Navigating Academic Self-Concept via Social Comparison : The Moderating Impact of Achievement Goals Among Students

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Abstract: This study aims to analyze the role of Achievement Goals as a moderator in the relationship between upward social comparison and academic self-concept among college students. The research method used a correlational quantitative with a cross-sectional design. Using convenience sampling, a total of 111 freshmen participants were obtained from an online questionnaire. PROCESS Model, 14 Hayes tested moderating effects across mastery and performance goals with approach-avoidance dimensions. Results showed no overall moderating effect of mastery or performance goals. However, performance-avoidance goals intensified the negative impact of upward social comparison on academic self-concept at low to moderate levels, while performance-approach and mastery goals had no significant effects. These findings suggest that students with performance-avoidance goals are more vulnerable in competitive settings, underscoring the need for targeted support to enhance academic self-concept across goal orientations.

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Introduction

According to the Quacquarelli Symonds Asia University Rankings 2022, Institut Teknologi Bandung (ITB) is the second-best university in Indonesia (Symonds, 2022). ITB is a public university with the highest average score on the Selection Based on Tests (SNBT) 2023 with a score 694.40 (Caesaria, 2023). The SNBT 2023 material assesses cognitive abilities, such as general reasoning, quantitative skills, reading comprehension, etc (Arnani, 2023). It can be said that average ITB students have high cognitive abilities and demonstrate intense competition among their peers. Furthermore, the frequent announcement of quiz or exam scores allows students to be aware of each other's capabilities in the subject, increasing competition.

Jackman et al. (2011) found that students in universities with a high-achieving atmosphere may experience the big-fish-little-pond effect. Marsh (1984) described the phenomenon where students in elite schools tend to have a lower academic self-concept compared to students of similar abilities attending regular schools. Being in a high-ability school or class may negatively impact students' academic self-concept (Marsh & Hau, 2003). Specifically, freshmen often encounter many pressure-filled experiences (Parker et al., 2006), which can trigger feelings of inferiority and anxiety (Afifah & Pangestu, 2021; Côté & Levine, 2014).

Academic self-concept (ASC) is the perception and self-evaluation regarding academic achievement and ability, formed based on experiences and interpretations of the environment, especially significant others (Guo et al., 2022; Marsh & O'Mara, 2008; Shavelson et al., 1976; Zhang, 2021). ASC has received extensive attention in academia because of its direct relevance to the educational environment (Wu et al., 2021). It not only

provides information about academic tasks or activities but is also related to future goals and academic ambitions (Ahmavaara & Houston, 2007). High ASC is crucial for facilitating academic achievement and has become one of the primary goals in education (Seaton et al., 2009), thus studying its formation process and uncovering its mechanisms can be beneficial both academically and practically (Fang et al., 2018). Low ASC also negatively impacts students' lives, such as a tendency to feel socially isolated (usually due to their own decisions), which further affects their learning ability and self-esteem, thus decreasing their ASC (Barbaro-Brown et al., 2021).

ASC results from personal factors, learning from the environment, and the interaction between individuals and their learning context (Zhang, 2021). ASC is not solely based on ability but can also be shaped by social comparisons (Burleson et al., 2005; Cecalupo et al., 2022; Marsh, 2005; Marsh et al., 2020). Social comparison is an individual's drive to evaluate the accuracy of their beliefs and attitudes by comparing themselves to others (Festinger, 1954). Social comparison occurs spontaneously (Mussweiler et al., 2004) and unconsciously (Chatard et al., 2017), including in classroom settings (Buunk et al., 2005). The process of someone evaluating themselves against perceived superior others is called upward social comparison (Guyer & Vaughan-johnston, 2018). In contrast, when someone compares themselves to others they consider inferior, it is termed downward social comparison (Buunk et al., 2005). Individuals tend to evaluate their abilities through comparisons with others who perform slightly better than themselves (Seaton et al., 2010).

When someone engages in upward social comparison, they may have a lower ASC (Wolff et al., 2018). However, other studies show that a person's ASC who engages in upward comparison does not necessarily decrease, as they may feel inspired by their social comparison targets (Burleson et al., 2005). Other research indicates that they feel pleased because they are perceived as equal to their high-ability peers due to the assimilation effect known as the glory effect, which does not lower their ASC (Burleson et al., 2005; Lüdtke et al., 2005; Trautwein et al., 2009).

