

In-class discussion and motivation

Shuang Liu¹, Guoming He^{2}*

¹College of Comparative Law, China University of Political Science and Law, Beijing, China

²Ap&AI Program, Alcanta International College, Guangzhou, China

*Corresponding Author. Email: heguoming2026@163.com

Abstract. In this work, we investigate the relationship between in-class group discussions and high school students' learning motivation in Mainland China. Based on the framework of the Motivated Strategies for Learning Questionnaire (MSLQ), the study surveyed students from various types of high schools to explore how classroom discussion frequency, structure, and perception relate to different motivational components. The analysis examines both intrinsic and extrinsic factors of motivation, as well as emotional aspects such as examination anxiety. The findings suggest complex interactions between classroom participation and students' motivational responses, revealing how discussion-based learning may shape students' engagement, interest, and emotional experiences in different educational settings.

Keywords: in-class discussion, learning motivation, MSLQ, high school education, China

1. Introduction

In-class discussion has become a common instructional approach in Chinese education and is frequently used in high school settings. However, whether such in-class group discussions exert a significant influence on students' learning motivation, and to what extent, remains a question, especially given the diversity of educational systems, curricula, and pedagogical models across different types of high schools in China.

In-class group work is an instructional approach that offers learners more opportunities to practise and enhances their overall learning performance, which involves students working together in small groups during class time to achieve shared learning goals [1-3]. This study examines in-class group discussions in Mainland China, within the context of the new curriculum reform and the promotion of quality education. As such discussions become increasingly common in high school teaching, it is essential to investigate their potential impact on students' learning motivation. Another important concept is motivation. From an educational perspective, it refers to students' willingness, desire, and persistence in engaging with learning tasks [4].

According to the Motivated Strategies for Learning Questionnaire Manual (hereinafter referred to as MSLQ), motivation is divided into three broad components: Value Component, Expectancy Component and Affective Component. Value Component addresses students' goals and beliefs about the importance and interest of a task, including constructs such as inherent interest, extrinsic goal orientation, and task value. Expectancy Component focuses on students' beliefs about their ability to perform a task. Affective Component concerns students' emotional reactions to tasks, particularly test anxiety; the term examination is used in this study, which encompasses both worry and emotionality aspects [5]. Elements such as classroom interaction,

assessment methods, and teacher attitudes are widely regarded as important factors shaping learning motivation.

Current research indicates that much of the evidence linking classroom environments and student motivation relies on survey data, leaving a need for more context-rich accounts of how motivation develops in authentic settings [6]. Studies comparing Collaborative Reasoning (peer-led small-group discussions) with teacher-led whole-class discussions show that the former can enhance both immediate engagement and long-term emotional investment in learning [7]. Similar patterns emerge in online contexts, where higher intrinsic motivation predicts greater participation and more substantive contributions [8]. Based on these conclusions, this study aims to further examine whether in-class group work influences or is related to students' motivation. To address this research question, this study utilizes an online questionnaire based on MSLQ to investigate high school students' participation in classroom discussions, their subjective experiences, and the potential impact of such in-class group discussions on their learning motivation, with the aim of exploring possible variations across educational contexts. The MSLQ [9] assesses motivation was originally designed for university students, but it has since been widely adapted for use with secondary school students, high school students and adult learners. Researchers commonly modify the questionnaire to suit their sample and as a result, many studies have used shortened or abridged versions of the MSLQ for greater feasibility [5, 10]. Since the MSLQ is both authoritative and well-founded, with a clear and easy-to-understand format, it serves as the foundational model for this research questionnaire.

2. Method

The questionnaire titled "Class Experience Survey" was designed based on MSLQ. The original MSLQ consists of a full version with 81 items, divided into two modules: the Motivation module and the Strategy module. This questionnaire retains most of the items related to the Motivation part. Consistent with the format of the MSLQ, this questionnaire uses a Likert five-point scale, where 1 represents "strongly disagree" and 5 represents "strongly agree" [5].

Our study contains a total of 48 questions, which are separated into 3 parts/sections. Section 1 is demographics and basic information, including age, gender, nationality, school type, and intended final school destination (Chinese College Entrance Exam, AP, IB, A-Level, SAT/ACT, OSSD and others) (Q1-Q5). Section 2 is objective, the amount of class time spent on student discussions, personal feelings and attitudes towards in-class groupwork (Q6-17). Section 3 is motivation questions from MSLQ.

