福建省中电海峡智能装备研究院
Fujian Zhongdian Straits Institute of Intelligent Equipment

Asia Pacific Science Press

Students Compete and Unveil Honor and Shame: The Psychological Impact of Academic and Social Comparison Among Chinese High School Students

Qiangyan Hou*, Haiqing Wang

School of Psychology, Northwest Normal University, Lanzhou, 730000, China

*Corresponding author: Qiangyan Hou, 3013841875@qq.com

Abstract: This study aimed to explore the influence of academic social comparison on academic shame in high school students. A total of 80 students from two classes in a high school in Jilin City were randomly selected for experimental research. The participants were divided into two groups (high-achieving group & low-achieving group) and surveyed using academic social comparison paradigms, academic social comparison questionnaires, and academic shame questionnaires. The results showed significant differences in academic social comparison on grades ($t = -2.038$, $p < 0.05$), while no significant differences were found in academic shame on grades. There was a significant positive correlation between academic social comparison and academic shame ($r = 0.362$, $p < 0.01$), a significant positive correlation between grades and academic social comparison ($r = 0.225$, $p < 0.05$), and no significant correlation between grades and academic shame. Academic social comparison positively predicted academic shame ($\beta = 0.362$, $t = 3.427$, $p < 0.01$), with grades acting as a moderator between academic social comparison and academic shame ($\beta = 0.363$, $t = 3.531$, $p < 0.01$). Therefore, it is crucial to observe students' emotional states timely after various examinations, and provide education and counseling based on individual characteristics.
Keywords: Academic Social Comparison; Academic Shame; Achievement; High School Student

1.Introduction

With the development of the economy and the improvement of national education levels, schools have shifted from focusing solely on grades to cultivating high-quality talents with comprehensive development under the new educational reform. Today's students have significantly improved overall qualities compared to the past; however, academic performance continues to receive attention from various perspectives. When it comes to learning outcomes, students are often categorized into two groups: high-achieving students and low-achieving students.

High-achieving students are usually quick thinkers, eager learners who ask questions diligently and are hardworking; they also exhibit strong organizational skills and self-confidence[1]. However, they may also have some issues such as being self-centered, lacking awareness of equality in interactions, being concerned about others' opinions, or having fragile self-esteem[2]. Low-achieving students are generally perceived as having learning difficulties or falling behind academically[3]. Yet most low-achieving students are not incapable of completing their studies; studies have shown that there are instances of poor performance even among gifted students. Apart from outstanding individuals who combine talent with hard work and those

with poor intellectual abilities struggling academically, the gap between high-achieving and low-achieving students may not be substantial [4]. Regardless of being high-achieving or low-achieving students, they all face various exams during their academic life which not only pose challenges but also create situations conducive to academic social comparisons that may result in different cognitive, emotional, and behavioral outcomes[5]. Moreover, these comparisons may evoke corresponding academic emotions.

Research has shown significant correlations between academic emotions and self-assessment, learning motivation, learning strategies, cognitive resources, self-regulated learning, and academic achievement[6][7]. Among these emotions, academic shame is one of the most easily perceived and common among students' experiences in academia. Therefore, exploring the impact of academic social comparison on academic shame can provide valuable insights and help us better understand students' emotional fluctuations in their academic life, adjust teaching strategies timely, and provide educational interventions tailored to individual characteristics, thus laying a theoretical foundation for school education.

2.Literature Review

Social comparison refers to the process of comparing oneself with others in terms of situations and status, including abilities and viewpoints, leading to various cognitive, emotional, and behavioral outcomes[5]. As students' main task is learning, they inevitably compare their academic performance and study methods with those of their peers in order to assess their own academic situation, which is known as academic social comparison. Researchers have differing definitions of academic social comparison. Jiang[8] defined academic social comparison as the comparison of individual academic factors with others and the formation of cognitive and evaluative processes about oneself during this process. Song[9] defined academic social comparison as the process in which students compare their own learning conditions with those of others during their studies to gain an understanding and evaluation of their academic abilities and levels. This study adopts Song's definition of academic social comparison.

