Daydreaming Styles, Self-Compassion, and Academic Underachievement in High-Ability Adolescents

Many high-ability adolescents underperform academically despite their intellectual potential, yet the role of spontaneous self-generated thoughts, such as daydreaming, remains underexplored in this paradox. This study examined how distinct styles of daydreaming, including positive-constructive daydreaming (PCD), guilt and fear-of-failure daydreaming (GFD), and poor attentional control (PAC), are associated with objective and subjective underachievement in gifted youth. In addition, self-compassion was investigated as a mediating mechanism linking these internal cognitive-emotional patterns to academic outcomes. A culturally diverse sample of 983 gifted adolescents (aged 13-17) from the United States and Hong Kong completed self-report questionnaires. Logistic regression and Karlson–Holm–Breen (KHB) mediation analyses indicated that PCD and self-compassion significantly reduced the likelihood of underachievement, whereas GFD and PAC increased this risk. Notably, a suppression effect emerged whereby self-compassion reversed the relationship between negative daydreaming (GFD) and subjective underachievement. Findings highlight self-compassion's protective role in mitigating maladaptive cognitive processes and supporting academic resilience among high-ability adolescents.

Keywords: daydreaming, self-compassion, academic underachievement, high-ability, adolescents

1. Introduction

Academic underachievement among high-ability adolescents, defined as a persistent discrepancy between intellectual potential and academic performance, continues to challenge educators and psychologists (Reis & McCoach, 2000; McCoach & Siegle, 2003). While research has identified numerous contributing factors, including motivational deficits, perfectionistic attitudes, and executive functioning issues (Speirs Neumeister, 2004; McCoach & Siegle, 2003), relatively little attention has been given to the internal cognitive-emotional experiences that occur spontaneously during academic activities. One particularly understudied phenomenon in this context is daydreaming, characterised as task-unrelated, stimulus-independent thought that arises without external prompting (Smallwood & Schooler, 2015). Although daydreaming is common and developmentally normative, particularly in adolescence, its nuanced relationship with academic underachievement among gifted students remains poorly understood.

The limited focus on daydreaming within high-ability adolescent populations may stem partly from traditional assumptions that gifted students possess inherently stronger cognitive regulation and superior attention control. Consequently, research on underachievement has predominantly emphasised external or performance-based factors, rather than internal experiences such as spontaneous cognition. However, emerging evidence indicates that adolescents frequently engage in various forms of daydreaming that differ significantly in their emotional content and regulatory qualities (McMillan et al., 2013). Building on Singer and colleagues' foundational typology (Singer & Antrobus, 1972), this study specifically investigates three distinct styles of daydreaming: positive-constructive daydreaming (PCD), characterised by imaginative, playful, and future-oriented thoughts; guilt and fear-of-failure daydreaming (GFD), defined by self-critical and anxiety-provoking internal dialogues; and poor attentional control (PAC), reflecting difficulty maintaining cognitive focus.

Daydreaming's impact on academic performance likely depends substantially on its style and emotional valence. Positive-constructive daydreaming may facilitate adaptive cognitive processes such as creative problem-solving and goal-setting, potentially enhancing academic resilience and motivation (Zedelius & Schooler, 2016). Conversely, maladaptive forms of daydreaming (i.e., GFD and PAC) are likely detrimental due to their associations with self-critical rumination, anxiety, and impaired attentional focus, all of which undermine effective learning (Mrazek et al., 2013; Smallwood & Schooler, 2015). Despite these insights, few studies have empirically tested how different daydreaming styles distinctly relate to both objective academic outcomes (such as grades or test scores) and subjective perceptions of underachievement among gifted adolescents.

Moreover, understanding mechanisms that influence the relationship between daydreaming and underachievement remains crucial. One promising yet understudied factor in this regard is self-compassion, defined as treating oneself kindly during moments of failure, maintaining mindful awareness of difficult emotions, and recognising one's struggles as shared human experiences (Neff, 2003). Adolescents who have higher self-compassion exhibit lower performance anxiety, decreased perfectionism, and enhanced emotional resilience following academic setbacks (Hope et al., 2014; Neff & McGehee, 2010). Gilbert's (2009) social mentality theory offers a neuropsychological account of these findings, positing that self-compassion activates the affiliative and soothing systems of the brain. In contrast to self-criticism, which triggers threat-defence responses, self-compassion facilitates feelings of

safety, acceptance, and internal calm, processes that may be essential in regulating emotionally charged thought patterns such as daydreams involving guilt or fear.