Section 2 focused on classroom discussion experience (Q6-Q7): for example, whether the respondent's classes regularly incorporate group discussions during class time. Question 6 is whether have classroom discussions in the course, Question 7 is opportunities to share personal ideas during group discussions. Question 8 is the name of the course currently taken that has the highest frequency of classroom group discussions. This question narrows the focus to the course with the most frequent in-class discussions, and the subsequent questions on learning motivation are based on this course, allowing for an analysis of the relationship between in-class group discussion and student motivation. Question 9 is about the approximate proportion of class time devoted to student-led group discussions. The options are divided into 20% intervals: 0-20%, 21-40%, 41-60%, 61-80%, 81-100%. Question 10 is about students' subjective perception of the frequency of group discussions in the course, and whether they feel the discussions are too frequent. Q11 to Q17 focus on students' feelings and attitudes toward participation in group discussions, measuring the following dimensions: perceived impact on content engagement (Q11), influence on learning motivation (Q12), effect of exposure to diverse viewpoints (Q13), enjoyment of participation (Q14), anxiety experienced

during participation (Q15), concern about being laughed at for mistakes (Q16), and concern about being perceived as showing off (Q17).

Section 3 addressed the assessment of motivation (Q18-Q48). For the Inherent interest part (Q18, 33, 39), the item "The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible" was removed due to conceptual redundancy with existing task value items, such as those assessing the importance of understanding course content. For the examination anxiety section (Q25, Q31, Q36, Q46), most of the original items were retained with minor adjustments to fit the study context. One item from the original MSLQ, "When I take a test, I think about items on other parts of the test I can't answer," was not included in the final version of the questionnaire. This item overlaps significantly in content with another retained item, "When I take a test, I think about items on other parts of the test I can't answer," as both aim to capture negative cognitive reactions triggered by the inability to answer certain examination questions. Removing one of the duplicates helped shorten the questionnaire, reduce respondents' cognitive load, and maintain the reliability of the scale. Question 25 describes the cognitive interference or examination-irrelevant thinking side of examination anxiety. It's about when one's mind drifts away from the question one is working on and focuses on other questions one can't answer, which can break one's concentration and make it harder to perform well. Question 31 measures the worry component of cognitive test anxiety. It reflects a focus on the potential negative outcomes of poor performance, such as disappointment, academic penalties, or damage to self-image. Question 36 measures the emotionality component of examination anxiety. It reflects the emotional or affective responses that arise in contaminating situations, such as nervousness, discomfort, or distress. Unlike the worry or cognitive interference dimensions, which focus on thoughts and mental distractions, emotionality captures the subjective feeling of tension and unease that can accompany the exterminating experience.

Question 46 looks at the physical reactions people have when they're anxious in an examination situation. It's about noticing changes in one's body, like a racing heartbeat, faster breathing, or muscle tension, that come from feeling stressed. This question isn't about one's thoughts or emotions, but about how one's body responds under pressure, which is part of the physiological side of examination anxiety.

2.1. Sample

The participants in this study were senior high school students from across mainland China, encompassing both those preparing for the National College Entrance Examination (Gaokao) and those enrolled in international curricula such as the IB, A-Level, and AP. High school students were selected as the target population.

2.2. Procedure

The online questionnaire was distributed and collected over a five-day period via both online and offline methods. After the survey was created on Wenjuanxing, an online response link and a QR code image were generated. These were shared via WeChat Moments, and high school teachers and teaching assistants were approached to help distribute the questionnaire to their students. Offline promotion was also carried out on campus by directly inviting high school students encountered in person to complete the survey.

2.3. Data analysis

The data exported from the Wenjuanxing platform were organized and processed using a data analysis system, and T-tests as well as correlation analyses were conducted to explore the relationships between in-class group discussion and various variables.