Social comparison is a dynamic process that changes and evolves over time due to development, aging, cognitive maturation, and the active role of perceptions, needs, motives, and goals present in individuals (Cecalupo et al., 2022). Dai and Rinn (2008) argue the need to consider individual characteristics of students, such as motivational processes, to understand the social comparison process in predicting students' academic self-concept (Marsh et al., 2021). Some studies attempt to explain how motivation, specifically the achievement goals, may play a role in how social comparison occurs and its impact on academic self-concept (Cecalupo et al., 2022; Cheng et al., 2014; Marsh et al., 2021a; Wouters et al., 2013).

Elliot & Murayama (2008) define achievement goal as cognitive and dynamic goals focused on competence, with each goal consisting of separate competency components. These separate components are differentiated by the mastery and performance dimensions (Maehr & Nicholls, 1980). The distinction lies in how individuals evaluate themselves, whether using absolute-intrapersonal standards (mastery) or normative standards (performance) (Elliot & Murayama, 2008). Mastery-based standards focus more on learning processes, while performance standards concentrate on the results of performance (Elliot & Murayama, 2008). This difference in evaluation methods occurs not only in academic tasks but also when assessing academic performance (Ames, 1992; Elliot et al., 2011).

When students lean towards performance goals, they tend to complete tasks because they want to perform better than others or do not want to perform worse than others (Wouters et al., 2013). In contrast, when students lean towards mastery goals, they tend to complete

tasks to understand their tasks and develop their competencies (Wouters et al., 2013). Those inclined towards mastery goals will use task characteristics or compare their current performance with past performances. Both approaches enable students to engage in social comparisons to gather information about their competencies, including mastery goals that utilize such information to enhance their abilities based on others' experiences (Dijkstra et al., 2008).

Elliot & McGregor (2001) differentiate the achievement goal based on approach and avoidance valence, termed the A 2 x 2 Achievement Goal Framework, resulting in four types: (1) performance approach, aiming to demonstrate greater competence than others; (2) performance-avoidance, aiming not to perform worse than other students; (3) mastery approach, aiming to acquire as much knowledge and skills as possible; and (4) mastery avoidance, emphasizing not to lose existing knowledge and skills or misunderstand the material (Elliot & McGregor, 2001).

Different types of achievement goals have varying impacts on students. For instance, performance approach goals relate to more positive outcomes, such as the use of cognitive strategies and achievement in subjects, while performance avoidance goals are linked to negative outcomes, such as shallow learning strategies, lower performance, self-handicapping behaviors, and diminished intrinsic motivation (Mattern, 2005).

Practically, identifying moderators can contribute to developing educational policies and practices that minimize negative impacts or maximize positive effects related to phenomena (Cheng et al., 2014). Wouters et al. (2013) conducted research on achievement goals. Their findings indicate that the Big-Fish-Little-Pond Effect (BFLPE) does not occur with equal strength for all students; rather, it depends on individual goal differences rather than contextual goals. The more achievement goals students have, the more likely BFLPE occurs (Wouters et al., 2013). Cheng et al.'s (2014)research showed that students with high motivation, both intrinsic and extrinsic, experienced a stronger BFLPE (decrease in ASC), and BFLPE was slightly more pronounced in students with stronger mastery goals. Based on this, Marsh et al. (2021b) conducted a study aimed at understanding how motivational theories can serve as moderators in the occurrence of BFLPE. Their results indicated that the BFLPE phenomenon is not moderated by achievement motivation theory. Sixteen motivational constructs (e.g., mastery goals, performance-approach goals, performance-avoidance goals, learning preferences: competitive, learning preferences: cooperative, etc.) tested did not show significant results.

Research regarding how achievement goals influence students' academic self-concept during social comparisons remains inconsistent (Cheng et al., 2014; Marsh et al., 2021; Wouters et al., 2013). These studies have been conducted on various sample characteristics, including elementary school students (Marsh et al., 2021; Wouters et al., 2013) and junior high school students (Cheng et al., 2014). Marsh & O'Mara (2008) explained that BFLPE persists four years after students graduate, making it very likely that college students experience BFLPE and possess a low academic self-concept (Barbaro-Brown et al., 2021). Therefore, freshmen, particularly at ITB, would be interesting to study, as they are likely to experience a decline in self-concept due to upward social comparison. Moreover, those studies focused on student groups without considering individual differences related to personal characteristics, such as intrinsic and extrinsic motivation, and how these differences affect academic self-concept through social comparison (Burleson et al., 2005; Huguet et al., 2009).

