

# *The Effect of Achievement Goals on Academic Anxiety: Emotion Regulation's Moderating Role*

Yiou Huang<sup>1,a,\*</sup>

<sup>1</sup>Beijing Royal School, Changping District, Beijing, 102209, China  
a. huangyiou@st.brs.edu.cn

\*corresponding author

**Abstract:** This study demonstrates the impact of achievement goals on the levels of academic anxiety and to what extent emotion regulation moderates this effect. To be more specific, there are three orientations of achievement goals. Mastery goal, which focuses on task mastery, weakly affecting academic anxiety. The second orientation is performance-approach goal, which aims to receive positive judgement, and the third one is performance-avoidance goal, which emphasize avoiding negative judgement of competence; both enhance the levels of academic anxiety. For emotion regulation, there are two strategies. Cognitive reappraisal works by interpreting emotion-eliciting events by changing their emotional impact, effectively decreasing the levels of academic anxiety. Expressive suppression refers to inhibiting ongoing emotional response, enhancing the levels of academic anxiety. The anxiety set by performance-approach goal can be greatly modulated by reappraisal. However, suppression can significantly magnify anxiety, whatever the achievement goals orientation the individual chooses. That is why if students want to efficiently cope with academic anxiety and achieve better academic performance results, mastery goal is the most suitable orientation of achievement goals, and reappraisal is the most beneficial emotion regulation strategy for students.

**Keywords:** achievement goals, performance-approach goal, emotion regulation, cognitive reappraisal

## 1. Introduction

As the promotion of paying attention to students' health states rather than academic performance continues, authorities and publicities start to be aware of one of the most essential elements that truly influence students' academic results: academic anxiety.

Academic anxiety is the branch of anxiety related to every academic task like taking tests, doing homework and attending classes [1]. Hancock uncovered that understudies with high academic anxiety performed ineffectively and were less spurred to learn [2]. The components of academic anxiety that contribute to unsuccessful academic performance are worry, emotionality, task-generated interference, study skills deficits and procrastination [1]. Worry contains thoughts that distract you from academic tasks. Emotionality refers to biological symptoms of academic anxiety (e.g., sleep deprivation). Task-generated interference are behaviours in hands that are unproductive to performance.

Importantly, performance and academic anxiety are mutually influenced [1]. If the student performs poorly, then the academic anxiety level for the student increases. However, if the student experiences high academic anxiety, the performance is negatively affected. That is why performance is a basic factor that determines academic anxiety. Additionally, students' performance result is greatly motivated by achievement goals, which refers to the purpose of task engagement [3]. There are different orientations in achievement goals, and each individual orientation influences performance in special ways. Hence, the discrete orientations in achievement goals might have a distinct association with the academic anxiety, which is correlated with performance.

Elliot and Harackiewicz proposed a model of division in achievement goals, including three types of orientations: mastery goal refers to competence development and task mastery [4], based on intrapersonal standards [5]; performance-approach goal emphasizes on receiving positive judgements of competence; and performance-avoidance goal are based on avoiding negative judgements of competence. Based on the divisions mentioned above, Andrew and Marcy constructed a hierarchical model, stating that motive dispositions are achievement goals' source [6].

In their proposed model, Andrew and Marcy perceived mastery goal and performance-avoidance goals served a simple motivational function, achievement motivation for mastery goal, and fear of failure for performance-avoidance goal. In addition, the model predicted that mastery goal could show a positive connection with motivation and no proven effect on graded performance, but performance-avoidance goal showed a negative connection with motivation and negatively affected graded performance. Performance-approach goal were more complex that served both achievement motivation and fear of failure. In addition, performance-approach goal had no connection or effect on motivation but a positive connection with academic performance.

According to achievement goal theory [7-10], distinct orientations in achievement goals were correlated with achievement emotions, which are the emotions stimulated by competence-relevant activities or results. Achievement emotions include numerous psychological conditions, such as anxiety, worry and pride [11]. This study focuses on anxiety and emotion regulation strategies among anxiety that cope with achievement goals.