In the present study, Spearman's rank-order correlation coefficient (Spearman's rho) was used to examine the relationships between students' in-class discussion experiences and various components of learning motivation. This method was chosen for several reasons. First, the questionnaire responses, particularly those derived from the modified MSLQ motivation items, were based on a 5-point Likert scale, which produces ordinal data. Since Likert-scale responses do not guarantee equal intervals between values, Spearman's correlation is more appropriate than Pearson's for this type of data [11]. Second, the assumption of normality was not formally tested, and Spearman's rho is a non-parametric method that does not require the variables to be normally distributed [12]. Lastly, Spearman's rho is well-suited for detecting monotonic relationships, which are expected in the current educational context. Therefore, using Spearman's correlation ensured both methodological rigor and compatibility with the data characteristics [13].

3. Results

A total of 121 questionnaires were collected. After screening and removing 2 invalid responses, 119 valid responses were retained. All subsequent data analyses were conducted based on these 119 valid cases. There are 49 participants who are aged 18, accounting for 41.1% of the total. This was followed by 45 respondents aged 17, making up 37.8%, and 18 respondents aged 16, comprising 15.1%. The gender distribution was relatively balanced: 64 participants were male, which made up 53.8% of the total; 50 of them are female, accounting for 42.0%; and 5 chose not to disclose their gender, representing 4.2%. Regarding school type, 71 participants were from international high schools, accounting for 59.7%; 45 were from traditional high schools, making up 37.8%; and 2 attended high schools in the United States, representing 1.7%. As for final school assessments, 46 participants took AP exams, accounting for 38.7%; 37 took the Chinese National College Entrance Examination (Gaokao), comprising 31.0%; and 25 took A-Level exams, representing 21.0%. English was identified as the course with the most frequent in-class discussions, reported by 27 students, while Mathematics and Physics were each reported by 10 students.

4. For the perceived relevance

4.1. Correlations between inherent interest and personal feelings (Q18, 33, 39)

According to Table 1, critical thinking challenge was a statistically significant moderate positive correlation with positive feelings about the class, indicating that students who enjoy intellectually engaging content tend to feel more positively toward the course. (Spearman's $\rho = .396, p < .001$).

According to Table 1, curiosity-driven material was a statistically significant weak to moderate positive correlation with positive feelings about the class, suggesting that such preferences are linked to more favorable student experiences. (Spearman's $\rho = .262, p = .004$).

According to Table 1, there was a statistically significant weak positive correlation between opportunities for student expression and positive feelings about the class, suggesting that environments that encourage student voice are associated with more positive perceptions. (Spearman's $\rho = .215, p < .05$).

Table 1. Perceived relevance—inherent interest

		feeling
18. Critical thinking challenge	spearman' rho	0.396
	<i>p</i> -value	< .001
33. Curiosity-driven material	spearman' rho	0.262
	<i>p</i> -value	0.004
39. Opportunity for expression	spearman' rho	0.215
	<i>p</i> -value	0.018

Note. Significance was evaluated at $p < .05$, with $p < .01$ considered highly significant. Spearman's rank-order correlation coefficient (ρ) was used to assess associations, with values around $|0.10-0.29|$ interpreted as small, $|0.30-0.49|$ as moderate, and $\geq |0.50|$ as strong.

The above results indicate that students' positive emotional experiences in the class are significantly associated with their preference for intellectually stimulating, curiosity-driven, and expressive learning environments. Specifically, those who value critical thinking challenges ($\rho = .396, p < .001$), enjoy curiosity-arousing materials ($\rho = .262, p = .004$), and appreciate opportunities for self-expression ($\rho = .215, p = .018$) are more likely to report favorable feelings about the course. These findings highlight the importance of designing learning experiences that are interactive, thought-provoking, and student-centered to foster a more engaging and emotionally positive classroom atmosphere.

4.2. Correlation between extrinsic goal and personal feelings Q24, 28, 30, 45

According to Table 2, grade satisfaction showed a negligible and non-significant correlation with students' positive feelings toward the class (Spearman's $\rho = -.029, p = .75$).

According to Table 2, GPA improvement focus showed a weak negative and marginally non-significant correlation with students' positive feelings toward the class (Spearman's $\rho = -.166, p = .069$).

According to Table 2, Competitive grade orientation showed a weak and non-significant positive correlation with students' positive feelings toward the class (Spearman's $\rho = .087, p = .343$).

According to Table 2, external ability demonstration showed a statistically significant weak positive correlation with students' positive feelings toward the class (Spearman's $\rho = .224, p = .013$).

