

Sekundarna analiza podataka je istraživačka metoda koja podrazumijeva korištenje već postojećih podataka za potvrđivanje prijašnjih nalaza te istraživanje novih ili dopunskih istraživačkih pitanja identificiranih tijekom pregleda literature (Johnston, 2014). Podatci korišteni u ovoj studiji dobiveni su iz Kineskog panela za obrazovanje (CEPS). Istraživanje je prikupilo podatke više od 10000 učenika u 112 srednjih škola diljem Kine. Istraživanje je proveo Renmin University of China (CEPS, 2017). Skup podataka sadrži širok raspon informacija, uključujući mentalno zdravlje učenika i njihove navike učenja. Za našu analizu odabrali smo relevantne varijable, što je rezultiralo s preko 8500 promatranja nakon isključivanja onih s nedostajućim podatcima iz početnih 10 750 anketiranih učenika osmoga razreda.

Mjerenja

Cilj ove studije je istražiti determinante studentske kognitivne uspješnosti. U tu svrhu analizirali smo podatke koristeći SPSS (verzija 26). U skladu s tim ciljem, kao što je prikazano u A dijelu tablice, koristimo broj vršnjaka sudionika koji su bili uključeni u ponašanja poput izostajanja s nastave (Absent), sudjelovanja u tučnjavama (Fight) i napuštanja škole (Quit_School) kao indikatore bihevioralnih tendencija vršnjaka.

Slijedeći metodologiju Lija, Hua, Gea i Audena (2019) te (Li, Ren i Fan, 2024), koristili smo binarni sustav kodiranja za naše varijable (npr. obrazovna očekivanja), pri čemu 1

Tablica 1
 Određenje varijabli

Naziv varijable	Varijabla	Atribut	Definicija
A. Neovisna varijabla (Problematično ponašanje vršnjaka)			
Odsutnost	Broj bliskih prijatelja sudionika koji su izostajali s nastave	Binarna	Indikatorska varijabla predstavlja ukupan broj bliskih prijatelja sudionika koji su izostajali s nastave (1 = da, 0 = inače).
Tučnjava	Broj bliskih prijatelja sudionika koji su se upuštali u tučnjave s drugima	Binarna	Indikatorska varijabla mjeri ukupan broj bliskih prijatelja sudionika koji su se upuštali u tučnjave s drugima (1 = da, 0 = inače).
Napuštanje škole	Broj bliskih prijatelja sudionika koji su napustili školu	Binarna	Indikatorska varijabla pokazuje broj bliskih prijatelja sudionika koji su napustili školu (1 = da, 0 = inače).
B. Zavisna varijabla (akademski uspjeh učenika)			
Kognitivni rezultat	Rezultati kognitivnoga testa učenika	Kontinuirano	Standardizirani rezultati koje su učenici postigli na svojim kognitivnim testovima (maksimalni rezultat testova je 35)
C. Moderirajuća varijabla			
Očekivanje	Obrazovna očekivanja	Binarna	Anonimna varijabla (1 = fakultet i više, 0 = srednja škola i niže) predstavlja razinu obrazovnih očekivanja koje su prijavili učenici.
D. Kontrolna varijabla			
Veličina	Broj školskih kolega	Kontinuirano	Broj školskih kolega
Status	Kategorija registracije kućanstva	Binarna	Indikatorska varijabla predstavlja status prijave kućanstva učenika (1 = ruralni, 0 = urbani).
Bračni status	Bračni status roditelja učenika.	Binarna	Anonimna varijabla koja označava bračni status roditelja učenika (1 = u braku, 0 = inače).
Razred	Je li učenik preraspoređen u drugi razred	Binarna	Indikatorska varijabla predstavlja status učenika koji su preraspoređeni u drugi razred kada su krenuli osmi razred (1 = da, 0 = inače).

predstavlja 'fakultet i više', a 0 predstavlja 'srednja škola i niže'. Dodatno, prema Ceciju (1994), procjene opće kognitivne sposobnosti pretežno mjere akademska postignuća ili usvojeno znanje. Stoga smo odabrali standardizirane rezultate kognitivnoga testa učenika kao mjeru studentske akademske uspješnosti.