Iris and Mauss defined emotions as multi-dimensional, containing personal experience, behaviour, and peripheral physiology. Emotion regulation was then defined as conscious or unconscious influencing the emotional states and controlling the expression and perception of emotions [12]. There are two emotion regulation strategies: cognitive reappraisal and expressive suppression. The cognitive reappraisal known as cognitive reappraisal involves interpreting a stimulus that might elicit emotion in a way that modifies its emotional impact [13, 14]. It is an antecedent-focused strategy, meaning that reappraisal happens before the activation of the emotion response. Expressive suppression is defined as an inhibiting ongoing emotional response [15]. It is a response-focused approach, indicating that humans use this strategy after the activation of emotional response, primarily altering emotional behaviors [13].

In James and Oliver's hypothesis, reappraisal strategy could positively affect emotions and well-being, whereas suppression strategy would further worsen emotions and negatively relate to well-being. Because using reappraisal indicates that the the person has better interpersonal functioning than when they use suppression, who has worse interpersonal functioning.

The aim of the research is to investigate the role of emotion regulation in the possible effect of achievement goals on academic anxiety, testing which orientation of achievement goals influence students' academic anxiety and which strategy in emotion regulation is more efficient in regulating the anxiety caused by certain achievement goal. Hence, we can determine which orientation of achievement goal has the strongest connection to academic anxiety and the most effective emotion regulation strategy, giving students clues about coping with academic anxiety and ensuring their graded performance. Figure 1 is the hypothesis moderating model of this study. The crossing between

variables is that different types of achievement goals lead to various levels of academic anxiety, and emotional regulation can either increase or decrease academic anxiety levels based on the different strategies participants used.

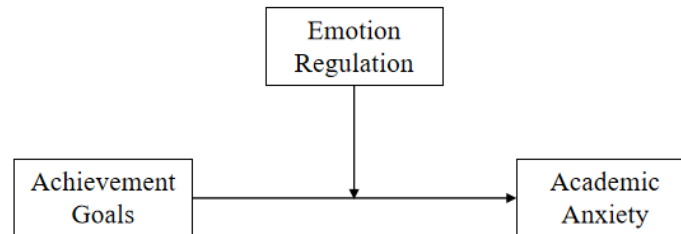


Figure 1: Hypothesis moderating model of present study.

## 2. Methods

### 2.1. Participants

There are 203 participants in total. To be more specific, participants are mostly selected from middle and high schools in Beijing (44.83%), Chongqing (40.89%), other regions in China (9.35%), plus some of them are from other countries such as the US, the UK and Canada (4.93%). Their ages are collected in years from 13 to 25 years old ( $M = 15.50$ ,  $SD = 1.494$ ), and most of them are in the range of 15-16 years old (60.10%). This study does not involve the concern of gender distribution.

Participants completed questionnaires online via the app Sojump (online questionnaire generator), and the spreading channels include WeChat and Dingtalk. The survey was conducted in the time between March 19th and March 30th of 2023.

### 2.2. Measurements

#### 2.2.1. Achievement Goals

Achievement goal was measured using the 18-item questionnaire designed by Andrew and Marcy with a 5-point Likert scale [6]. An achievement motivation in hierarchical model test is generated by them. Items ranging from 1, “strongly disagree,” to 5, “strongly agree”. Increasing in scores shows a higher tendency to use a certain achievement goal.

The questionnaire was designed to determine which orientation of achievement goals did the participant use, there were three distinct orientations toward competence. The orientation of mastery goal had 5 items, for example, “I prefer course material that really challenges me so I can learn new things”. Performance-approach goal orientation had 6 items, for example, “It is important to perform better than other students”. Performance avoidance goal orientation had 5 items, for example, “My goal is just to avoid doing poorly in this class”. The coefficients of the internal consistency mastery goal ( $\alpha = .89$ ), performance-approach goal ( $\alpha = .91$ ) and performance-avoidance goal ( $\alpha = .77$ ) were good.

#### 2.2.2. Academic Anxiety

The 6-item version of the Achievement Emotion Questionnaire was used to measure academic anxiety [16]. The survey was in a form of a 5-point Likert scale, items ranging from 1 “strongly disagree” to 5 “strongly agree”. Increasing scores indicated a higher academic anxiety level in the individual, for example, “when thinking about my class, I get nervous.” The coefficient of the internal consistency of academic anxiety in this study is accepted ( $\alpha = .78$ ).