Table 2. Perceived relevance—extrinsic goal

		feeling
24. Grade satisfaction	spearman' rho	-0.029
	<i>p</i> -value	0.75
28. GPA improvement focus	spearman' rho	-0.166
	<i>p</i> -value	0.069
30. Competitive grade orientation	spearman' rho	0.087
	<i>p</i> -value	0.343
45. External ability demonstration	spearman' rho	0.224
	<i>p</i> -value	0.013

Note. Significance was evaluated at $p < .05$, with $p < .01$ considered highly significant. Spearman's rank-order correlation coefficient (ρ) was used to assess associations, with values around $|0.10-0.29|$ interpreted as small, $|0.30-0.49|$ as moderate, and $\geq |0.50|$ as strong.

To conclude, the findings suggest that most forms of extrinsic motivation, such as seeking satisfaction from grades ($\rho = -.029, p = .75$), focusing on GPA improvement ($\rho = -.166, p = .069$), and striving to outperform peers ($\rho = .087, p = .343$), were not significantly associated with students' positive emotional experiences in the class. The only exception was external ability demonstration ($\rho = .224, p = .013$), which showed a statistically significant but weak positive relationship. This indicates that while achievement-oriented goals tied to grades or competition do not meaningfully enhance positive feelings, the desire to prove one's competence to others may have a modest, positive influence on students' classroom emotions.

4.3. Correlation between task value and personal feelings Q21, 27, 34, 40, 43, 44

For Q21, there was a statistically significant moderate positive correlation between students' perception of the usefulness of the course and their positive emotional responses (Spearman's $\rho = .301, p < .001$ (see Table 3)). This suggests that students who view the material as transferable tend to feel more positively about the class.

For Q27, there was a weak positive correlation between perceived importance and emotional responses, but the relationship was not statistically significant (Spearman's $\rho = .138, p = .130$ (see Table 3)). This indicates that perceiving the content as important alone may not significantly enhance positive classroom feelings.

For Q34, a statistically significant weak to moderate positive correlation was found between interest and emotional response (Spearman's $\rho = .247, p = .006$ (see Table 3)). This suggests that students who are interested in the course content are more likely to feel positively about the class.

Table 3. Perceived relevance—task value

		feeling
21. Content transferability	spearman' rho	0.301
	<i>p</i> -value	< .001
27. Perceived importance	spearman' rho	0.138
	<i>p</i> -value	0.13
34. Interest in content	spearman' rho	0.247
	<i>p</i> -value	0.006
40. Perceived value of content	spearman' rho	0.414
	<i>p</i> -value	< .001
43. Liking subject matter	spearman' rho	0.307
	<i>p</i> -value	< .001
44. Importance of understanding content	spearman' rho	0.278
	<i>p</i> -value	0.002

Note. Significance was evaluated at $p < .05$, with $p < .01$ considered highly significant. Spearman's rank-order correlation coefficient (ρ) was used to assess associations, with values around $|0.10-0.29|$ interpreted as small, $|0.30-0.49|$ as moderate, and $\geq |0.50|$ as strong.

For Q40, there was a statistically significant moderate to strong positive correlation between perceived value of course content and positive emotional experience (Spearman's $\rho = .414, p < .001$ (see Table 3)). This

shows that students who believe the content is valuable are especially likely to have favorable emotional reactions.

For Q43, a statistically significant moderate positive correlation was observed between liking the subject matter and students' emotional responses (Spearman's $\rho = .307, p < .001$ (see Table 3)). This indicates that liking the subject contributes meaningfully to students' positive feelings.

For Q44, there was a statistically significant weak to moderate positive correlation between valuing subject understanding and students' positive emotional responses (Spearman's $\rho = .278, p = .002$ (see Table 3)). This suggests that students who personally care deeply about understanding the course material tend to feel more positively about the class.

The above results indicate that students' positive feelings toward the class are most strongly associated with perceived value of content ($\rho = .414, p < .001$), followed by content transferability ($\rho = .301, p < .001$) and liking the subject matter ($\rho = 0.307, p < .001$). Other significant but slightly weaker relationships include interest in content ($\rho = 0.247, p = .006$) and importance of understanding content ($\rho = 0.278, p = .002$). In contrast, perceived importance ($\rho = .138, p = .13$) was not statistically significant, suggesting that simply thinking the content is important may not directly translate into more positive feelings, whereas perceiving the content as valuable, transferable, and enjoyable does.