Nadalje, kao što je prikazano u tablici 1. pod A, koristili smo obrazovna očekivanja sudionika (*Expectation*) kao moderator kako bismo istražili potencijalne moderatorske učinke. Kao što je prikazano pod D Tablice 1, uključeno je pet kontrolnih varijabli. Konkretno, na temelju prethodnih studija, za ovu su studiju odabrane tri kategorije

kontrolnih varijabli povezanih s našim kontekstom. U skladu s prethodnim studijama (Jiang i sur., 2021; Kang i sur., 2021), prva i druga kategorija obuhvaćaju sociodemografske varijable i varijable obiteljskih karakteristika. To uključuje indikatore kao što su kategorija registracije kućanstva (*Registration_Type*) i bračni status roditelja (*Marriage*). Treća kategorija odnosi se na obilježja društvenih mreža, kako su ih opisali DeLay i sur. (2016), obuhvaćajući varijable kao što je broj bliskih prijatelja sudionika (*Friend_No*).

Regresijski modeli

U ovom su odjeljku navedeni regresijski modeli usvojeni u ovoj studiji.

Modeli od 1 do 3 korišteni su za testiranje hipoteza 1a, 1b i 1c, respektivno.

$$\text{Cog_Score} = \alpha_1 + \beta_1 \text{Absent} + \delta_1 \text{Expectation} + \zeta_1 \text{Absent} + \iota_1 \text{Controls} + \varepsilon_1 \quad (1)$$

$$\text{Cog_Score} = \alpha_1 + \beta_2 \text{Fight} + \delta_2 \text{Expectation} + \zeta_1 \text{Fight} + \iota_2 \text{Controls} + \varepsilon_2 \quad (2)$$

$$\text{Cog_Score} = \alpha_1 + \beta_3 \text{Quit_School} + \delta_3 \text{Expectation} + \zeta_1 \text{Quit_School} + \iota_3 \text{Controls} + \varepsilon_3 \quad (3)$$

Modeli od 6 do 8 uvedeni su radi testiranja hipoteza 2a, 2b i 2c, respektivno.

$$\text{Cog_Score} = \alpha_2 + \beta_4 \text{Absent} + \delta_4 \text{Expectation} + \zeta_2 \text{Absent} \times \text{Expectation} + \iota_4 \text{Controls} + \varepsilon_4 \quad (4)$$

$$\text{Cog_Score} = \alpha_2 + \beta_5 \text{Fight} + \delta_5 \text{Expectation} + \zeta_1 \text{Fight} \times \text{Expectation} + \iota_5 \text{Controls} + \varepsilon_5 \quad (5)$$

$$\text{Cog_Score} = \alpha_2 + \beta_6 \text{Quit_School} + \delta_6 \text{Expectation} + \zeta_1 \text{Quit_School} \times \text{Expectation} + \iota_6 \text{Controls} + \varepsilon_6 \quad (6)$$

U predloženim modelima, tri različita problematična ponašanja bliskih prijatelja sudionika – izostajanje s nastave, sudjelovanje u tučnjavama i napuštanje škole – odabrana su kao nezavisne varijable. Zavisna varijabla je kognitivna uspješnost učenika na testu. Nadalje, obrazovna očekivanja sudionika odabrana su kao moderirajuća varijabla u Modelu 2.

Rezultati

Korelacijska matrica

U ovom su dijelu prikazani empirijski nalazi studije, nakon čega slijede objašnjenja korelacijske matrice.

Tablica 2.

Tablica 3 prikazuje značajne pozitivne učinke pozitivnih čimbenika, poput visokih samoočekivanja, na kognitivne sposobnosti učenika. Suprotno tome, kada se prijatelji često upuštaju u rizične aktivnosti, kao što su tučnjave, izostajanje s nastave i napuštanje škole, to negativno utječe na kognitivne sposobnosti učenika.

Regresijska statistika

Ovaj dio prikazuje empirijske rezultate statističke analize.

Tablica 3.

Moderirajući učinci identificirani u modelima 4, 5 i 6 vizualno su prikazani na slikama 2, 3 i 4, respektivno.

Slika 2

Slika 3

Slika 4

U modelima 1, 2 i 3, kao što je prikazano u Tablici 3, rezultati ukazuju na to da sudjelovanje vršnjaka u problematičnim ponašanjima – poput izostajanja s nastave, sudjelovanja u tučnjavama i napuštanja škole – ima značajan i negativan utjecaj na uspješnost učenika u kognitivnim sposobnostima. Nadalje, kada studentska samoočekivanja djeluju kao moderatorska varijabla za tri problematična ponašanja vršnjaka, uočavaju se određeni specifični učinci. Konkretno, kao što je prikazano na slikama 2 i 3, zelene, plave i crvene krivulje ilustriraju moderatorske učinke visoke, prosječne i niske razine obrazovnih očekivanja. Usporedba nagiba ukazuje na to da se negativni učinci tučnjava s drugima i izostajanja s nastave na kognitivne sposobnosti učenika mogu pojačati visokim obrazovnim očekivanjima, što sugerira pozitivan moderatorski učinak. Iako se čini da obrazovna očekivanja slabe negativan odnos između napuštanja škole i kognitivnih rezultata, moderatorski učinak nije statistički značajan, kao što je prikazano u Tablici 3.