### 2.2.3. Emotion Regulation

The Emotion Regulation Questionnaire with 10-item was used in this study [13]. It was for determining which emotion regulation strategy was used by the participant. This questionnaire is a 7-point Likert scale, with items ranging 1 “strongly disagree” to 7 “strongly agree”. Two emotion regulation strategies were measured: cognitive reappraisal (“I control my emotions by changing the way I think about the situation I am in,” 6 items) and expressive suppression (“I control my emotions by not expressing them,” 4 items). There were distinct items about regulating negative emotion and regulating positive emotions separately in both the reappraisal and the suppression scales. The internal consistency of cognitive reappraisal ( $\alpha = .79$ ) and suppression ( $\alpha = .73$ ) is accepted.

### 2.3. Data Analysis

The data analysis software used is SPSS 20.0. Descriptive statistics, correlation analysis, regression analysis and simple slope test were used to analyze the data.

## 3. Results

### 3.1. Descriptive Statistics and Correlation Analysis

In Table 1, the average age of participants is 15.50 years old ( $SD = 1.49$ ). Mastery goal has an average of 3.69 ( $SD = .91$ ). Performance-approach goal has an average of 3.52 ( $SD = 1.04$ ). Performance-avoidance goal has an average of 3.47 ( $SD = .99$ ). The average number of cognitive reappraisal is 4.91 ( $SD = 1.38$ ). The average number of suppression is 4.43 ( $SD = 1.55$ ). The average number of academic anxiety is 3.21 ( $SD = .96$ ).

Three achievement goals have distinct correlations with each other. Mastery goal and performance-approach goal is correlated positively ( $r = .34, p < .01$ ). The correlation between mastery goal and performance-avoidance goal is  $.25 (p < .01)$ . The correlation between performance-approach goal and performance-avoidance goal is  $.63 (p < .01)$ . mastery goal and academic anxiety were not significant. The correlation between performance-approach goal and academic anxiety is  $.27 (p < .01)$ . Performance-avoidance goal and academic anxiety correlate of  $.59 (p < .01)$ . Cognitive reappraisal and academic anxiety have a correlation of  $.46 (p < .01)$ . Suppression and academic anxiety have a correlation of  $.42 (p < .01)$ .

Table 1: Mean, SD and correlations of main variables.

	1	2	3	4	5	6	7
1 age	-						
2 mastery goal	-.12	-					
3 performance-approach goal	-.04	.34**	-				
4 performance-avoidance goal	-.021	.25**	.63**	-			
5 cognitive reappraisal	-.02	.42**	.31**	.17*	-		
6 suppression	.12	.21**	.23**	.36**	.46**	-	
7 academic anxiety	.07	.03	.27**	.59**	.07	.42**	-
<i>M</i>	15.50	3.69	3.52	3.47	4.91	4.43	3.21
<i>SD</i>	1.49	.91	1.04	.99	1.38	1.55	.96

### 3.2. Regression of Achievement Goals on Academic

In anticipation of mastery goal to academic anxiety, cognitive reappraisal’s moderating effect is not significant. The interaction of performance-approach goal with cognitive reappraisal on academic

anxiety is significant ( $\beta = .14, t = -2.12, p < .05$ ). Performance-avoidance goal shows a significant positive correlation with academic anxiety ( $\beta = .60, t = 10.24, p < .001$ ), but cognitive reappraisal here does not have a significant moderating effect (Table 2).

Table 2: Regression Analysis of Motivations, Reappraisal and Interactions on Academic Anxiety.

	Step 1	Step 2		Step 1	Step 2		Step 1	Step 2
mastery goal	.00	.00	Performance approach	.28	.29	Performance avoidance	.60***	.60***
Reappraisal	.07	.06	Reappraisal	-.02	-.03	Reappraisal	-.03	-.03
mastery goal × Reappraisal		-.05	Performance approach × Reappraisal		-.14*	Performance avoidance × Reappraisal		-.01
$R^2$	.005	.008		.075	.096		.350	.350
$\Delta R^2$		.003			.020			.000
$\Delta F$		.533			4.491*			.034

In anticipation of mastery goal to academic anxiety, suppression's moderating effect is not significant. And the interaction of performance-approach goal and suppression on academic anxiety is not significant. In the effect of performance-avoidance goal on academic anxiety, suppression's moderating effect is not significant (Table 3).

Since cognitive reappraisal (CR) shows a significant effect on moderating the academic anxiety set by performance-approach goal, the figure below further demonstrates the correlation. Individuals with high cognitive reappraisal and higher performance-approach goal lead to lower academic anxiety. However, individuals with low cognitive reappraisal and higher performance-approach goal indicate higher academic anxiety (see Figure 2).