5. For the examination anxiety

5.1. Correlation between class discussion proportion and examination anxiety

According to Table 4, regarding Question 9, which concerns the proportion of class time devoted to student-led group discussions, Spearman's rank-order correlation revealed a significant positive relationship with exam heart rate (Question 46), $\rho (119) = .226, p = .013$. In contrast, no statistically significant correlation was found between the proportion of class time spent on student-led group discussions and students' uneasy feelings during examinations (Question 36), $\rho (119) = .034, p = .707$.

Table 4. Correlations between objective features of in-class discussions and examination anxiety

Variables	9 (Class discussion proportion)	10 (Discussion frequency)
25 (Examination-related distraction)	$\rho = 0.031$	$\rho = 0.162$
	$p\text{-value} = 0.737$	$p\text{-value} = 0.076$
31 (Fear of failure)	$\rho = 0.110$	$\rho = 0.133$
	$p\text{-value} = 0.230$	$p\text{-value} = 0.146$
36 (Uneasiness in examinations)	$\rho = 0.034$	$\rho = 0.187^*$
	$p\text{-value} = 0.707$	$p\text{-value} = 0.040$
46 (Exam heart rate)	$\rho = 0.226^*$	$\rho = 0.223^*$
	$p\text{-value} = 0.013$	$p\text{-value} = 0.014$

Note. Significance was evaluated at $p < .05$, with $p < .01$ considered highly significant. Spearman's rank-order correlation coefficient (ρ) was used to assess associations, with values around $|0.10\text{--}0.29|$ interpreted as small, $|0.30\text{--}0.49|$ as moderate, and $\geq |0.50|$ as strong.

5.2. Correlation between discussion frequency and examination anxiety

According to Table 4, regarding Question 10, which addresses the frequency of classroom group discussions, Spearman's rank-order correlation indicated a significant positive relationship with students' reported uneasiness during examinations (Question 36), $\rho (119) = .187, p = .040$, as well as with exam heart rate (Question 46), $\rho (119) = .223, p = .014$. However, the correlations between discussion frequency and examination-related distraction (Question 25), $\rho (119) = .162, p = .076$, and between discussion frequency and fear of failure (Question 31), $\rho (119) = .133, p = .146$, were weak and not statistically significant.

5.3. Correlation between perceptions of in-class group discussion and examination anxiety

According to Table 5, regarding Questions 11-17, which measure perceptions of in-class group discussions, none of the correlations with the four test anxiety-related variables reached statistical significance. The correlation with examination-related distraction (Question 25) was negligible, $\rho (119) = .020, p = .832$; with fear of failure (Question 31), $\rho (119) = .008, p = .927$; with uneasiness during examinations (Question 36), the result approached but did not reach significance, $\rho (119) = -.167, p = .067$; and with exam heart rate (Question 46), $\rho (119) = -.068, p = .460$. These results indicate that students' emotional attitudes toward in-class group discussions were not significantly associated with any of the measured aspects of examination anxiety.

Table 5. Correlations between students' perceptions of in-class group discussions and examination anxiety

Variables	11-17 Average score (Perceptions of in-class group discussion)
25 (Examination-related distraction)	$\rho = 0.020$ $p\text{-value} = 0.832$
31 (Fear of failure)	$\rho = 0.008$ $p\text{-value} = 0.927$
36 (Uneasiness in examinations)	$\rho = -0.167$ $p\text{-value} = 0.067$
46 (Exam heart rate)	$\rho = -0.068$ $p\text{-value} = 0.460$

Note. Significance was evaluated at $p < .05$, with $p < .01$ considered highly significant. Spearman's rank-order correlation coefficient (ρ) was used to assess associations, with values around $|0.10-0.29|$ interpreted as small, $|0.30-0.49|$ as moderate, and $\geq |0.50|$ as strong.

