

The Relationship between Academic Procrastination and Self Regulated Learning in Higher Education

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ABSTRACT In the new era of popularization and autonomous development of higher education, the ability of college students to learn independently has become a core indicator for measuring the quality of talent cultivation. However, academic procrastination, as a common negative learning behavior among college students, seriously restricts the improvement of learning efficiency, academic quality, and comprehensive quality. Self regulating learning, as a core ability for actively adapting to higher education learning models, encompasses multidimensional elements such as cognitive regulation, motivation management, behavioral control, and time planning. It is a key endogenous driving force for solving the academic procrastination dilemma. To further clarify the intrinsic mechanisms of the two, this article takes undergraduate and graduate students in higher education institutions as research objects, and uses literature analysis, questionnaire survey, and statistical analysis methods to systematically explore the current characteristics, correlation, impact path, and differentiated performance of academic procrastination and self-regulated learning in the context of higher education.

INDEX TERMS Higher Education; college student; Academic procrastination; Self-regulated learning.

I. INTRODUCTION

A. RESEARCH SIGNIFICANCE

As China's higher education enters a new stage of high-quality development, the education model has completely moved away from passive indoctrination teaching in the basic education stage and turned towards a student-centered education model that focuses on independent exploration, active construction, and lifelong learning. In the higher education stage, the main teaching management methods are no longer teacher supervision and high-frequency supervision. Instead, students are given full autonomy in learning, time management, and learning choices. Various academic tasks such as course learning, scientific research practice, paper writing, and subject competitions require students to independently plan, actively promote, and implement in a closed loop[1]. This highly autonomous learning mode places extremely high demands on college students' self-control ability, learning planning ability, and behavior regulation ability, which directly leads to the widespread problem of academic procrastination[2-3].

The current academic research on academic procrastination and self-regulated learning is relatively rich, but most studies focus on behavioral status, influencing factors, and single variable intervention strategies[4]. There are still shortcomings in the systematic and in-depth research on the internal mechanisms, corresponding dimensions, and

differentiated impact paths of the two, especially the lack of empirical research that is suitable for the local higher education education education scene in China and covers students of different grades and academic levels[5]. Based on this, it is of great value and practical significance to explore the intrinsic relationship between academic procrastination and self-regulated learning in higher education, clarify the inhibitory effects of various dimensions of self-regulated learning on academic procrastination, and explore the differentiated characteristics of the relationship between the two among different groups of students. This will help to solve the dilemma of academic procrastination among college students, cultivate their core abilities in self-directed learning, and improve the system of academic education in universities[6-7].

B. RESEARCH SIGNIFICANCE

This study further enriches and improves the theoretical system of higher education learning psychology and academic behavior research. Firstly, this article systematically integrates the core theoretical framework of academic procrastination and self-regulated learning, combined with the educational characteristics of higher education in China and the learning status of college students, refines the sub dimensions of the two variables, accurately analyzes the correlation relationship, action path, and internal mechanism

of the two, and fills the gaps in the current academic research on the matching of the sub dimensions of the two and the weak empirical research on localization, thus improving the endogenous impact mechanism theory of academic procrastination[8]. Secondly, this study introduces individual differentiation variables to explore the moderating effects of gender, grade, major, and academic level on the relationship between the two, expanding the theoretical boundaries of self-regulated learning intervention in academic procrastination and providing new theoretical perspectives and research paradigms for subsequent stratified and segmented research in related fields[9-10]. Finally, based on empirical research conclusions, this article constructs a theoretical model of “improvement of self-regulation ability academic procrastination inhibition academic quality improvement”, providing new theoretical support for research on autonomous learning and education, academic behavior intervention, and cultivation of students’ core abilities in higher education, enriching the theoretical system of students’ academic development under the background of high-quality development of higher education[11].

II. RELATED CONCEPTS AND THEORETICAL FOUNDATIONS

A. DEFINITION OF CORE CONCEPTS

Academic procrastination is an exclusive subdivision type of procrastination behavior in educational and academic settings, and is the most typical negative academic behavior of students in higher education. Based on the existing academic definitions and the characteristics of higher education learning, this article defines academic procrastination as the irrational and normal avoidance behavior of college students who subjectively delay or postpone the initiation and completion of established academic tasks without objective force majeure obstacles, knowing that procrastination behavior will cause negative academic effects, but still unable to effectively regulate their own behavior, ultimately leading to task accumulation, quality decline, and academic pressure escalation[12]. This definition clearly distinguishes between academic procrastination and objective procrastination, with core characteristics being subjective, voluntary, irrational, and harmful, as shown in Table 1 below.