Provjere robusnosti

Ovaj dio opisuje naš strogi postupak testiranja kako bismo provjerili robusnost našega modela. Slijedeći Demira i sur. (2021), u naše smo modele uključili još dvije kontrolne varijable: kratkovidnost (binarna varijabla koja pokazuje je li učenik kratkovidan: 1 za 'Da', 0 za 'Ne') i razdvojenost roditelja (binarna varijabla koja pokazuje žive li roditelji učenika zajedno: 1 za 'Da', 0 za 'Ne').

Tablica 4

Tablica 4 prikazuje robusnost modela korištenih u ovoj studiji, uz uključivanje dviju kontrolnih varijabli: kratkovidnosti (*Nearsighted*) i razdvojenosti roditelja (*Parent_Seperation*). Konzistentnost nezavisnih i moderatorskih varijabli potvrđuje robusnost naših analitičkih modela, čime se jača kredibilitet naših rezultata.

Rasprava

Problematična ponašanja vršnjaka i kognitivna izvedba

Regresijska analiza otkrila je negativnu korelaciju između broja bliskih prijatelja koji pokazuju problematična ponašanja (poput izostajanja s nastave, napuštanja škole i tučnjava) i kognitivnoga razvoja učenika. Doista, i školsko okruženje i vršnjački utjecaj igraju značajne uloge u akademskom uspjehu učenika (Korir i Kipkemboi, 2014). Kvaliteta vršnjačkih prijateljstava i akademski napredak prijatelja mogu predvidjeti angažiranost učenika u učenju i akademski uspjeh (Lessard i Juvonen, 2018).

Naši rezultati podupiru ideju da je manja vjerojatnost da će učenici s više bliskih prijatelja uključenih u problematična ponašanja poboljšati svoje kognitivne sposobnosti. U skladu s Espelageom i sur. (2013), naša je studija također otkrila da su zlostavljanje i

vršnjačka viktimizacija povezani s nižim kognitivnim sposobnostima, što je evidentno u akademskom uspjehu. Naši nalazi ukazuju na značajnu negativnu korelaciju između učenika koji imaju više bliskih prijatelja uključenih u fizičke sukobe i njihovih kognitivnih sposobnosti. Gledano s ovoga stajališta, ako bi se vršnjačka skupina sudionika upustila u djela nasilja, to bi moglo dovesti do smanjenja kognitivnih sposobnosti.

Istraživanja o utjecaju privrženosti roditelja na akademski uspjeh također su otkrila potencijalne kulturalne i etničke razlike, koje mogu biti povezane s oslanjanjem adolescenta na strategije rješavanja problema koje se temelje na samodisciplini (Liang i Bogat, 1994). Kako učenici prelaze iz obiteljskih odnosa prema vršnjačkim interakcijama, očekuje se da će se intenzivirati utjecaj vršnjaka ne samo na njihova socijalna ponašanja, već i na njihove kognitivne strukture, podcrtavajući ključnu ulogu koju vršnjaci imaju u kognitivnom razvoju (Brown i sur., 1993). Takvi se utjecaji mogu tumačiti kao učinci koji proizlaze iz kolektivnih entiteta poput obitelji i društvenih mreža. U području kulturoloških studija, zapadne zemlje tipično pokazuju visoku razinu individualizma, dok azijske zemlje, poput Kine, često postižu više rezultate u smislu kolektivismu. Individualizam naglašava konkurenciju i oslanjanje na sebe, dok kolektivismu cijeni međuovisnost, obiteljsko jedinstvo i suradnju (Triandis, 2018).