6. Discussion

The data suggested that classroom discussion and motivation have pretty complex interactions. For the value part, the analysis reveals that students' positive emotional responses toward a course are most strongly associated with inherent interest and task value components, while extrinsic goals show little to no predictive power. Specifically, students who are intellectually stimulated by the content, curious about the material, or who appreciate opportunities for self-expression, report significantly more positive feelings about the class. Likewise, students who find the course content valuable, interesting, or applicable to future learning consistently show moderate positive correlations with their emotional experience in the course, with the strongest relationship seen for perceived content value. By contrast, extrinsic goals, such as earning good grades or outperforming peers, either show no significant correlation or weak negative trends. The only

exception is the desire to do well to gain external validation, which showed a statistically significant but weak positive correlation. For the examination anxiety, the findings indicate that different aspects of classroom group discussions were related to examination anxiety in distinct ways.

Specifically, the proportion of class time devoted to discussions was positively associated with students' physiological responses during exams but not with their uneasy feelings. By contrast, the frequency of group discussions showed positive correlations with both exam heart rate and feelings of uneasiness, while no significant associations were found with distraction or fear of failure. Finally, students' subjective perceptions of group discussions were not significantly linked to any measured dimensions of examination anxiety.

Looking across the three dimensions of inherent interest, grade-related motivations, and value perceptions, the results indicate that students' positive feelings about a class are more closely connected to the intellectual and personal meaning of the material than to outcome-focused goals like grades. For inherent interest, the findings suggest that students who enjoy being challenged, who are curious, and who feel comfortable sharing their ideas tend to respond more positively to the class. This highlights that genuine engagement comes from intellectual stimulation and opportunities for active participation, rather than simply receiving information. In contrast, grade-related motivations such as improving GPA, outperforming peers, or focusing on grades alone showed little to no meaningful relationship with positive classroom experiences. The only modest exception was students who wanted to demonstrate their ability to others, suggesting that external validation may contribute slightly, though not strongly, to positive feelings. Overall, this pattern implies that performance-driven goals can create pressure rather than fostering enjoyment. The value dimension emerged as the strongest factor shaping students' experiences. Those who perceived the material as valuable, transferable to other contexts, or personally interesting were far more likely to report positive emotions about the class. In essence, when students see both the relevance of the material and find the subject matter appealing, they are more inclined to feel satisfied and engaged.

When looking at the proportion of time spent on student-led group discussions, the data showed a small but statistically significant positive link with students' physiological anxiety during exams, measured as heart rate. Students who reported more class time spent in such discussions tended to experience slightly higher heart rates in exam situations. However, this proportion was not related to their reported feelings of uneasiness during exams. This may suggest that while more discussion time may be associated with a mild physiological stress response, it doesn't necessarily make students feel more emotionally uneasy in a conscious, self-reported way. The frequency of classroom group discussions was positively related to both emotional and physiological indicators of exam anxiety; students who reported more frequent discussions tended to feel slightly more uneasy during exams and also showed higher heart rates. However, discussion frequency did not show any meaningful relationship with two cognitive or evaluative anxiety dimensions: distraction during exams and fear of failure. It appears that frequent discussions might increase students' arousal or emotional tension leading up to exams, possibly due to perceived time limitations or comparisons of performance with peers. Students' overall emotional attitudes toward in-class group discussions showed no significant relationship with any of the four exam anxiety measures. This suggests that general feelings about group discussions, whether positive or negative, are not a strong driver of exam-related stress. The structural features of discussion (how often and how much time is spent) may matter more than students' subjective liking or disliking of the format.

These findings indicate that the role of classroom discussion differs between the exam context and the learning process. Although classroom discussion can, to some extent, help enhance students' interest and enthusiasm for learning, it does not directly alleviate exam-related anxiety. Moreover, the causes of examination anxiety are multifaceted and may not be directly related to the learning process. Therefore, attempts to reduce anxiety by increasing or enriching classroom discussions are likely to fail. When integrating

in-class group work, it is important to balance the benefits for student engagement and motivation with the potential risk of heightened uneasiness during periods of exam preparation. This finding also reflects a key issue in China's educational reform: whether the primary goal should be to enrich classroom teaching formats or to reduce students' examination pressure—two objectives that are fundamentally distinct.

The self-report nature of these data limits what can be generalized from this study; the data may be shaped by temporary moods, personality characteristics, or a tendency to give socially desirable answers. If a student did not mention a particular motivational value, belief, or goal, this does not necessarily mean that he or she would not be motivated to participate for those reasons. It is possible that the research instrument did not elicit such a response.

Furthermore, in this survey, the questionnaire specified that the motivation-related questions should apply to the course with the most classroom discussions, which may have imposed limitations related to that particular course.