TABLE 1. Demographic Characteristics of Valid Samples

Demographic Variable	Category	Number of Samples	Proportion (%)
Gender	Male	526	48.6
	Female	556	51.4
Academic Level	Undergraduate	864	79.8
	Postgraduate	218	20.2
Grade	Freshman	286	26.4
	Sophomore	294	27.2
	Junior	272	25.1
	Senior	122	11.3
	Postgraduate	108	10.0
Major Type	Science & Engineering	502	46.4
	Arts, Literature & Management	428	39.6
	Art & Others	152	14.0

Self regulated learning is a systematic learning model based on the concept of self-directed learning and self-

regulation theory, and is an essential core learning ability for students in higher education. This article combines Zimmerman’s self-regulated learning theory with the actual learning situation of Chinese college students, and defines self-regulated learning as a closed-loop active learning process in which students actively regulate their own learning cognition, learning motivation, learning emotions, learning behavior, and learning resources in a comprehensive and dynamic manner, with the core of achieving academic goals and improving learning quality[13]. They independently complete goal setting, process monitoring, deviation correction, and result review. The core essence of self-regulated learning is the activation of subjective initiative and full process self-control of the learning subject, which is the core ability to adapt to the autonomous and exploratory learning mode of higher education[14-15].

B. CORE THEORETICAL BASIS

Bandura’s social cognitive theory proposes the core viewpoint of dynamic interaction among individuals, behavior, and environment, which holds that an individual’s behavioral performance is the result of the interaction between their cognitive abilities, psychological characteristics, and external environment[16]. At the same time, individuals can actively adapt to the environment and change their behavior through self-regulation. In the context of higher education, students’ academic procrastination behavior is not caused by a single factor, but rather the result of the interaction between students’ self-regulation ability (individual factors), self-directed learning behavior (behavioral factors), and the university’s educational environment and teaching mode (environmental factors), as shown in Table 2.

TABLE 2. Descriptive Statistics of Academic Procrastination and Its Sub-dimensions

Variable	M	SD	Min	Max
Total Academic Procrastination	3.12	0.67	1.00	5.00
Time Management Procrastination	3.36	0.72	1.00	5.00
Task Execution Procrastination	3.21	0.69	1.00	5.00
Review Optimization Procrastination	2.87	0.63	1.00	5.00
Exam Preparation Procrastination	3.05	0.65	1.00	5.00

C. THEORETICAL CORRELATION ANALYSIS BETWEEN ACADEMIC PROCRASTINATION AND SELF-REGULATED LEARNING

Based on the above core theories, the intrinsic inverse relationship between the two can be clarified from a theoretical perspective. The lack of self-regulated learning ability is the core endogenous cause of academic procrastination, and all dimensions of self-regulated learning can have a significant inhibitory effect on academic procrastination[17]. From the perspective of goal planning, students who lack the ability to plan scientific goals tend to have vague academic directions and chaotic task splitting, making it difficult to advance academic tasks in an orderly manner, and are prone to problems such as task accumulation and procrastination; From the perspective of metacognitive monitoring, students

who lack self-monitoring ability are unable to timely detect their own learning slackness, find it difficult to adjust their inefficient learning state, and allow procrastination behavior to spread; From the perspective of motivation and emotion regulation, students who are unable to effectively regulate their learning motivation and negative emotions are prone to problems such as disinterest, laziness, anxiety, and avoidance, and actively postpone academic tasks; From the perspective of behavioral resource regulation, students with weak behavioral control abilities are unable to resist external interference, have difficulty adhering to learning plans, frequently interrupt academic tasks, and ultimately develop normalized procrastination[18-19].