Brojne studije pokazale su da opća društvena podrška pozitivno utječe na cjelokupni akademski uspjeh od osnovne škole do fakulteta (Riggio, Watring i Throckmorton, 1993; Gerdes i Mallinckrodt, 1994). S druge strane, nisko prihvaćanje od strane vršnjaka ili odbacivanje od strane vršnjaka tijekom adolescencije identificirano je kao rizični čimbenik za lošu prilagodbu školi, uključujući i akademski neuspjeh (Buhs i Ladd, 2001). Prema Tanu i sur. (2021), kolektivismu ostaje istaknuta značajka u kineskom društvu, i unatoč rastućem trendu individualističke orijentacije među kineskom mladeži, obrazovni sustav i dalje naglašava njegovanje kolektivističkih vrijednosti kod učenika. Jednostavnije rečeno, u našem kontekstu, vrijednosti, ponašanja i ishodi učenja učenika podložniji su utjecaju okoline u kojoj se nalaze. U tom kontekstu, jasno je da studenti koji imaju više prijatelja koji napuštaju školu mogu negativno utjecati na vlastite kognitivne sposobnosti. To se može dogoditi jer ti prijatelji mogu prenositi određene vrijednosti ili stavove koji nisu pogodni za akademsko postignuće ili kognitivni razvoj. Prema Tanu i sur. (2021), među kineskom mladeži postoje i kolektivističke i individualističke orijentacije, pri čemu je kolektivismu prevladavajući. Posljedično, učenici su skloni ocjenjivati se prema preferencijama svojih vršnjaka, što utječe na njihovo usvajanje društvenih vrijednosti i kognitivni razvoj (Zhao i Zhao, 2022). Ukratko, nalazi ove studije nude dodatne uvide otkrivajući da povećana povezanost s vršnjacima ili bliskim prijateljima koji su uključeni u fizičke sukobe ili koji napuštaju školu ima negativnu korelaciju s kognitivnom sposobnošću.

Moderirajući učinak osobnih obrazovnih očekivanja

Prema rezultatima regresijske analize, negativni učinci tučnjave i izostajanja s nastave na kognitivne sposobnosti učenika mogu se pojačati, što ukazuje na pozitivnu moderaciju. Drugim riječima, studentska obrazovna očekivanja mogu pogoršati negativan utjecaj

sudjelovanja u tučnjavama na kognitivne sposobnosti. Niska obrazovna očekivanja ili nedostatak poticaja za djecu prepoznati su kao čimbenici rizika za loše obrazovne ishode (Okun i sur., 1996). Naši su rezultati potkrijepljeni brojnim studijama. Primjerice, neka istraživanja sugeriraju da visoka očekivanja ponekad mogu imati nepovoljne učinke. U određenim situacijama, povišena očekivanja drugih mogu dovesti do smanjene razine postignuća zbog pritiska, posebno kada se od pojedinaca traži da nastupaju pred publikom ili kada imaju snažnu želju za uspjehom (Beilock i Carr, 2005; DeCaro i sur., 2011; Flynn i Amanatullah, 2012). Slično tome, Brown i Josephs (1999) otkrili su da su muški sudionici lošije riješili ispit iz matematike kada im je rečeno da će test otkriti one s iznimnim matematičkim talentom, u usporedbi sa situacijom kada im je rečeno da će test identificirati one s relativnim slabostima u predmetu, što se vjerojatno može pripisati pojačanoj anksioznosti. Postojeća literatura i naši nalazi u skladu su s teorijom postavljanja ciljeva, koja sugerira da, iako izazovni ciljevi mogu pozitivno utjecati na postignuće, ciljevi koji se percipiraju kao nedostižni mogu rezultirati negativnim učincima poput otuđenja, frustracije i naučene bespomoćnosti (Locke i Latham, 1990).

Uz to, Tan i sur. (2021) sugeriraju da kolektivism i dalje igra glavnu ulogu u kineskom društvu, s obrazovanjem koje teži promicanju kolektivističkih vrijednosti među učenicima, unatoč rastućem trendu individualističke orijentacije među kineskom mladeži. Također su otkrili da su među kineskom mladeži prisutne i kolektivističke i individualističke orijentacije, pri čemu je kolektivism istaknutiji od individualizma. Naši se nalazi podudaraju s ovom studijom, ukazujući na to da negativna povezanost između prisutnosti vršnjaka s problematičnim ponašanjem i kognitivnoga učinka može biti pojačana obrazovnim očekivanjima učenika.

Prema teoriji kontrole identiteta (Peter, 1991), očekivanja roditelja u pogledu obrazovanja odražavaju procjene važnih osoba, dok samoobrazovna očekivanja služe kao osobni standardi za trenutačne društvene uloge; neusklađenost između toga dvoga može dovesti do stresa, utječući na razvoj i intrinzičnu motivaciju (Moè, 2016). Drugim riječima, kada postoji nepodudarnost između osobnih i grupnih očekivanja, pojedinci se mogu osjećati pod stresom dok pokušavaju ispuniti svoje ciljeve. U suštini, kada se uspoređuju obrazovna očekivanja učenika (individualistička orijentacija) s ponašanjem vršnjaka (kolektivistička orijentacija), potonje ima veći utjecaj (što znači da su učenici skloniji utjecaju grupne dinamike), što rezultira ograničenim ublažavanjem negativne korelacije. Nalazi su poboljšali naše razumijevanje značaja obrazovnih očekivanja, ukazujući na to da studenti s višim razinama takvih očekivanja doživljavaju snažnije negativne utjecaje svojih vršnjaka.

