College Students' Academic Procrastination Behavior and Its Impact on Academic Performance

Xiaomeng Shi[1,a,*]

[1]*Advanced Agricultural Technology Institute, Qingdao Agricultural University, Changcheng Street, Qingdao, 266109, China*
a. 20500295@rau.ac.uk
corresponding author

Abstract: Procrastination behaviors become more and more common among the college student population. Procrastination behaviors include being late to class, not completing tasks assigned by teachers on time, not having a clear study time plan, or making a hasty last-minute effort. The reason for procrastination is to some extent due to less supervision by teachers and parents. Therefore, research on academic procrastination among college students and on effective interventions to correct this undesirable behavior is currently the focus of educational studies. Based on this phenomenon, this paper conducted a questionnaire survey and an in-depth interview to investigate the local undergraduate university, Qingdao Agricultural University, as an example. This paper investigated the differences in study procrastination behavior among gender and grade levels and the influence of study procrastination behavior on college students' academic performance. The findings revealed that there was no discernible variation in the study procrastination behaviors of college students in local undergraduate institutions in terms of gender. According to grade level, the third year of college had the greatest level of procrastination, and the fourth year of college had the lowest level, according to grade level. In addition, there was a good correlation existed between academic procrastination behavior and academic performance. The primary causes for procrastination were students' lack of interest in the task itself and their poor self-control. In all, this study provides preliminary evidence for future educational practices targeting procrastination.

Keywords: procrastination behavior, academic performance, questionnaire survey, in-depth interview

1. Introduction

College students are an important talent resource reserve and are closely related to the future development of China. Nowadays, many scholars have conducted in-depth investigations into the causes, effects, and solutions of learning procrastination behaviors.

College students are currently in the transition stage from school to society. Many factors from the outside world can tempt them, leading to resistance and pessimism about academic tasks, which seriously affects the physical and mental health of individuals [1,2].

2. Literature Review

2.1. Definition of Academic Procrastination Behavior

Procrastination refers to a behavioral tendency to fail to accomplish a goal that an individual needs to accomplish within an expected or specified time frame. As society and academia developed and researched, procrastination evolved to mean the subjective decision of an individual to postpone work even though he or she knows that not completing goals on time is harmful to him or her. Procrastination thus increases the individuals' negative emotions [3]. Learning procrastination is a specific manifestation of procrastination in the context of learning and it is defined in different ways by Chinese and international scholars.

Some scholars considered learning procrastination as a situation in which a student completed a learning task and for some subjective reason delayed the task until the deadline or delayed the task completion, and then developed bad moods such as anxiety and depression after the task was completed [3]. Some scholars have refined the definition. Learning procrastination can be defined by four factors: (i) the individual's self-perception to complete the task, (ii) the need to ensure the completion of the task, (iii) a well-defined time for the completion of the task, and (iv) the negative emotions that can arise when all three of these conditions are not met [4]. Some scholars also believed that academic procrastination was a situation in which students themselves were aware of the importance of academic tasks and worked hard to complete them, some unavoidable factors caused procrastination to occur [5]. However, some scholars still disagreed with this, arguing that academic procrastination was a result of students'decision to procrastinate even though they were aware of the negative consequences of delaying tasks for themselves [3,5,6]. Furthermore, academic procrastination can be classified at a deeper level into arousal procrastination and avoidance procrastination. The former stimulates students' academic efficacy and has a positive contribution to the individual. While the latter not only hinders the learning process but also harms students' physical and mental health [7].

Although the academic community held a variety of perspectives on the definition of academic procrastination and even held opposing views. However, the vast majority of scholars still considered academic procrastination to be a purposeful activity. It was also a unified view of the factors that defined academic procrastination.

2.2. Measurement of Academic Procrastination Behavior

The main methods used to measure academic procrastination behavior are questionnaires, logbook recording, and behavioral observation. The log recording and behavioral observation methods require the subject to keep detailed records of their behavior over some time, or an observer to make a real-time record. Although these two methods are exhaustively documented, they are time-consuming and laborious. It is only suitable for small populations and not for large-scale collections. The log recording and behavioral observation methods are therefore not yet common. In comparison, the questionnaire method is more widely applicable and easier to collect.

Aitken developed the first scale with 19 items to measure procrastination in college students [8]. This scale is also the most commonly used nowadays. Lay developed a student version of the General Procrastination Inventory, which has 20 items in total [9]. Solomon and Rothblum developed a scale specifically designed to measure students' levels of academic procrastination. The scale is divided into two parts with 44 questions. The first part measures students' overall academic procrastination (18 questions); the second part measures the causes of academic procrastination (26 questions) [3].

A China scholar, Guan revised the PASS scale developed by Solomon [10]. Chen, on the other hand, translated the Aitken Procrastination Behavior Questionnaire to fit the Chinese cultural context [11].

2.3. Current Status of Research on Academic Procrastination Behavior

Studies of academic procrastination have shown that 95% of college students procrastinate [12]. Thirty percent of them experienced severe procrastination [13]. It was clear to know that there was an increasing trend each year [14]. Not only did procrastination cause a decline in academic performance [15], but it can also easily lead to adverse emotional experiences [16].