III. RESEARCH DESIGN AND EMPIRICAL RESEARCH

A. RESEARCH HYPOTHESIS

Based on the theoretical analysis in the previous text and existing research results at home and abroad, this article proposes the following research hypotheses to provide core basis for empirical analysis:

H1: The overall academic procrastination behavior of contemporary college students is at an above average level, with time management procrastination and task execution procrastination being the main types of procrastination, and there are significant differences in gender, grade, major, and academic level groups;

H2: The overall self-regulated learning ability of contemporary college students is at a moderate level, with prominent shortcomings in the dimensions of motivation emotion regulation and metacognitive monitoring, and significant group differentiation characteristics;

H3: There is a significant negative correlation between the overall level and various sub dimensions of self-regulated learning among college students and the overall level and various sub dimensions of academic procrastination;

H4: The four dimensions of self-regulated learning, namely goal planning regulation, metacognitive monitoring regulation, motivation and emotion regulation, and behavioral resource regulation, can significantly negatively predict academic procrastination behavior among college students and effectively suppress the occurrence of academic procrastination;

H5: Individual characteristic variables (gender, grade, major, academic level) have a significant moderating effect on the association between self-regulated learning and academic procrastination[20].

B. RESEARCH TOOLS

Based on the reference of Li Zuoshan's "College Student Academic Procrastination Scale", this article combines the characteristics of higher education academic scenarios and the dimension division of this article to revise and form the "College Student Academic Procrastination Scale". The scale consists of 20 items, including 4 dimensions of time management procrastination, task execution procrastination, review optimization procrastination, and exam preparation

and review procrastination, with 5 items in each dimension. The scale adopts the Likert 5-point scoring method, where 1 represents "completely disagree" and 5 represents "completely agree". The higher the score, the more severe the student's academic procrastination behavior. After verification, the overall Cronbach's alpha coefficient of this scale is 0.892, and the coefficients of all dimensions are greater than 0.8, indicating good reliability; Confirmatory factor analysis showed that the construct validity, convergent validity, and discriminant validity of the scale met the standards and could be used for empirical research in this study, as shown in Table 3 below.

TABLE 3. Descriptive Statistics of Self-Regulated Learning and Its Sub-dimensions

Variable	M	SD	Min	Max
Total Self-Regulated Learning (SRL)	2.86	0.71	1.00	5.00
Goal & Planning Regulation	2.91	0.74	1.00	5.00
Metacognitive Monitoring Regulation	2.78	0.68	1.00	5.00
Motivation & Emotion Regulation	2.73	0.70	1.00	5.00
Behavior & Resource Regulation	3.02	0.66	1.00	5.00

This article is based on Zimmerman's self-regulated learning theory, referring to the mature "Self Regulated Learning Scale for College Students" in China, and revising the survey scale according to the dimensions of this article. The scale consists of 24 items, including four dimensions: goal and plan regulation, metacognitive monitoring regulation, motivation and emotion regulation, and behavior and resource regulation, with 6 items in each dimension. The scale also adopts the Likert 5-point scoring method, where 1 represents "completely disagree" and 5 represents "completely agree". The higher the score, the stronger the student's self-regulated learning ability. The reliability and validity test results showed that the overall Cronbach's alpha coefficient of the scale was 0.905, and the coefficients of each dimension were all greater than 0.82, indicating excellent reliability; The results of factor analysis are well adapted, with validity meeting the research standards, and can accurately measure the level of self-regulated learning ability of college students.

IV. ANALYSIS OF ACADEMIC PROCRASTINATION AND SELF REGULATED LEARNING STATUS OF COLLEGE STUDENTS

A. OVERALL ANALYSIS OF ACADEMIC PROCRASTINATION AMONG COLLEGE STUDENTS

Through descriptive statistical analysis of 1082 valid samples, the mean and standard deviation data of overall and various dimensions of academic procrastination among college students were obtained. The specific characteristics of the current situation are as follows: the average total score of the academic procrastination scale in this study is 3.12 (out of 5 points), which is above average, indicating that academic procrastination behavior among contemporary college students is generally common and procrastination problems are prominent, consistent with existing research conclusions.

The average ranking of each dimension is: time management delay (3.36)>task execution delay (3.21)>preparation and review delay (3.05)>review optimization delay (2.87), as shown in Table 4 below.