Zaključak

Primarni cilj ove studije bio je istražiti odnos između problematičnog ponašanja vršnjaka i kognitivnih sposobnosti učenika. Osim toga, studija se bavila potencijalnim moderatorskim učinkom obrazovnih očekivanja učenika na taj odnos. Ukratko,

rezultati ove studije sugeriraju da na kognitivne sposobnosti učenika mogu negativno utjecati problematična ponašanja njihovih vršnjaka, poput izostajanja s nastave, sudjelovanja u tučnjavama i napuštanja škole. Rezultati regresijske analize pokazuju da visoka obrazovna očekivanja pogoršavaju negativne učinke izostajanja s nastave i napuštanja škole na kognitivne sposobnosti učenika. Također, ista ta visoka obrazovna očekivanja mogu pojačati negativan utjecaj sudjelovanja u tučnjavama na kognitivne sposobnosti učenika.

Ovi su nalazi u skladu s nekim studijama. Primjerice, istraživanja o neuspjehu pod stresom pokazala su da visoka očekivanja od strane promatrača mogu izazvati anksioznost, osobito kada pojedinci nemaju povjerenja u vlastitu sposobnost postizanja uspjeha (Baumeister, 1985; Beckmann i sur., 2013). Slično tome, nedavne studije otkrile su da su pojedinci koji su predmet visokih očekivanja skloniji prekidu svojih napora kada su rezultati ispod prosjeka, potaknuti potencijalnim poniženjem povezanim s neuspjehom (Dai i sur., 2018). Na temelju navedenih spoznaja može se ustvrditi da ova studija dvojako doprinosi žarišnom polju istraživanja. Prvo, procjenom ponašanja vršnjaka ova studija pruža pionirsko istraživanje učinaka vršnjaka koji izostaju s nastave, napuštaju školu ili se upuštaju u tučnjave. Drugo, nadovezujući se na Moèa (2016), ova studija nudi svježe uvide istraživanjem potencijalne moderatorske uloge obrazovnih očekivanja učenika.

U skladu s našim rezultatima, mogu se izvući različite teorijske i praktične implikacije. U smislu teorijskoga doprinosa, ova je studija proširila naše postojeće znanje o odnosu između problematičnih ponašanja vršnjaka i obrazovnih očekivanja učenika, naglašavajući da ponašanja poput izostajanja s nastave i međuvršnjačkih sukoba mogu negativno utjecati na akademski uspjeh učenika. Štoviše, utjecaj tih ponašanja pojačan je obrazovnim očekivanjima učenika.

Nadalje, utvrđeno je da je utjecaj vršnjaka na remetilačko ponašanje bio niži kada su učenici percipirali upute svojih učitelja kao podržavajuće i zanimljivije, ali viši kada je učitelj koristio više diferencijacije sposobnosti (Müller i sur., 2018). Stoga se učiteljima i školskom osoblju savjetuje da ponude pomoć i vodstvo pojedincima koji se bore s prijateljstvima koja uključuju problematična ponašanja. Na primjer, implementacija programa *buddy scheme* unutar škole može učenicima ponuditi dodatne resurse podrške za razvijanje njihovih društvenih mreža. Nadalje, kreatorima obrazovne politike preporučuje se uspostavljanje neformalnih smjernica koje pomažu članovima obitelji i učiteljima u pružanju podrške učenicima u premošćivanju jazova u očekivanjima.

Međutim, ova studija podliježe određenim ograničenjima. Prvo, teorija kontrole identiteta (Peter, 1991) sugerira da obrazovna očekivanja vanjskih pojedinaca (npr. roditelja) predstavljaju procjene važnih osoba, dok samoobrazovna očekivanja funkcioniraju kao individualni mjerila za sadašnje društvene uloge; neusklađenost između toga dvoga može izazvati stres, utječući na razvoj i intrinzičnu motivaciju (Moè, 2016.). Naša studija nije pronašla dokaze za posredničku ulogu stresa i intrinzične motivacije u odnosu između problematičnoga ponašanja vršnjaka i akademskoga

uspjeha učenika. Buduća istraživanja mogla bi dublje zaroniti u ovu temu istražujući potencijalno posredovanje stresa i intrinzične motivacije. Drugo, nije uzeta u obzir etnička pripadnost sudionika, što ukazuje na potrebu za budućim istraživanjima koja obuhvaćaju različite etničke pozadine. Konačno, studija je koristila podatke samo iz jedne akademske godine, potencijalno bi imala koristi od longitudinalnih podataka za sveobuhvatnije uvide u kasnijim istraživanjima.