Importantly, self-compassion may not merely buffer the impact of maladaptive daydreaming but may also mediate its relationship with academic outcomes. A particularly novel possibility is the presence of a suppression effect, wherein self-compassion reveals a concealed or reversed association between negative daydreaming and underachievement. Suppression effects occur when a variable accounts for overlapping variance between a predictor and outcome, revealing a more accurate or theoretically meaningful relationship (MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger, 2002). In the present context, adolescents who engage in frequent guilt- or failure-based daydreams may not necessarily perceive themselves as underachieving unless they also lack self-compassion. In contrast, those high in self-compassion may acknowledge their negative thoughts but not integrate them into their academic self-concept. Identifying such suppression mechanisms has significant implications for targeted interventions, as it suggests that enhancing self-compassion could neutralise the internalisation of maladaptive cognitive patterns.

1.1.Present Study

To address these gaps, this current study investigates how different forms of daydreaming relate to both objective and subjective academic underachievement in high-ability adolescents, and whether self-compassion mediates these links. By integrating contemporary models of mind wandering and self-compassion, this research contributes to a deeper understanding of the internal cognitive-emotional processes that shape achievement in gifted youth. Moreover, it extends the contemplative science literature by identifying self-compassion not only as a protective factor but as a potential mechanism through which young people regulate distressing forms of spontaneous thought.

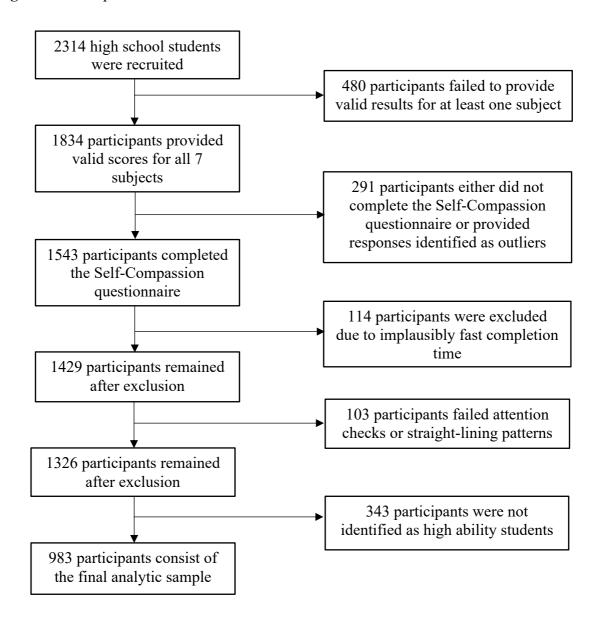
2. Method

2.1. Participants

High-ability adolescents were identified through a structured screening protocol based on self-reported history of participation in, or nomination for, formally recognised enrichment or gifted education programs (see Appendix A for full screening criteria and items). Following a rigorous multi-stage exclusion process (detailed in Figure 1), the final analytic sample comprised 983 adolescents (47.6% female), aged 13 to 17 years (M = 15.6, SD = 1.2).

The sample (see Table 1) reflected substantial ethnic diversity: 37.1% identified as Asian, 33.5% as White, 9.7% as Black, 8.7% as Mixed Race, 8.5% as Hispanic, and 2.5% as Other ethnic backgrounds. This diversity enabled preliminary exploration of cross-cultural patterns in cognitive and emotional variables. Participants were recruited from two culturally distinct regions, with 67.4% residing in the United States and 32.6% in Hong Kong SAR, offering a comparative lens for assessing how sociocultural context may intersect with internal psychological processes relevant to academic functioning.

Figure 1. Participants recruitment and selection flow chart



2.2. Measure

2.2.1 Self-compassion

Adolescents' levels of self-compassion were assessed using the Self-Compassion Scale for Youth (SCS-Y; Neff et al., 2021), a 17-item self-report instrument specifically adapted from Neff's original adult scale to reflect the developmental characteristics of adolescents. The scale measures six dimensions of self-compassion: self-kindness, common humanity, and mindfulness, along with their negative counterparts—self-judgment, isolation, and over-identification. Each subscale comprises two to three items, and participants responded using a 5-point Likert scale ranging from 1 ("almost never") to 5 ("almost always"). Negatively worded items were reverse-coded before computing the total score, which was derived as the average across the six subscales. The SCS-Y demonstrated excellent internal consistency in the present sample (Cronbach's $\alpha = .90$).