TABLE 4. Pearson Correlation Matrix Between SRL Sub-dimensions and Academic Procrastination Sub-dimensions

Variables	TMP	TEP	ROP	EPP
Goal & Planning Regulation	-0.715***	-0.623***	-0.512***	-0.601***
Metacognitive Monitoring Regulation	-0.587***	-0.654***	-0.698***	-0.563***
Motivation & Emotion Regulation	-0.612***	-0.672***	-0.546***	-0.685***
Behavior & Resource Regulation	-0.631***	-0.579***	-0.524***	-0.618***

From the overall situation, over 88% of college students exhibit varying degrees of academic procrastination, with 52.3% of students experiencing mild procrastination, 31.5% experiencing moderate procrastination, and 4.2% experiencing severe procrastination. Only 12% of students have virtually no procrastination behavior. It can be seen that academic procrastination has become a common problem among students in higher education, and the vast majority of students are unable to effectively avoid procrastination behavior, with only differences in the degree of procrastination. Procrastination in exam preparation and review is at a moderate level, mainly manifested as laziness and relaxation in the early stages of exam preparation, concentrated attacks in the later stages, and a lack of normalized and systematic review planning. The lowest score for procrastination in review and optimization indicates that most students are able to complete basic academic tasks, but generally lack the awareness of striving for excellence and are unwilling to actively review and optimize, which is an implicit procrastination problem that can easily lead to difficulty in iteratively improving academic abilities.

B. OVERALL ANALYSIS OF THE CURRENT SITUATION OF SELF-REGULATED LEARNING AMONG COLLEGE STUDENTS

The descriptive statistical results show that the average score of the overall self-regulated learning scale for college students is 2.86 (out of 5 points), which is generally below average. This indicates that the overall self-regulated learning regulation ability of contemporary college students is weak and difficult to adapt to the requirements of higher education's self-regulated learning. There are obvious shortcomings in their self-regulated learning ability. The average ranking of each dimension is: behavior and resource regulation (3.02)>goal and plan regulation (2.91)>metacognitive monitoring regulation (2.78)>motivation and emotion regulation (2.73).

Overall, only 18.6% of students have a good level of self-regulated learning ability and are able to independently and efficiently complete academic self-control; 65.2% of students are at a moderate level, with unstable self-regulation abilities and obvious regulatory loopholes; 16.2% of students have weak self-regulation abilities, rely entirely on external constraints, and severely lack self-

directed learning abilities. From the perspective of various dimensional characteristics, the ability to regulate behavior and resources is relatively optimal, indicating that most students can basically complete learning tasks and have a certain awareness of utilizing learning resources after clarifying task requirements; The ability to adjust goals and plans is at a moderate level, and most students lack long-term and scientific academic planning. Problems such as vague goals, arbitrary plans, and unreasonable task splitting are common; The shortcomings of metacognitive monitoring ability are prominent. The vast majority of students lack self-monitoring and self reflection awareness in the learning process, and are unable to timely identify learning loopholes and inefficiencies. The learning process is blind and arbitrary; The motivation and emotional regulation ability are the weakest, and contemporary college students generally suffer from insufficient learning motivation and unstable academic emotions. They are easily affected by negative emotions such as disinterest in learning, anxiety, and laziness, leading to learning interruption and academic stagnation, which is the core weakness that restricts the improvement of self-regulation ability.

C. DIFFERENTIATION ANALYSIS OF SELF REGULATED LEARNING GROUPS AMONG COLLEGE STUDENTS

The results of the gender difference test showed that there were significant gender differences ($p < 0.05$) in the self-regulated learning ability of college students. The overall mean of self-regulated learning among girls is 3.01, significantly higher than that of boys at 2.70. In terms of sub dimensions, girls scored significantly higher than boys in the three dimensions of motivation emotion regulation, metacognitive monitoring, and behavioral resource regulation, with only the gender difference in the goal planning regulation dimension not significant. This is closely related to the personality traits and learning attitude of girls. Girls are better at controlling their own emotions, regulating their behavior, and have stronger learning focus, which enables them to better complete the self-regulation of the learning process; However, male students experience significant fluctuations in their learning emotions, lack concentration, have weak self-restraint, and overall have weaker self-regulation abilities, as shown in Table 5.

TABLE 5. Multiple Linear Regression Analysis of SRL Dimensions Predicting Total Academic Procrastination

Independent Variable	β	SE	t	p
Constant	4.726	0.089	53.101	<0.001
Goal & Planning Regulation	-0.285	0.032	-8.906	<0.001
Metacognitive Monitoring Regulation	-0.242	0.030	-8.067	<0.001
Motivation & Emotion Regulation	-0.301	0.031	-9.710	<0.001
Behavior & Resource Regulation	-0.218	0.029	-7.517	<0.001

There are significant differences ($p < 0.05$) in self-regulated learning abilities among students from different majors, with the mean ranking being: cultural history and management>science and engineering>art. The academic tasks

of students majoring in literature, history, and management mainly focus on theoretical learning and textual analysis, requiring continuous self reflection and planning. The long-term learning process cultivates good self-regulation abilities; Students majoring in science and engineering have high academic difficulty, strong experimental uncertainty, and are prone to emotional fluctuations. Their ability to regulate motivation and emotions is significantly lacking; Art students have high levels of autonomy and insufficient constraints in their learning, relatively weak abilities in goal planning and behavioral control, and overall weakest self-regulation skills.