Table 3: Regression analysis of motivations, suppression and interactions on academic anxiety.

	Step 1	Step 2		Step 1	Step 2		Step 1	Step 2
mastery goal	-.06	-.06	Performance approach	.19	.19	Performance avoidance	.51	.51
Suppression	.43	.43	Suppression	.38	.38***	Suppression	.24	.24
mastery goal × suppression		.02	Performance approach × suppression		-.03	Performance avoidance × suppression		.07
$R^2$	.179	.179		.209	.210		.399	.404
$\Delta R^2$		.000			.001			.005
$\Delta F$		.106			.178			1.644

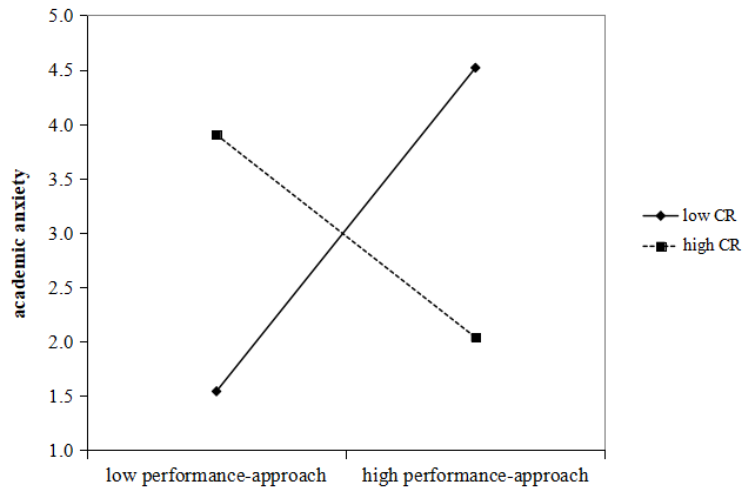


Figure 2: Cognitive reappraisal's moderating effect between performance-approach goal and academic anxiety.

#### 4. Discussion

Resulted of the survey data analysis, the association between mastery goal and levels of academic anxiety is weak, but both performance-approach goal and performance-avoidance goal are strongly correlated with levels of academic anxiety, showing both positive correlations. However, when the participant uses cognitive reappraisal to regulate the achievement emotions set by performance-approach goal, the level of academic anxiety the participant experienced significantly decreases. Hence, cognitive reappraisal presents a negative correlation with the levels of academic anxiety. To compare, expressive suppression positively correlated with the level of academic anxiety, whatever the orientation of achievement goals the participant has.

The reason why distinct orientations of achievement goals show these correlations with the levels of academic anxiety might be mainly the differences between certain achievement emotions set by various achievement goals. As stated by Pekrun et al., achievement emotions could influence students' graded performance in academics, such as learning-related tasks [10]. Especially negative achievement emotions (e.g., anxiety, worry, boredom, shame and anger) could have to serve impact on performance, resulting in low academic achievement, whereas positive achievement emotions (e.g., interest, enjoyment, worry, hope, pride) could optimistically influence academic performance, improving academic achievement. In addition, based on the aforementioned model, performance and academic anxiety levels are positively correlated.

Furthermore, many professionals suggested that mastery goal were more beneficial to students' academic performance. Based on the survey conducted by Huang, the association between mastery goal and positive achievement emotions was significant, indicating a robust correlation [11]. In addition, mastery goal weakly correlate with negative achievement emotions. Although the general association between performance goal (including performance-approach and performance-avoidance goal) and achievement emotions was weak, Elliott and Dweck suggested that individuals with more adopting on performance goal tended to be vulnerable to negative achievement emotions [7]. Specifically, Huang's survey pointed out that performance-avoidance goal had a detrimental effect on achievement emotions [11]. While according to Cohen's opinion, performance-approach goal and an example of positive achievement emotions and interest were moderately correlated [17]. That is why mastery goal do not cause academic anxiety, performance-approach goal have a less negative

effect on academic anxiety, and performance-avoidance goal significantly enhance academic anxiety among students.