2.2.2 Daydreaming Styles

Individual differences in daydreaming were measured using the Short Imaginal Processes Inventory (SIPI; Huba et al., 1983), a 45-item self-report scale widely used to assess habitual styles of spontaneous thought. The SIPI evaluates three core dimensions of daydreaming, including Positive-Constructive Daydreaming (PCD), reflecting imaginative and future-oriented thinking; Guilt and Fear-of-Failure Daydreaming (GFD), capturing self-critical or anxiety-related fantasies; and Poor Attentional Control (PAC), indicating difficulties in maintaining focus and resisting distraction. Items are rated on a 5-point Likert scale reflecting frequency of experience. Scoring followed original SIPI instructions involving addition and subtraction of specific items within each subscale. Internal consistency was acceptable for PCD (α = .61), and good for both GFD (α = .81) and PAC (α = .78).

2.2.3 Underachievement

Underachievement was measured in two dimensions, namely the objective and subjective underachievement. Objective underachievement was determined by participants' self-reported academic performance across seven core subjects: Chinese, English, Dutch, Mathematics, Science, History, and Geography. Participants who reported failing in at least one subject were categorised as objectively underachieving. Subjective underachievement was assessed via a single-item self-evaluation, in which participants indicated whether they perceived themselves as underachieving in their studies. This dichotomous self-appraisal was used to capture students' internalised sense of academic inadequacy, independent of their actual performance.

2.3 Data analysis

Descriptive statistics and bivariate correlations were computed for all key variables to examine central tendencies and initial associations. Next, a series of multiple logistic regression analyses were conducted to examine the predictive relationships between the three daydreaming styles (PCD, GFD, PAC) and both forms of underachievement (objective and subjective). All models controlled for age, gender, ethnicity, and region.

To test for mediation effects, we employed the Karlson-Holm-Breen (KHB) method (Karlson et al., 2012; Kohler et al., 2011), which is specifically designed for decomposing effects in nonlinear models such as logistic regression. The KHB method quantifies the total, direct, and indirect effects of an independent variable on an outcome variable while accounting for covariates and mediators in the model. Importantly, it enables the estimation of the proportion of the effect that is mediated, even when using categorical outcomes. The analysis was conducted using the user-written khb command in Stata 18.0 (Kohler et al., 2011).

2.4 Hypothesis

The study tested the following hypotheses:

- H1: Positive-constructive daydreaming will be negatively associated with both objective and subjective underachievement.
- H2: Negative daydreaming (guilt/fear-of-failure) and poor attentional control will be positively associated with both objective and subjective underachievement.

H3: Self-compassion will mediate the relationship between all daydreaming forms and objective and subjective underachievement.

3. Results

Descriptive statistics for all study variables are presented in Table 1. Of the 983 high-ability adolescents included in the final analysis, 26.0% reported subjective underachievement, while 62.8% met criteria for objective underachievement based on academic failure in at least one subject. The average self-compassion score was moderate (M = 3.0, SD = 0.8). Mean scores for the daydreaming subscales indicated relatively frequent engagement across all three styles: Positive-Constructive (M = 49.7, SD = 7.0), Guilt and Fear-of-Failure (M = 45.2, SD = 10.2), and Poor Attentional Control (M = 45.4, SD = 9.5).

Table 1 Descriptive Statistics for Study Variables (N = 983).

	Mean/%	SD	Min	Max
Dependent variables				
Subjective underachievement (%)	26.0			
Objective underachievement (%)	62.8			
Independent variables				
Positive daydreaming	49.7	7.0	24.0	71.0
Negative daydreaming	45.2	10.2	15.0	74.0
Poor attention control	45.4	9.5	15.0	74.0
Mediator				
Self-compassion	3.0	0.8	1.1	4.8
Controls				
Female (%)	47.6			
Age	15.6	1.2	13.0	17.0
Ethnicity (%)				
Asian (reference category)	37.1			
White	33.5			
Black	9.7			
Mixed Race	8.7			
Hispanic	8.5			
Other	2.5			
Country (%)				
Hong Kong SAR (reference category)	32.6			
United States	67.4			

Bivariate correlations among variables are summarised in Table 2. Objective underachievement was positively associated with Guilt and Fear-of-Failure Daydreaming (r = .29, p < .01) and Poor Attentional Control (r = .32, p < .01), and negatively associated with Positive-Constructive Daydreaming (r = -.19, p < .01). Subjective underachievement

followed a similar pattern, with weaker but still significant associations. Self-compassion was inversely correlated with both objective (r = -.33, p < .01) and subjective underachievement (r = -.25, p < .01), and showed a strong negative association with Poor Attentional Control (r = -.70, p < .01), as well as a moderate inverse relationship with Guilt and Fear-of-Failure Daydreaming (r = -.49, p < .01). Its positive correlation with Positive-Constructive Daydreaming (r = .24, p < .01) further supports its alignment with adaptive cognitive-emotional processes.