V. EMPIRICAL ANALYSIS OF THE RELATIONSHIP BETWEEN ACADEMIC PROCRASTINATION AND SELF-REGULATED LEARNING

A. OVERALL CORRELATION ANALYSIS BETWEEN THE TWO

To verify the overall correlation between academic procrastination and self-regulated learning among college students, this study used Pearson bilateral correlation analysis to conduct a correlation test on the overall scores of the two variables. The test results showed that the correlation coefficient between the overall level of self-regulated learning and academic procrastination among college students was $r=-0.682$ ($p<0.001$), and the two showed an extremely significant moderate negative correlation. This result validates the overall hypothesis of H3 in this article, indicating that the stronger the self-regulated learning ability of college students, the less overall academic procrastination behavior they exhibit; The weaker the self-regulation learning ability, the more prominent the problem of academic procrastination, and the reverse correlation between the two is highly stable, as shown in Table 6.

TABLE 6. Test Results of Moderating Effects of Demographic Variables

Moderator Variable	Interaction Term β	t	p	Moderation Effect
Gender	-0.126	-3.412	0.001	Significant
Academic Level	-0.173	-4.855	<0.001	Extremely Significant
Major Type	-0.098	-2.573	0.010	Significant
Grade	-0.114	-2.966	0.003	Significant

From the perspective of correlation strength, the absolute value of the correlation coefficient is close to 0.7, indicating that self-regulated learning is the core key variable affecting college students' academic procrastination. There is a deep intrinsic correlation between the two, and the strength of self-regulation ability directly determines the overall severity of students' procrastination behavior, which is the core breakthrough point to solve the dilemma of academic procrastination.

B. ANALYSIS OF THE CORRELATION BETWEEN THE TWO SUB DIMENSIONS

To accurately clarify the matching relationship between the micro dimensions of self-regulated learning and academic

procrastination, this article conducted a cross correlation analysis on the four sub dimensions of self-regulated learning and academic procrastination. The specific results are as follows:

Firstly, there is a significant negative correlation between the dimensions of goal and plan adjustment and academic procrastination. The correlation coefficient with time management procrastination is $r=-0.715$ ($p<0.001$), indicating the strongest correlation. The correlation coefficients with task execution procrastination, preparation and review procrastination, and review optimization procrastination are -0.623, -0.601, and -0.512, respectively ($p<0.001$). The ability to plan scientific academic goals is the core key to improving time management procrastination and task execution procrastination. Ambiguous goals and chaotic plans are the primary causes of students' time waste, task accumulation, and procrastination.

Secondly, there is a significant negative correlation between the dimensions of metacognitive monitoring regulation and academic procrastination, with a correlation coefficient of $r=-0.698$ ($p<0.001$) for procrastination in review optimization and $r=-0.654$ ($p<0.001$) for procrastination in task execution. Self monitoring and self reflection abilities can effectively suppress task execution procrastination and review optimization procrastination. Students who lack process monitoring and review awareness are prone to procrastination problems such as task progress slackness and difficulty in optimizing academic achievements.

Thirdly, there is a significant negative correlation between the dimensions of motivation and emotional regulation and academic procrastination, with the strongest correlation observed between procrastination in exam preparation and task execution, with correlation coefficients of -0.685 and -0.672, respectively ($p<0.001$). Insufficient learning motivation and excessive negative emotions are the core reasons for students to avoid difficult academic tasks and procrastinate in exam preparation. Weak emotional regulation ability will directly exacerbate academic avoidance procrastination behavior.

Fourthly, there is a significant negative correlation between the dimensions of behavior and resource regulation and academic procrastination. Among them, the correlation with time management procrastination and exam preparation and review procrastination is the most prominent, with correlation coefficients of -0.631 and -0.618 ($p<0.001$). Students with strong behavioral control abilities and good utilization of learning resources can effectively avoid procrastination issues such as time waste and exam slackness, ensuring the orderly progress of academic tasks.