In recent years, with the deepening research on social comparison and the emergence of academic issues among adolescents, many researchers have begun to focus on the influence of academic social comparison on students. Tian et al.[10] found that upward academic social comparison plays a mediating role between goal-oriented orientation, grade-approaching orientation, grade-avoidance orientation, and subjective well-being in school students. Additionally, research has shown that different dimensions of academic social comparison among high school students significantly affect their levels of psychological health[11].

In summary, academic social comparison has diverse effects on students' academics and psychological health. Academic shame is also a common emotional experience for students in their learning process.

In actual learning life, some students perceive academic failure subjectively. Shi and Qian[12] defined shame as an experience directed towards oneself that involves pain, embarrassment, and shame; Meng[13] identified the core feature of shame as attributing failures or mistakes to the entire self during evaluations. According to Pekrun et al.[14] and Blum[15], operational definitions suggest that academic shame is an emotional experience characterized by resentment, pain, powerlessness, or self-disgrace arising from suboptimal or self-inconsistent academic performance or unfair treatment in academics; this may lead to external expressions, physiological reactions, or other psychological sensations.

Compared to research on shame, studies on academic shame are relatively scarce and have only recently begun focusing on factors related to it or which individuals are more prone to experiencing academic shame based on personality traits. Turner et al.[16] found that students with a high tendency for shame and high self-esteem experience more academic shame; this is also true for students facing academic failures or having avoidance-oriented goals, while students approaching goals do not experience much academic shame[17]. Research has shown that middle school students experience higher levels of academic shame; significant gender differences exist as well as differences between attending key schools; there is a significant positive correlation between levels of academic self-concept and academic shame[18]. Additionally, academically successful students may experience more academic shame[19].

Based on these findings, this study proposes hypotheses: H1: Academic social comparison positively predicts academic shame; H2: Grades moderate the relationship between academic social comparison and academic shame.

3.Research Methodology

3.1 Study Participants

Using cluster random sampling method in a high school in Jianshui City selecting two classes from Grade 11 (45 students/ class). On the day of the experiment due to leave requests and skill training unavailable for 10 students in total from both classes participated in the experiment out of 80 students (46 males and 34 females). Among them were 38 non-only children and 42 only children; 44 ruralStudy Participants Using cluster random sampling method, two classes from the 11th grade were selected in a high school in Jianshui City, with 45 students per class. On the day of the experiment, 10 students were absent due to leave requests and skill training, resulting in a total of 80 participating students (46 males and 34 females). Among them, there were 38 non-only children and 42 only children; 44 students from rural areas and 36 from urban areas; all with normal vision or corrected vision; no history of mental illness. The participants received an experimental remuneration of 5.5 yuan per person.

3.2 Research Tools

3.2.1 General Demographic Questionnaire

A self-designed general demographic questionnaire including basic demographic information such as gender, age, and place of origin.

3.2.2 Academic Social Comparison Questionnaire

The study utilized the "High School Students' Academic Social Comparison Questionnaire" developed by Xu[20] for investigation. This questionnaire consists of 38 items divided into three factors: comparison orientation, comparison method, and comparison outcomes. The comparison orientation factor includes 6 items, the comparison method factor includes 21 items, and the comparison outcomes factor includes 11 items. Each item is rated on a five-point scale, where 1 indicates "completely disagree" and 5 indicates "completely agree". The questionnaire demonstrates good reliability with an original alpha coefficient of 0.879 and a coefficient of 0.928 in this study.