Table 2Bivariate Correlations among Key Variables (N = 983).

Variables	1	2	3	4	5
1. Objective Underachievement					
2. Subjective Underachievement	.208**				
3. Self-Compassion	331**	252**			
4. Negative Daydreaming	.291**	.098**	494**		
5. Positive Daydreaming	185**	168**	.244**	.028	
6. Poor attention control	.321**	.229**	704**	.499**	156**

^{***}p < .001, **p < .01, *p < .05.

Multiple logistic regression results are summarised in Table 3. All regression analyses controlled for demographic covariates, including age, gender, ethnicity, and country. For objective underachievement, results indicated significant negative associations with Positive-Constructive Daydreaming (OR = 0.73, 95% CI [0.63, 0.84], p < .001), and significant positive associations with Negative Daydreaming (OR = 1.44, 95% CI [1.23, 1.69], p < .001) and Poor Attention Control (OR = 1.60, 95% CI [1.35, 1.89], p < .001). Higher levels of Self-Compassion were significantly associated with decreased odds of objective underachievement (OR = 0.62, 95% CI [0.52, 0.74], p < .001). For subjective underachievement, Positive-Constructive Daydreaming was negatively associated (OR = 0.68, 95% CI [0.57, 0.82], p < .001), while Poor Attention Control showed a significant positive association (OR = 1.29, 95% CI [1.07, 1.55], p < .01). However, Negative Daydreaming was not significantly associated with subjective underachievement in the full model (OR = 0.97, 95% CI [0.81, 1.17], p > .05). Similar to objective underachievement, higher Self-Compassion was associated with lower odds of subjective underachievement (OR = 0.43, 95% CI [0.34, 0.54], p < .001).

Table 3 Objective and Subjective Underachievement Regressed on Variables (N = 983).

 Objective Underachievement		Subjective Underachievement			
β (SE)	OR	95% CI	β (SE)	OR	95% CI

Positive						
Daydreaming	34*** (.08)	.71	.61, .83	37*** (.09)	.70	.59, .82
Negative						
Daydreaming	.34*** (.09)	1.40	1.17, 1.67	03 (.10)	.97	.81, 1.17
Poor Attention	10 de de de (1 1 1)			a Advitato (4 a)		1.12,
Control	.43*** (.11)	1.54	1.24, 1.92	.34*** (.12)	1.41	1.77
Mediator						
Self-						
Compassion	46*** (.11)	.63	.51, .79	51*** (.12)	.60	.47, .77
Controls						
Female	16 (.17)	.85	.61, 1.19	54*** (.18)	.58	.41, .82
Age	04 (.06)	.96	.85, 1.08	.11 (.06)	1.11	.98, 1.26
White	.62 (.34)	1.86	.96, 3.60	05 (.36)	.94	.47, 1.89
Black	1.47*** (.40)	4.34	1.98, 9.49	.25 (.41)	1.29	.58, 2.86
Mixed Race	1.67*** (.42)	5.39	2.31, 12.18	.34 (.41)	1.40	.63, 3.13
Hispanic	1.01** (.40)	2.75	1.25, 6.03	.31 (.41)	1.35	.61, 3.03
Other	0.65 (.53)	1.91	.67, 5.44	.05 (.55)	1.05	.35, 3.11
United States	-1.59*** (.37)	.21	.09, .42	.34 (.38)	1.40	.65, 2.97
Constant	1.80 (1.00)	6.06	.85, 43.06	-2.92* (1.0)	.05	.01, .40
Pseudo R2	.15			.10		
Wald χ2	200.09***			114.80***		

^{***}p < .001, **p < .01, *p < .05.

OR: Odds Ratio;

CI: Confidence Interval.

Tables 4 and 5 present mediation analyses conducted using the Karlson-Holm-Breen (KHB) decomposition method, evaluating the mediating role of self-compassion in the relationship between daydreaming types and underachievement.