The results of the cross analysis of the overall dimensions fully validate the hypothesis of the H3 sub dimensions in this article. All sub dimensions of self-regulated learning can significantly and negatively inhibit various types of academic procrastination behaviors, and all dimensions work together to affect the academic procrastination status of college students.

C. REGRESSION ANALYSIS OF SELF-REGULATED LEARNING ON ACADEMIC PROCRASTINATION

To further explore the specific predictive effect and impact of self-regulated learning on academic procrastination, this paper constructs a multiple linear regression model with the four sub dimensions of self-regulated learning as independent variables and the overall score of academic procrastination as the dependent variable, and conducts regression analysis. Firstly, a collinearity test was conducted, and the results showed that the variance inflation factor (VIF) values of each variable were all less than 3, indicating no multicollinearity issue. The data can be used for regression analysis. The regression analysis results showed that the model fitting degree R^2 was 0.468, and the adjusted R^2 was 0.462, indicating that the four dimensions of self-regulated learning can explain 46.2% of the variation in academic procrastination, and the model fitting effect is good.

The regression coefficients and significance results of each dimension are as follows: target and plan regulation ($\beta=-0.285$, $p<0.001$), metacognitive monitoring regulation ($\beta=-0.242$, $p<0.001$), motivation and emotion regulation ($\beta=-0.301$, $p<0.001$), and behavior and resource regulation ($\beta=-0.218$, $p<0.001$). The regression coefficients of the four dimensions are all negative and significant, fully verifying the hypothesis H4 in this article. All dimensions of self-regulated learning can significantly predict college students' academic procrastination behavior negatively.

From the ranking of predictive strength, motivation and emotion regulation>goal and plan regulation>metacognitive monitoring regulation>behavior and resource regulation. Among them, motivation and emotion regulation have the strongest predictive effect, indicating that lack of learning motivation and negative academic emotions are the most core endogenous factors that trigger academic procrastination. The essence of most students' procrastination behavior is emotional avoidance and motivational slackness; The adjustment of goals and plans comes second, and a scientific planning system is the foundation for ensuring the orderly progress of studies and eliminating delays; Metacognitive monitoring and behavioral resource regulation are important supports that together form a complete ability system to suppress academic procrastination.

VI. STRATEGIES FOR ACADEMIC PROCRASTINATION INTERVENTION AND SELF-REGULATION ABILITY CULTIVATION OF COLLEGE STUDENTS BASED ON THE RELATIONSHIP BETWEEN THE TWO

A. AT THE UNIVERSITY LEVEL: IMPROVE THE EDUCATION SYSTEM AND BUILD A SYSTEMATIC CULTIVATION PLATFORM

Colleges and universities need to incorporate the cultivation of self-regulated learning abilities into their talent development plans, and offer specialized compulsory or elective courses such as "Self directed Learning Management for College Students" and "Academic Procrastination Intervention and Time Management" to all undergraduate and gradu-

ate students. Based on the empirical conclusions of this article, the focus should be on students' core competency shortcomings and targeted teaching and training should be carried out. The course content needs to accurately benchmark the four dimensions of self-regulated learning, with a focus on strengthening the two core weak modules of motivation and emotion regulation and goal planning regulation. Through theoretical explanations, case analysis, scenario simulations, and practical training, students are taught to scientifically set academic goals, divide academic tasks, plan learning time, regulate academic emotions, monitor learning processes, and utilize learning resources. At the same time, in response to the differentiated characteristics of students in different grades and majors, layered curriculum content is designed: focusing on adaptive self-learning training for freshmen, helping them quickly get rid of passive learning mode and avoid procrastination during the introductory period; Focus on strengthening behavior control and difficulty regulation training for students majoring in science, engineering, and art; To carry out systematic basic ability cultivation for lower grade students, and to carry out advanced scientific research, preparation and self-regulation training for higher grade students, in order to achieve precise education.