3.2.3 Academic Shame Questionnaire

The study used the "High School Students' Academic Shame Questionnaire" developed by Xue[21] for investigation. This questionnaire comprises 17 questions divided into four dimensions: unfair treatment, inconsistency with self-expectations, public attention, and poor academic performance. Each question is rated using Likert's five-point scale, where 1 represents "not shameful at all" and 5 represents "very shameful". The retest reliability of the questionnaire ranges between 0.680-0.831, with CFI, NFI, and IFI fit indices all exceeding 0.90, indicating good reliability. In this study, the internal consistency coefficient α value of this questionnaire was found to be 0.861.

3.3 Research Procedure

On the day before the experiment, students were informed that the upcoming test would be a challenge and they would participate in the experiment the next day based on their performance results. The lead experimenter grouped the 80 student participants into two groups based on test scores: selecting the top-performing 50% (40 students) as the excellent group and the bottom-performing 50% (40 students) as the trailing group. On the day of the experiment, after announcing the lists for both groups to the students, questionnaires on academic social comparison and academic shame were distributed for immediate completion and collection.

3.4 Data Analysis

After data collection and organization, data analysis was conducted using SPSS version 26.0.

4.Research Findings

Table 1: Differences in Academic Social Comparison and Academic Shame between Achievers and Underachievers (N=80)

	Achievers (M±SD, n=40)	Underachievers (M±SD, n=40)	*t*	*p*
Academic Social Comparison	108.800±23.376	118.225±17.586	-2.038	0.045
Academic Shame	61.525±8.042	61.900±13.075	-0.155	0.878

As shown in the independent samples t-test results in Table 1, there is a significant difference in academic social comparison between achievers and underachievers (mean difference = -9.425, t = -2.038, p < 0.05), with underachievers scoring higher on academic social comparison. There was no significant difference in academic shame scores between achievers and underachievers (p > 0.05), indicating that under the context of academic social comparison, there is no significant difference in academic pride and shame between achievers and underachievers.

Table 2: Correlation Test Results (N=80)

Variables	Academic Social Comparison	Academic Shame	Achievement
Academic Social Comparison	1		
Academic Shame	0.362**	1	
Achievement	0.225*	0.017	1

Note: *p<0.05, **p<0.01, ***p<0.001; "p" represents probability, reflecting the likelihood of an event occurring.

The correlation analysis shown in Table 2 indicates a significant positive correlation between academic social comparison and academic shame (r = 0.362, p < 0.01), meaning that higher scores in academic social comparison are associated with higher scores in academic shame. There is a significant positive correlation between achievement and academic social comparison (r = 0.225, p < 0.05), suggesting that higher achievement scores are linked to higher scores in academic social comparison. However, there is no significant correlation between achievement and academic shame (r = 0.017, p > 0.05).

Table 3: Academic Social Comparison and Academic Shame: The Moderating Role of Achievement (N=80)

Model and Variables	Academic Shame			
	Model 1		Model 2	
	β	t	β	t
Academic Social Comparison	0.362	3.427**	0.480	4.547***
Achievement			-0.090	-0.890
Academic Social Comparison × Achievement			0.363	3.531**
	0.120		0.228	
	0.131		0.257	
F	11.742**		8.763***	

Note: *p<0.05, **p<0.01, ***p<0.001; "p" represents probability, reflecting the likelihood of an event occurring.

The results of linear regression analysis as presented in Table 3 indicate that academic social comparison significantly positively predicts academic shame (β=0.362, t=3.427, p<0.01). Moreover, achievement moderates the relationship between academic social comparison and academic shame (β = 0.363, t = 3.531, p < 0.01), where lower achievement enhances the impact of academic social comparison on academic shame.

5.Discussion

This study explored the relationship between academic social comparison and academic shame among high school students through experiments and questionnaire surveys. The experiment utilized a modified paradigm of academic social comparison to create a more realistic setting that aligns with actual academic situations, such as exams, to investigate the occurrence of academic social comparison in practical applications. Measurements were taken on students' academic social comparison

and academic shame. Results revealed significant differences in academic social comparison between underachievers and achievers, with underachievers demonstrating higher levels of academic social comparison.