Based on the literature review, there has been progress in research regarding upward social comparison and academic self-concept (Blanton et al., 1999; Burleson et al., 2005;

Huguet et al., 2009; Müller-Kalthoff et al., 2017). However, the findings have been inconsistent. Meanwhile, achievement goal is suspected to be a factor in the occurrence of the BFLPE phenomenon, which is closely related to academic self-concept and social comparison. There has been no study that positions achievement goals as a moderator in the relationship between upward social comparison and academic self-concept.

This research aims to determine the role of Achievement Goals as a moderator in the relationship between upward social comparison and academic self-concept among new students at ITB. Thus, the hypothesis of this study is that there is a significant role of achievement goals types in the relationship between upward social comparison and academic self-concept among new students at ITB.

Research Method

The research method used is correlational quantitative to test the relationships among the three variables in individuals. A cross-sectional study design is employed in this research, meaning that data collection is conducted only once with all participants. Using convenience sampling, a total of 133 freshmen participants were obtained from an online questionnaire. However, the data processed in this study included only those who passed the distractor items (ensuring that participants paid attention while filling out the questionnaire), resulting in 111 freshmen (60 females) with an average age of 18.47 (SD = 0.65) years.

The Social Comparison Scale (SCS) is a measure of social comparison adapted into Indonesian by (Az-Zahra, 2020). The SCS is based on the Academic Social Comparison Scale (Pulford et al., 2018) and is grounded in Festinger's theory (1954). This measure assesses three directions of social comparison: Upward Comparison (UC), Horizontal Comparison (HC), and Downward Comparison (DC). In this study, only the upward comparison dimension was selected, consisting of 10 items with reliability of $\alpha = .888$. The SCS for upward comparison was adapted by the researcher to fit the academic learning context of students, for example, "I compare myself to other students who seem more prepared for the exam than I am," resulting in a reliability of $\alpha = .887$. The measurement uses a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree) with a neutral option (4), which is scored as 4.

Achievement Goals (AG) are measured using the Goal Orientation Scale adapted by Rizka (2015) from the 2x2 Achievement Goal Framework theory (Elliot & McGregor, 2001), with reliability of $\alpha = .793$ (Anshari, 2022). The Goal Orientation Scale measures four types of students' achievement goals, divided into four subscales, each measuring different dimensions: (a) mastery-approach ($\alpha = .753$), (b) mastery-avoidance ($\alpha = .848$), (c) performance-approach ($\alpha = .842$), and (d) performance-avoidance ($\alpha = 0.727$). Each subscale consists of three items, except for the performance-avoidance subscale, which has only two items. The Mastery Goals (MG) dimension is obtained by summing the mastery approach and mastery-avoidance subscales. Participants are asked to indicate the degree of agreement between each item and their feelings on a Likert scale of 1 to 5 (1 = Strongly Disagree, 5 = Strongly Agree).

ASC is measured using the Academic Self-Concept Scale (ASCS) developed by Reynolds (1988). The ASCS was then adapted by Fatin (2019) and refined by (Camelien, 2022), resulting in 6 items that measure academic self-concept in a student population. This measurement tool consists of 40 items ($\alpha = 0.899$), with 34 items having high validity with a CrIT value > 0.3, 4 items having moderate validity with a CrIT value between 0.2 and 0.299, and 2 items having low validity with a CrIT value < 0.2, according to Nunnally & Bernstein (1994). The 40 items include 23 favorable items and 17 unfavorable items (see examples in

Table 3.1 and item types in Table 3.2) with a 4-point Likert response scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree). The academic self-concept score is determined by the total score, where a higher selection indicates a more positive academic self-concept. The correlation analysis technique was conducted to evaluate the relationships between variables. After that, a moderation analysis using PROCESS Model 14 by Hayes was applied to examine the role of achievement goals as a moderator in the relationship between upward social comparison and academic self-concept.