For objective underachievement (Table 4), the indirect effect of Positive-Constructive

Daydreaming through self-compassion was significant (B = -.15, 95% CI [-.21, -.08], p < .001), accounting for 34.92% of the total effect. Similarly, significant indirect effects were found for Negative Daydreaming (B = .31, 95% CI [.21, .40], p < .001; 45.69% mediated) and Poor Attention Control (B = .22, 95% CI [.06, .37], p < .01; 28.71% mediated). Regarding subjective underachievement (Table 5), self-compassion significantly mediated the relationship with Positive-Constructive Daydreaming (B = -.15, 95% CI [-.22, -.09], p < .001; 30.92% mediated) and Poor Attention Control (B = .39, 95% CI [.22, .55], p < .001; 58.20% mediated). Notably, for Negative Daydreaming, the indirect effect (B = .37, 95% CI [.26, .48], p < .001) exceeded the total effect (B = .30, p < .001), indicating a suppression effect (123.33% mediated). This pattern suggested that self-compassion fully mediated and reversed the direct association between Negative Daydreaming and subjective underachievement, revealing a suppression mechanism.

Table 4

Decomposition of the Total Effect of Daydreaming on Objective Underachievement into Direct and Indirect Effects (N = 983).

	β (SE)	95% CI	Mediating percentage
Positive Daydreaming			
Total Effect	42*** (.07)	56,27	100.00%
Direct Effect	27*** (.08)	42,12	65.08%
Indirect Effect	15*** (.03)	21,08	34.92%
Negative Daydreaming			
Total Effect	.67*** (.08)	.52, .82	100.00%
Direct Effect	.37*** (.08)	.20, .53	54.31%
Indirect Effect	.31*** (.05)	.21, .40	45.69%
Poor Attention Control			
Total Effect	.76*** (.08)	.60, .92	100.00%
Direct Effect	.54*** (.11)	.33, .75	71.29%
Indirect Effect	.22*** (.08)	.06, .37	28.71%

^{***}*p* < .001, ***p* < .01, **p* < .05.

Table 5 Decomposition of the Total Effect of Daydreaming on Subjective Underachievement into Direct and Indirect Effects (N = 983).

	β (SE)	95% CI	Mediating percentage
	p(SE)	9370 CI	percentage
Positive Daydreaming			
Total Effect	50*** (.08)	67,34	100.00%
Direct Effect	35*** (.08)	51,19	69.08%
Indirect Effect	15*** (.04)	22,09	30.92%
Negative Daydreaming			
Total Effect	.30*** (.08)	.14, .46	100.00%
Direct Effect	07 (.09)	24, .10	23.64%
Indirect Effect	.37*** (.05)	.26, .48	123.64%
Poor Attention Control			
Total Effect	.66*** (.09)	.48, .85	100.00%
Direct Effect	.28*** (.11)	.06, .50	41.80%
Indirect Effect	.39*** (.09)	.22, .55	58.20%

^{***}p < .001, **p < .01, *p < .05. CI: Confidence Interval.

4. Discussion

CI: Confidence Interval.

This study investigated how distinct styles of daydreaming relate to both objective and subjective underachievement among high-ability adolescents, and whether self-compassion mediates or suppresses these relationships. Drawing on a large, culturally diverse sample and using both logistic regression and KHB mediation analysis, the results offer novel insights into the cognitive-emotional mechanisms underlying academic functioning in gifted youth.

Consistent with our hypotheses, PCD was associated with reduced risk of both objective and subjective underachievement. In contrast, maladaptive forms of daydreaming (i.e., GFD and PAC) were positively associated with underachievement, particularly in objective terms. These findings align with Singer's foundational distinction between adaptive and maladaptive forms of daydreaming (Singer & Antrobus, 1972), and with contemporary research suggesting that future-oriented, creative daydreams support goal setting, problem-solving, and emotional regulation (McMillan et al., 2013). Adolescents who engage in imaginative, constructive daydreams may be better equipped to mentally rehearse academic tasks, sustain motivation, and maintain optimism, the factors which are known to foster achievement among gifted learners.