7. Conclusion

This study examined the relationship between in-class group discussions and Chinese high school students' learning motivation and examination anxiety. Based on a shortened, context-adapted MSLQ questionnaire and data from 119 students across different school types and curricular tracks, Spearman's rho analyses suggest an overall trend: students' better classroom experiences tend to go together more with intrinsic and value-based motivation than with grade-centered goals. Meanwhile, the associations with examination anxiety are generally small, and they vary depending on how "discussion" is defined and measured.

In terms of motivation, students who described more positive feelings about the target course were also more likely to report stronger inherent interest—for example, enjoying challenges that require critical thinking, preferring curiosity-driven learning materials, and valuing chances to express their own views. Task value showed a similarly stable pattern. Among value-related indicators, perceived importance of the course content stood out as the strongest correlate of positive classroom feelings, followed by items such as whether the content seemed transferable to other contexts and whether students simply liked the subject matter. By contrast, most extrinsic goal orientations—such as studying mainly for grades, boosting GPA, or outperforming classmates—did not show significant links with students' positive emotional experience in class. One exception was the item about proving one's ability to others, which was significant but weak. This may indicate that social recognition plays some role in shaping classroom affect, although it does not appear to be the main source of engagement.

The results for examination anxiety were less straightforward. Some more "observable" features of discussion showed weak correlations with physiological arousal: when a larger share of class time was devoted to student-led discussion, students tended to report a slightly higher exam heart rate; perceived discussion frequency was also related to heart rate and to a small increase in exam-related uneasiness. However, discussion variables were not meaningfully associated with the cognitive side of anxiety, including distraction and fear of failure. Importantly, students' overall perceptions of in-class discussions (an index combining attitudes toward participation and feelings about discussion) were not significantly related to any anxiety dimension. Taken together, the evidence implies that discussion-based instruction may contribute to the quality of motivation—especially interest and perceived value—but it does not automatically reduce exam anxiety, and in some cases may coincide with mild increases in arousal when discussions are frequent or take up substantial class time.

These findings also matter for the ongoing reform context in Mainland China. Promoting more group discussion and student-centered classroom practices seems consistent with the aim of improving engagement and learning quality. At the same time, such pedagogical changes should not be assumed to directly relieve examination pressure. In other words, improving classroom participation and reducing exam stress are connected goals, but they are not the same goal—and they likely require different interventions at both the school and policy levels.

References

- [1] Kong, Y. (2009). A brief discussion on motivation and ways to motivate students in English language learning. *International Education Studies*, 2(2), 145–149.
- [2] Chang, Y., & Brickman, P. (2018). When group work doesn't work: Insights from students. *CBE—Life Sciences Education*, 17(3), ar15.
- [3] Kasim, U. (2015). Implementation of group work in the classroom. *Lingua*, 12(1), 97–106.
- [4] Brophy, J. (2010). *Motivating students to learn* (3rd ed.). New York: Routledge.
- [5] Pintrich, P. R., Smith, D. A. F., García, T., & McKeachie, W. J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)* (Technical Report No. 91-B-004). Ann Arbor, MI: The University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning.
- [6] Patrick, H., Anderman, L. H., Ryan, A. M., Edelin, K. C., & Midgley, C. (2001). Teachers' communication of goal orientations in four fifth-grade classrooms. *The Elementary School Journal*, 102(1), 35–58.
- [7] Wu, X., Anderson, R. C., Nguyen-Jahiel, K., & Miller, B. (2013). Enhancing motivation and engagement through collaborative discussion. *Journal of Educational Psychology*, 105(3), 622–632.
- [8] Mazzolini, M., & Maddison, S. (2005). When to jump in: The role of the instructor in online discussion forums. *Computers & Education*, 49(2), 193–213.
- [9] Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 371–402). Greenwich, CT: JAI Press.
- [10] Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(1), 33–40. <https://doi.org/10.1037/0022-0663.82.1.33>.
- [11] Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). London: SAGE Publications.
- [12] Jamieson, S. (2004). Likert scales: How to (ab)use them. *Medical Education*, 38(12), 1217–1218. <https://doi.org/10.1111/j.1365-2929.2004.02012>.
- [13] Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Routledge. <https://doi.org/10.4324/9781003117452>.