Results and Discussion
Preliminary Analyses

Before conducting the moderation analysis, all variables considered in this study underwent correlation testing. Table 1 presents the descriptive statistics and bivariate correlations among the variables, including academic self-concept, upward social comparison, and types of achievement goals. As hypothesized, upward social comparison and academic self-concept are significantly negatively correlated ($r = -0.36$; $p < .001$). Meanwhile, the correlation of academic self-concept with almost all types of achievement goals shows significant relationships ($r = 0.03$-0.42; $p \leq 0.05$), except for performance avoidance goals ($p > 0.05$). Additionally, the significant correlations are positive, except for mastery goals in general and mastery avoidance goals, which are negatively related to academic self-concept.

Table 1 Descriptive statistics and bivariate correlations

|		M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1.	Academic self-concept	.04.46	15.59	-							
2.	Upward social comparison	49.74	11.52	-0.36**	-						
3.	Mastery goals	26.07	3.26	-0.21*	0.48**	-					
4.	Performance goals	19.02	3.81	0.24*	0.35**	0.40**	-				
5.	Mastery-approach goals	13.83	1.53	0.03**	0.05	0.52**	0.38**	-			
6.	Mastery-avoidance goals	12.23	2.77	-0.42**	0.54**	0.88**	0.26**	0.06	-		
7.	Performance-approach goals	10.90	2.80	0.24**	0.28**	0.32**	0.88**	0.30**	0.21*	-	
8.	Performance-avoidance goals	8.11	1.87	0.13	0.29**	0.34**	0.71**	0.32**	0.22*	0.30**	-

Notes: **$p<.001$; *$p<0.05$

Moderation Analysis

PROCESS Model 14 (Hayes, 2018) was applied to the variable of performance goals as a moderator in the relationship between upward social comparison and academic self-concept. Performance goals did not significantly moderate the relationship between upward social comparison and academic self-concept ($B = -0.01$; $SE = 0.02$; 95% CI (-0.07, 0.04)). Performance-approach goals also did not have a moderating effect on the relationship ($B = -0.01$; $SE = 0.02$; 95% CI (-0.07, 0.04)). However, when conducting a moderation analysis based on valence differences, a moderating effect of performance approach goals on the relationship between upward social comparison and academic self-concept was found ($B = 0.17$; $SE = 0.06$; 95% CI (0.05, 0.30)).

The visualization of the moderating effects can be seen in Figure 1. When students have low and moderate tendencies toward performance avoidance, those engaging in upward social comparison easily experience a decline in academic self-concept ($p < 0.001$). However,

at a moderate level of performance-avoidance, the decline is not as severe as at low levels. Meanwhile, when the level of performance-avoidance is high, there is no significant effect on the decline of academic self-concept in students engaging in upward social comparison ($p > 0.05$).
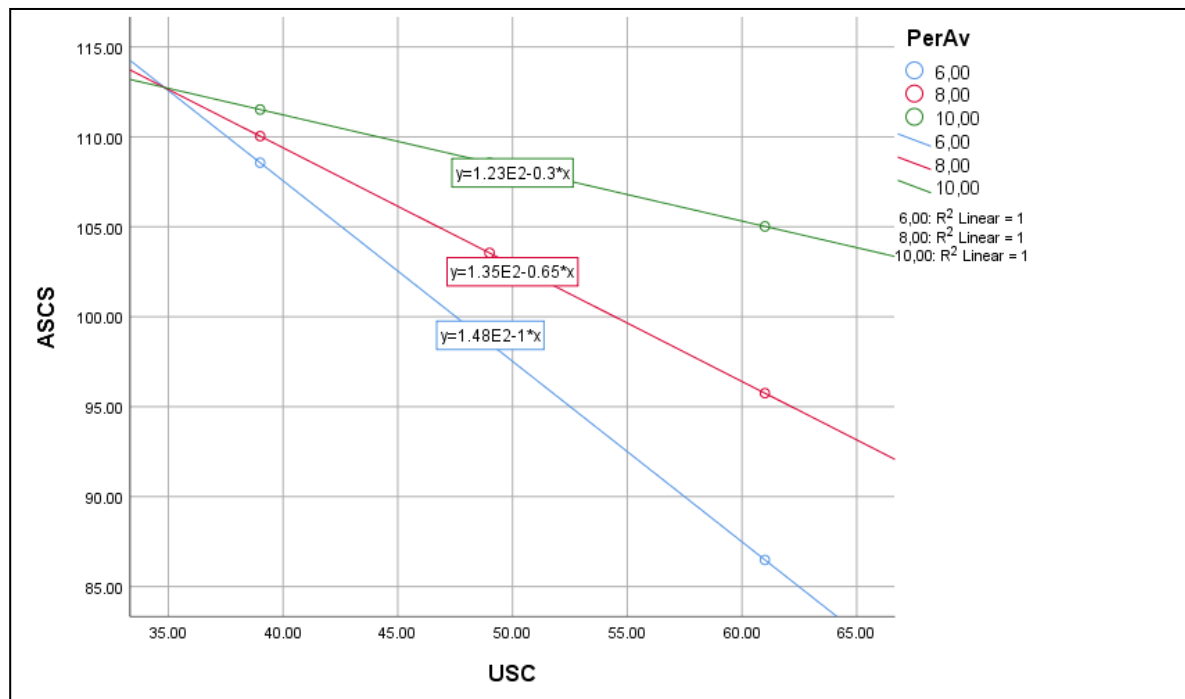
Figure 1. Visualization of the moderating effect of performance avoidance goals on the relationship between upward social comparison and academic self-concept