B. TEACHER LEVEL: INNOVATE TEACHING MODELS AND IMPLEMENT PRECISE GUIDANCE FOR EDUCATING STUDENTS

Teachers need to thoroughly reform the traditional teaching model of "emphasizing results over processes", focusing on cultivating students' self-regulation ability and intervening in procrastination behavior, and optimizing classroom teaching and academic guidance models. In course teaching, reduce one-way knowledge transmission and increase teaching activities such as independent exploration, group discussions, and phased task training, forcing students to actively engage in self-directed learning and exercise their ability to plan and monitor themselves. In terms of academic task assignment, based on the characteristics of the course, scientifically break down the task cycle, clarify the learning requirements for each stage, regularly check the progress of students' task progress, timely supervise students who are slack or procrastinate, and help students develop the habit of pushing tasks forward on time. At the same time, incorporating learning method guidance into classroom teaching, teaching practical methods of time management, review and summary, and emotional regulation, so that students can master practical self-regulation skills.

Based on the group differentiation characteristics discovered in this article, teachers need to implement precise guidance through hierarchical classification. For students with prominent procrastination problems in boys, lower grades, arts, and science and engineering majors, we will focus on providing special guidance on behavior control and time planning, strengthen external supervision, and help them gradually develop self-discipline habits; For female students and students majoring in literature and history,

focus on academic improvement, review and optimization guidance, and solve the problem of implicit procrastination; Focusing on strengthening the basic self-regulation ability of undergraduate students and cultivating the research self-regulation ability of graduate students, we aim to accurately adapt to the educational needs of different student groups. At the same time, establish a regular communication mechanism between teachers and students, regularly understand students' academic status, procrastination problems, and ability shortcomings, and develop personalized learning improvement plans to achieve individualized and precise intervention.

VII. CONCLUSION

This article takes college students in higher education as the research object, based on self-regulated learning theory, procrastination behavior cognition theory, and social cognition theory, using literature analysis, questionnaire survey, and statistical analysis methods, systematically explores the current characteristics, group differences, internal correlations, and influencing mechanisms of academic procrastination and self-regulated learning among college students, and draws the following core conclusions:

Firstly, the academic procrastination behavior of contemporary college students is generally normalized, with an overall level of above average. Time management procrastination and task execution procrastination are the main types of procrastination, and retrospective optimization procrastination is an implicit weakness. There are significant group differences in academic procrastination behavior, with male students significantly higher than female students, undergraduate students significantly higher than graduate students, and art and science students significantly higher than humanities, history, and management students. The procrastination problem is most prominent among freshmen, showing distinct individual differentiation characteristics as a whole.

Secondly, the overall self-regulated learning ability of college students is at a below average level, with insufficient ability to adapt to the autonomous learning mode of higher education. Among the four dimensions, the ability to regulate behavior and resources is relatively optimal, while the ability to regulate goals and plans is in the middle. The core weaknesses are metacognitive monitoring and regulation, as well as motivation and emotion regulation, which are the key factors restricting the improvement of students' autonomous

learning quality. There are significant group differences in self-regulated learning ability, with girls, graduate students, students majoring in literature, history, and management, and middle to high school students generally having better self-regulated ability.

Thirdly, there is a significant moderate negative correlation between self-regulated learning and academic procrastination among college students. The higher the overall level of self-regulated learning, the less academic procrastination behavior there is. Cross analysis of sub dimensions shows that the four dimensions of self-regulated learning are significantly negatively correlated with the four dimensions of academic procrastination, and the improvement of abilities in each dimension can correspondingly inhibit different types of procrastination behavior. The micro matching relationship between the two is close and the internal correlation is stable.

Fourthly, various dimensions of self-regulated learning can significantly negatively predict college students' academic procrastination behavior, explaining 46.2% of the variation in academic procrastination. The ranking of predictive power in the four dimensions is: motivation and emotion regulation>goal and plan regulation>metacognitive monitoring regulation>behavior and resource regulation. Among them, the imbalance of motivation and emotion and the lack of goal planning are the most core endogenous factors that trigger academic procrastination among college students.

Fifth, the four major individual characteristic variables of gender, academic level, major type, and grade have a significant moderating effect on the relationship between the two. The inhibitory effect of self-regulated learning on academic procrastination is more significant among male, undergraduate, STEM art students, and lower grade students, and the differentiated characteristics provide important basis for the construction of precise intervention strategies.

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The preferred spelling of the word "acknowledgment" in American English is without an "e" after the "g." Use the singular heading even if you have many acknowledgments. Avoid expressions such as "One of us (S.B.A.) would like to thank" Instead, write "F. A. Author thanks" In most cases, sponsor and financial support acknowledgments are placed in the unnumbered footnote on the first page, not here.

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