It is not surprising that in emotion regulation strategies, reappraisal negatively correlates with the levels of academic anxiety, meaning that reappraisal is more efficient in regulating negative achievement emotions. In comparison, suppression shows a positive correlation with the levels of academic anxiety, indicating that suppression is not a proper regulation strategy when the individual wants to reduce negative achievement emotions. The reasons why it is not surprising are already implied in their definitions. Reappraisal is antecedent-focused, referring to occurring earlier than the emotional response, which might even enhance the emotion itself. Hence, it can effectively alter the emotions that are about to be expressed. However, suppression, a response-focused strategy, happens after the emotional response. It mostly just affects the behavioural expression but not the true emotional states [13]. Moreover, suppression requires cognitive resources that cost effort and energy, leading to a rise in negative emotions such as tiredness. Plus, Suppression may cause an apparent discrepancy between inner feelings and behavior [18], similar to self-deception (lying to oneself). This sense results in more intensive negative emotions such as guilty and self-hatred [19].

There was experimental evidence that proved the effectiveness of reappraisal. For instance, Gross once conducted an experiment comparing reappraisal and suppression [13]. Participants, who were arranged in two subject groups (one was demanded to use suppression by inhibiting behaviour expression, and one used reappraisal by thinking rationally about the plot), were required to watch a negative emotion-eliciting movie. As a result, participants who used suppression showed less observable emotional behaviours, but experienced more negative emotions. Oppositely, participants who used reappraisal showed both less behavioural expression and decreased negative emotions. This experiment's finding is consistent with the results of current study.

It is clear that students with both mastery goal and using reappraisal strategy is more likely to cope with academic anxiety and achieve outstanding performance in school. Avoiding performance-avoidant goal and suppression is essential for students to improve their mental health and reduce anxiety. Students need to truly reflect on themselves and try to change their minds as recommended. For education officials and counselling departments, encouraging students to focus on their tasks rather than competition with others is beneficial to students, helping them to identify their emotions (develop a more critical and realistic self-image) and change their perception of a certain event in a more optimistic view. Moderate academic anxiety helps students to achieve high standards and fantastic performance in education [1]. However, high academic anxiety greatly threatens students' mental and physical health, leading to poor academic performance, which even enhances academic anxiety. That is why learning to deal with academic anxiety is irreplaceable for students.

The limitation of this study involves the sample selection. Firstly, the number of participants is not enough to truly support the hypothesis, and the reason why the limited number of participants is the channel of spreading the survey. The channel only involves online promotion, using Dingtalk and WeChat, but a large number of students cannot use electronic devices and social media during school days. Plus, the online survey questionnaire opens for only one week, which is too short for collecting samples. Secondly, the survey does not involve the concern of gender, but according to Sharma and Sud, girls usually experience more test anxiety (a branch of academic anxiety) than boys [20]. Many researchers have indicated that females are more likely to face high levels of anxiety, even girls are already twice more likely to undergo anxiety disorders than boys when they were young [21]. Hence, females had more incidences of academic anxiety compared to males [22]. Thirdly, Huang pointed out the relationship between anxiety and achievement goals and how age may affect it [11]. The participants involved in this study are mainly adolescence, and the secretions of hormones, which can affect emotions and anxiety, are not stable. In addition, teenagers' brains are not fully developed yet, especially in the prefrontal cortex that regulates self-perception and self-control, so they usually



cannot identify their emotions and cause of anxiety in an accurate way. For example, they might unconsciously mix social anxiety elicited by the classes with academic anxiety from the classes. That is why their self-evaluation of academic anxiety is not supportive enough.

To improve, future studies need to increase the number of participants by discovering more promotion channels and expanding the time for participants to fill in. Gender will be required to answer during the survey, or this variable should be controlled. Finally, the age of participants will involve different stages of students.

## 5. Conclusions

This study focuses on the influence of achievement goals on academic anxiety and the moderating role of emotion regulation in this effect. Mastery goal weakly affecting academic anxiety. Performance-approach goal and performance-avoidance goal both enhance the levels of academic anxiety. Cognitive reappraisal effectively buffering students' academic anxiety. Expressive suppression enhances the levels of academic anxiety. The anxiety set by performance-approach goal can be greatly modulated by reappraisal. However, suppression can significantly magnify anxiety, whatever the achievement goals orientation the individual chooses. mastery goal as an achievement goals orientation with cognitive reappraisal, an effective emotion regulation strategy, are beneficial to students in academic environments, supporting them to perform better.

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