Students engage in comparisons with various classmates or competitors during every exam, competition, or ranking event[22]. Achievers may reduce the likelihood of downward comparisons due to less consideration of comparability with lower-performing peers, while underachievers, lacking confidence or a sense of achievement in upward and lateral comparisons[23], tend to engage more in downward comparisons to compensate for feelings of shame (see supplementary materials for specific results)[24]. The correlational analysis results of this study indicate a consistent relationship between increased academic social comparison and higher levels of academic shame. Moreover, grades as an essential factor in academic social comparison also exhibit a moderating effect on academic shame. Poorer grades enhance the impact of academic social comparison on academic shame.

Subsequent communication with students and analysis of research results revealed that using exam papers similar to regular monthly exams when initiating academic social comparison allows students to make comparisons based on their previous performance. Students' grades fluctuate, and achievers and underachievers have different directions in comparing themselves, varying self-expectations and family expectations. While most achievers set high standards for themselves with high expectations from schools and families, the fluctuation in grades may still lead to feelings of academic shame; underachievers have relatively lower self-expectations but room for improvement, with low long-term expectations from schools, families, and themselves leading to them being accustomed to falling behind or performing poorly. Therefore, the difference in shame measurement between achievers and underachievers is not significant. However, more frequent engagement in academic social comparison may lead to increased levels of academic shame among students. Hence, educators should remain vigilant about situations involving academic social comparison and promptly observe students' emotional states.

This study contributes to the existing research on the relationship between academic social comparison and academic emotions. With the insights gained from this study, educators can better understand students' psychological states and emotional responses when facing exams and grades. By combining these findings with student characteristics, educators can predict future learning activities and behaviors to enhance students' academic performance and mental well-being.

Limitations and Future Directions

The sample size in this study was relatively small and should be expanded in future research. Subsequent studies may consider controlling for factors such as specialization or class quality or conduct longitudinal research on learning investment and interest. Based on the results of this study, further exploration can be conducted on the impact of academic social comparison on other academic emotions or behaviors.

Conclusion

Academic social comparison significantly influences students' experience of academic shame as an academic emotion, with a more pronounced impact observed among those with poorer grades. Schools aim not only to nurture academically excellent individuals but also future pillars of society and elite members of the international community. Schools should make reasonable arrangements for assignments that trigger academic social comparisons, guide students in cultivating healthy comparative attitudes to develop rational academic emotions, adjust self-evaluations, improve classroom learning atmospheres, thereby enhancing students' psychological resilience and academic performance.

Funding

no

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

Reference

[1] Cao, H., & He, F. (2005). Advancing Excellent Students to a Higher Level - Constructing a New Form of Moral Education for Excellent Students. Shanghai Education, (09A), 2.

[2] Xia, M., & Zhang, X. (2005). Analysis of Psychological Health Issues in College Excellent Students. Nanjing Forestry University Journal of Humanities and Social Sciences Edition, 5(4), 121-123. DOI:10.16397/j.cnki.1671-1165.2005.04.033

[3] Zhu, X. (2020). On Several Practices to Transform Underachieving Students. Exam Weekly, (A3), 19-20.

[4] Mazrekaj, D., Witte, K. D., & Triebs, T. P. (2022). Mind the gap: Measuring academic underachievement using stochastic frontier analysis. Exceptional Children, 88(4), 442-459. https://doi.org/10.1177/00144029211073524

[5] Xing, S., & Yu, G. (2005). Current Situation and Development Trend of Social Comparison Research. Advances in Psychological Science, (01), 78-84.