Mastery goals did not significantly moderate the relationship between upward social comparison and academic self-concept ($B = -0.01$; $SE = 0.02$; 95% CI (-0.07, 0.04)). The researcher also conducted a moderation analysis based on valence differences, specifically mastery-approach and mastery-avoidance goals. Both valences yielded similar results to mastery goals, indicating that there were no moderating effects for either mastery-approach goals ($B = -0.01$; $SE = 0.02$; 95% CI (-0.07, 0.04)) or mastery-avoidance goals ($B = -0.01$; $SE = 0.02$; 95% CI (-0.07, 0.04)).

The underlying assumption of achievement goal theory is that the goals set in learning are formed by how individuals adopt their standards in evaluating their personal competence (Zhou et al., 2020). Several other studies also suggest that individuals engage in social comparison when they have performance goals and do not consider social comparison when they tend to have mastery goals, as the standards are not something that can be compared with others (other people's achievements) but are self-referenced (previous personal achievements).

The results of this study show that neither mastery goals nor performance goals have a moderating effect on the relationship between upward social comparison and academic self-concept. This aligns with several previous studies that explain that the relationships among mastery goals, performance goals, and school-related outcomes are complex and dynamic processes, leading to the development of achievement goal theory to explain the differing mechanisms between the two types (Barron & Harackiewicz, 2003). Therefore, the researcher

also analyzed based on the development of the 2x2 achievement goals theory, which considers the direction of each type of achievement goal, namely approach and avoidance.

Various meta-analyses of achievement goal types found that avoidance valence, both in mastery-avoidance and performance-avoidance, negatively impacts school-related outcomes (Baranik et al., 2010; Payne et al., 2007). Furthermore, the negative impact is more pronounced when students adopt performance-avoidance goals compared to mastery-avoidance goals (Baranik et al., 2010; Payne et al., 2007). This is consistent with the results of this study. Students who adopt performance-avoidance goals at low or moderate levels further strengthen the negative relationship that occurs between upward social comparison and academic self-concept. Performance-avoidance goals compel students to increase their efforts to avoid failure in competitive contexts (Niepel et al., 2014). Students who adopt performance-avoidance goals tend to avoid challenges (Mouratidis et al., 2018). This leads students to shy away from learning opportunities because they feel a clear lack of competence (Niepel et al., 2014). Ultimately, they perceive themselves as less academically successful, which leads to a decrease in their academic self-concept (Niepel et al., 2014)

In contrast to performance-avoidance goals, performance-approach goals do not negatively impact academic self-concept. Students who tend to adopt performance-approach goals compare themselves with their peers in class, aiming to evaluate their competence, which makes them more competitive and enhances their abilities compared to others. This proactive behavior increases their learning opportunities, subsequently improving their achievements in class, and ultimately enhances their perception of competence compared to others, thereby also boosting their academic self-concept (Niepel et al., 2014).