By contrast, daydreaming that is characterised by intrusive guilt or poor attentional control appears to undermine academic success. These patterns are supported by previous findings indicating that off-task thought impairs information encoding and attentional stability, leading to lower comprehension, test performance, and learning outcomes (Smallwood & Schooler, 2015). PAC, in particular, emerged as a consistent predictor of both objective and subjective underachievement, suggesting that the inability to regulate internal distractions may be especially detrimental to academic functioning. This is consistent with findings from cognitive psychology showing that attentional lapses disrupt the sustained effort and focus required for complex academic tasks (Unsworth & McMillan, 2013). This effect is more robust for objective outcomes (like grades), which require sustained task engagement.

Importantly, self-compassion emerged as a key protective factor and mediator in the associations between daydreaming styles and underachievement. As hypothesised, higher self-compassion was consistently linked to reduced risk of both objective and subjective underachievement. Moreover, a noteworthy suppression effect was observed between GFD and subjective underachievement: the direct positive relationship between GFD and subjective underachievement became non-significant and reversed when self-compassion was accounted for. This suggests that self-compassion buffers adolescents against the internalisation of academic self-doubt, even when their mental habits tend toward self-critical or failure-related rumination.

This finding aligns with Gilbert's (2005) theory of social mentalities, which posits that self-compassion activates a parasympathetic-affiliative system that inhibits self-criticism and threat-based responses. When adolescents cultivate self-compassion, they become more capable of observing negative internal dialogue without overidentifying with it, reducing the likelihood of internalising an "underachiever" identity. Empirical work has shown that self-compassionate youth are less reactive to academic failure, show greater emotional resilience, and are more likely to engage in adaptive coping and help-seeking behavior (Neff & McGehee, 2010). In this context, self-compassion may transform maladaptive daydreaming from a source of self-sabotage into a manageable experience that does not erode perceived academic competence.

4.1 Implication

Theoretically, the suppression effect found in this study emphasises the important role of self-compassion in shaping how adolescents interpret internal experiences. According to Neff's model of self-compassion (2003), qualities such as self-kindness, mindfulness, and a sense of common humanity help individuals reframe failure-related thoughts in a more balanced and less threatening way. For adolescents prone to negative daydreaming about guilt or failure, self-compassion may reduce the emotional weight of these thoughts and prevent them from being internalised as signs of personal inadequacy.

Practically, these findings underscore the value of integrating emotional self-regulation strategies into academic support programs for high-ability youth. While cognitive interventions targeting attention or goal-setting remain important, cultivating self-compassion may better equip students to cope with academic stress and reduce the psychological impact of failure-related rumination. Evidence-based programs such as Mindful Self-Compassion for Teens have shown promise in improving resilience and reducing self-critical thinking. Embedding such training in educational settings may strengthen both academic outcomes and students' self-perceptions, which reduce feelings of subjective underachievement and support healthier academic identities.

4.2 Limitations and further directions

Several limitations warrant consideration. First, the cross-sectional design precludes causal inferences regarding the directionality of effects. Longitudinal or experimental studies are needed to clarify temporal dynamics, particularly in the mediation processes involving self-compassion. Second, although the sample was geographically and ethnically diverse, reliance on self-report measures may introduce biases such as social desirability or subjective misperceptions. Third, the measure of underachievement, especially the subjective component, was based on a single-item self-assessment and may not capture its multidimensional nature. Although this is a widely used approach in gifted education research, it lacks the precision of standardised cognitive assessments or teacher nominations (Callahan et al., 1995; McBee et al., 2016). As such, some participants may not meet formal definitions of giftedness, potentially introducing heterogeneity into the sample.

Future research should explore how interventions targeting self-compassion influence both internal experience and academic performance over time. Incorporating behavioural or teacher-rated indicators of achievement may strengthen the ecological validity of findings. Furthermore, examining moderators such as gender, cultural context, or perfectionistic traits may offer deeper insights into for whom and under what conditions these mechanisms are most salient.

5. Conclusion

This study offers new insights into how different styles of daydreaming relate to academic underachievement in high-ability adolescents, and how self-compassion influences these relationships. Positive daydreaming was linked to lower levels of both objective and subjective underachievement, while negative daydreaming and poor attention control were associated with higher underachievement. Self-compassion emerged as a key mediator, especially in the relationship between negative daydreaming and subjective underachievement, where it revealed a suppression effect. These findings suggest that self-compassion can protect students from the negative impact of internal self-criticism. Supporting students' emotional well-being may be just as important as building their

academic skills. By connecting thinking patterns with emotional regulation, this study contributes to a deeper understanding of how high-ability adolescents manage internal experiences that influence their academic performance.

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