[6] Hu, X., Liu, X., Geng, M., & Yang, Y. (2022). The Relationship between Core Self-Evaluation and Learning Engagement of College Students - The Chain Mediating Role of Growth Mindset and Academic Emotions. Journal of Shanxi Higher Education Institutions: Social Science Edition, 34(08), 65-70. DOI: 10.16396/j.cnki.sxgxskxb.2022.08.012

[7] Pekrun, R., Lichtenfeld, S., Marsh, H. W., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic performance: Longitudinal models of reciprocal effects. Child development, 88(5), 1653-1670. https://doi.org/10.1111/cdev.12704

[8] Jiang, L. (2014). A Study on the Relationship among Academic Comparison, Learning Attribution and Autonomous Learning of Junior High School Students. Master's Degree Thesis, Sichuan Normal University, Chengdu.

[9] Song, M. (2019). The Relationship between Academic Social Comparison and Learning Engagement of Junior High School Students. Master's Degree Thesis, Shanxi University, Taiyuan.

[10] Tian, L., Yu, T., & Huebner, E. S. (2017). Achievement goal orientations and adolescents' subjective well-being in school: The mediating roles of academic social comparison directions. Frontiers in psychology, 8, 37. https://doi.org/10.3389/fpsyg.2017.00037

[11] Zhang, J. (2015). Study on the Relationship between Academic Social Comparison and Mental Health of High School Students. Master's Degree Thesis, Hebei University, Shijiazhuang.

[12] Shi, C., & Qian, M. (1999). Differences between Shame and Guilt. Psychological Dynamics, (01).

[13] Meng, Z. (2005). Emotional Psychology. Peking University Press.

[14] Pekrun, R., Elliot, A. J., & Maier, M. A. (2006). Achievement goals and discrete achievement emotions: A theoretical model and prospective test. Journal of Educational Psychology, 98(3), 583–597. https://doi.org/10.1037/0022-0663.98.3.583

[15] Blum, A. (2008). Shame and guilt, misconceptions and controversies: A critical review of the literature. Traumatology, 14(3), 91-102. https://doi.org/10.1177/1534765608321070

[16] Turner, J. E., Husman, J., & Schallert, D. L. (2002). The importance of students' goals in their emotional experience of academic failure: Investigating the precursors and consequences of shame. Educational Psychologist, 37(2), 79-89. https://doi.org/10.1207/S15326985EP3702_3

[17] Dong, Y. (2009). A Study on the Academic Shame Emotions of Middle School Students. Chinese Moral Education, 4(11), 90.

[18] Wang, Y. (2017). A Study on the Relationship among Academic Self-Concept, Academic Shame and Academic Procrastination of Junior High School Students. Master's Thesis, Yangzhou University, Yangzhou.

[19] Ma, H., Xue, Y., & Liu, J. (2016). The academic shame of middle school students: Measurement, physical arousal, and its relation with students' academic achievement. Acta Psychologica Sinica, 48(5), 529-539. https://doi.org/10.3724/SP.J.1041.2016.00529

[20] Xu, X., & Chen, X. (2006). Development of Questionnaire on Academic Social Comparison for Middle School Students. Proceedings of the 2006 Academic Seminar of the Chinese Society for Social Psychology(pp.82-83). Psychological Educational Center of University of Science and Technology of China; Institute of Educational Science Research Southwest University;

[21] Xue, Y. (2013). Development and Investigation Study on Questionnaire about Academic Shame for Middle School

Students. Master's Degree Thesis, Tianjin Normal University, Tianjin.

[22] Han, X., & Chi, Y. (2012). Threat Effects and Self-Balancing Strategies in Spontaneous Social Comparison. Acta Psychologica Sinica, 44(12), 1628-1640.

[23] Blanton, H., Crocker, J., & Miller, D. T. (2000). The effects of in-group versus out-group social comparison on self-esteem in the context of a negative stereotype. Journal of Experimental Social Psychology, 36(5), 519-530. https://doi.org/10.1006/jesp.2000.1425

[24] Webster, J. M., Duvall, J., Gaines, L. M., & Smith, R. H. (2003). The roles of praise and social comparison information in the experience of pride. The Journal of social psychology, 143(2), 209-232. https://doi.org/10.1080/00224540309598441