Students who adopt mastery goals will focus on improving their abilities. When faced with peers who have higher academic scores, students with mastery goals will bolster their confidence that they can catch up through their efforts (Kamarova et al., 2017; Park & Park, 2017). Through this optimism or feeling of inspiration, even though students often compare themselves to better-performing peers, it does not impact their academic self-concept (Burleson et al., 2005). Social comparison for self-evaluation does not necessarily have to be limited to a competitive context, and the comparative standards used by someone with mastery goals serve to enhance their skills (Kamarova et al., 2017; Park & Park, 2017)

An interesting finding from this study is the negative correlation between mastery goals and academic self-concept. This means that the more students adopt mastery goals, the lower their academic self-concept. This contrasts with most studies explaining that mastery goals typically have a positive and adaptive impact, especially on academic outcomes (Soini et al., 2012). However, when analyzing correlations based on valence differences, mastery-avoidance goals have a higher correlational effect than mastery-approach goals, where the effect size can be disregarded. This is in line with previous research indicating that when individuals tend to adopt achievement goals with an avoidance direction, it often has a negative impact on academic achievement (Payne et al., 2007). The more one adopts mastery-avoidance goals, that is, their learning goal is to avoid declining their competence from before or not mastering certain learning materials, the lower their academic self-concept becomes. Although mastery-avoidance goals are positively correlated with adaptive variables, such as achievement needs, they are also positively correlated with competitiveness (Baranik et al., 2010). This sense of competition can lead students who increasingly adopt mastery-avoidance goals to have a lower academic self-concept. Moreover, mastery-avoidance goals are also associated with negative affect and cognitive abilities, allowing students to develop negative self-perceptions, in this case, their academic self-concept.

The differing moderation effects of achievement goals highlight the importance of considering both the type and valence (approach-avoidance) of goal orientation in understanding how individuals manage and interpret social comparison. Performance-avoidance goals tend to focus more on the fear of failure, making individuals with this orientation more vulnerable to the impacts of social comparison, especially when comparing themselves to those deemed superior. Within the achievement goals theoretical framework, these findings broaden our understanding by showing that goal orientation affects not only learning outcomes but also how individuals evaluate themselves in social contexts. This study contributes to the literature by emphasizing the complexity of the relationships among achievement orientation, academic self-concept, and social comparison, supporting the development of more contextually relevant interventions aligned with students' goal orientations.

In an educational context, students that adopt mastery goals or performance-approach goals orientations that are more positive and proactive can help them to focus on self-improvement rather than merely avoiding failure. This approach has the potential to broaden their mindset, foster a more positive academic self-concept, and lessen the negative effects of social comparison, ultimately supporting their psychological well-being.

Conclusion

The analysis results indicate that achievement goals do not significantly moderate this relationship, except for the dimension of performance-avoidance goals. Students with performance-avoidance goals tend to experience a decline in academic self-concept when engaging in upward social comparison, while those adopting performance-approach goals do not experience a significant decline because their motivation is also likely to enhance their performance. These findings support the theory that achievement goals with avoidance valence, particularly performance-avoidance goals, can negatively impact academic self-perception. Additionally, these results reinforce previous research indicating that mastery-avoidance goals correlate negatively with academic self-concept. Overall, this study demonstrates that achievement goal plays a role in influencing the academic self-perception of new students in a competitive environment like ITB, especially in the context of comparison with superior peers.

Recommendation

Future research is recommended to expand the scope by involving students from various universities, academic programs, and educational levels. It is also important to consider the unique cultural characteristics in Indonesia, as the academic culture and social norms in the country can influence interactions and social comparisons among students. Understanding this cultural context will aid in designing more relevant and effective interventions to enhance positive goal orientations among students. Additionally, by integrating the 3 × 2 Achievement Goal Model, which separates task-based (absolute), self-based (intrapersonal), and other-based goals into six achievement goals (Elliot, A. J. et al., 2011), researchers can further explore how different types of achievement goal interact with social comparison in academic environments.

Stakeholders can consider withholding publicized exam results to reduce students' tendencies to compare themselves with peers based on grades or feel embarrassed by perceived failures or shortcomings. The focus should instead be directed toward mastery of content. Furthermore, stakeholders could provide counseling services to support students in managing anxiety around failure, equipping them with strategies to handle social comparison

more positively. Programs or interventions that encourage students to adopt mastery goals—learning goals that emphasize personal skill development—and performance-approach goals, which foster healthy competition to improve competence, would be beneficial. For instance, the campus could offer workshops or seminars promoting a growth mindset and a self-development-oriented approach.

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