In addition, studies showed that inappropriate parenting styles such as harsh-permissive family parenting styles were significantly and positively associated with procrastination [17]. The vast majority of college students who procrastinated in their studies had significant problems with cell phone addiction [18].

However, the research on college students' academic procrastination in China was not in-depth. Most scholars studied the causes, current situation, and solutions to college students' study procrastination situation. Wang pointed out that 39.7% had procrastination and 69% were negatively influenced among college students [19]. College students at various types of colleges and institutions did not have significantly distinct learning environments [20]. There were both subjective and objective reasons for college students' academic procrastination. Subjective reasons included motivation, students' time management skills, and students' own emotions. Objective reasons included the difficulty of the task and the characteristics of the student's environment [20].

Regarding the differences in academic procrastination behavior in terms of gender, some studies showed that the total rate of academic procrastination among college students showed no gender differences. However, Pang and Han concluded that female students were significantly less likely than male students to procrastinate in completing their assignments [20]. However, girls were more likely to be affected by academic procrastination and develop emotions such as anxiety. Another study also pointed out that girls were more independent learners compared to boys and would be more proactive in their studies [21]. Moreover, according to Li, there was a degree of difference between boys and girls in the degree of academic procrastination [22].

From the perspective of the negative impact on grades, Li and Wang showed that freshman and sophomore years were the most severe, followed by senior years. Students in their third year of college had the lowest level of procrastination [23].

3. Research Methodology

3.1. Study Subjects and Sampling

A total of 300 questionnaires were distributed to undergraduate students in all years except freshman year at Qingdao Agricultural University to investigate their academic performance and degree of procrastination behavior. There were 197 questionnaires collected in all, and 65.7% of them were recovered. There were 161 valid questionnaires and 36 invalid questionnaires after excluding the questionnaires with incomplete answers, with an effective rate of 81.7%.

The survey contained 80 male students and 81 female students, with a male-to-female ratio of 1:1. 51 of them were from the second year of college, and 76 students were from the third year of college. There were 34 students from the fourth year of college. The survey was not conducted in the first year because the final examination was not held in the first year, so there was no academic ranking Therefore, the survey was not conducted in the first year.

3.2. Research Tools

The Aitken Procrastination Questionnaire, a unidimensional self-assessment scale, was used as a research instrument to measure the specific performance of students' academic procrastination behavior. In addition to the basic information of the respondents, the questionnaire consisted of 19 questions. The questionnaire had two types of questions in the form of single and multiple choice. The survey was graded using a five-point Likert scale, and was divided into five options with the following scores: 1, 2, 3, 4, and 5: not at all, not basically, not sure, and completely. The higher the score of the question, the more serious the procrastination behavior of the students. On the contrary, if the score was lower, the less obvious the procrastination behavior of the students in the event was. Nine questions were reverse scored, including questions 5, 7, 10, 14, 15, 17, 19, 20, and 21. The 24th question was in the form of multiple-choice questions to investigate the reasons that college students thought caused their academic procrastination. The options were divided into five aspects to investigate the specific reasons such as too many tasks, no interest in learning and no willingness to do homework, lack of self-discipline and inability to concentrate, self-doubt, fear of failure, and others.

Before the survey, the respondents were told of its confidential nature and its voluntary nature, and their informed consent was gained. Thirty students, including 15 male and 15 female students, were randomly selected for in-depth interviews in each grade through an online method. These students were located in nine colleges of the university, including Agriculture, Humanities and Social Sciences, Economics and Management, Life Sciences, Arts, and Foreign Languages. The interviews mainly asked the 30 students about the specific courses of their majors, the ranking of their credit GPA in the same grade and major, the extent to which they thought they procrastinated in their study, the specific time to finish the tasks after the teachers assigned them, the change of their procrastination behavior with the growth of their grade. The main factors that caused their procrastination behavior or their methods to reduce the extent of procrastination were asked, too. In all, ten questions were asked.

3.3. Data Analysis and Compilation

A questionnaire prepared by Aitken was distributed to a total of 300 students at the undergraduate level at Qingdao Agricultural University through WeChat and other means to conduct an online survey. The data were obtained and then analyzed by IBM SPSS Statistics 20 for t-test, chi-square analysis, and regression analysis. The significance level of all tests of variance was set at $p < 0.05$.

4. Questionnaire Analysis

4.1. Reliability Analysis

The reliability of the questionnaire was evaluated using the Cronbach's alpha coefficient. The coefficient value was 0.906. This value was greater than 0.9, indicating that the reliability of the questionnaire was good and had good internal consistency.

4.2. Validity Analysis

The validity analysis of the questionnaire was performed using Amos 23.0 for validating factor analysis. Using validating factor analysis, the questionnaire's validity was examined with Amos 23.0. Validating factor analysis was used to test the relationship between a set of measured variables and a set of factor concepts that could explain the measured variables. Also, this analysis

could confirm the correctness of the relationships between the measured variables and factors that fulfill the hypothesis [24].

Overall, the model which showed in figure 1 fitted met the requirements and indicated that the questionnaire had good validity.
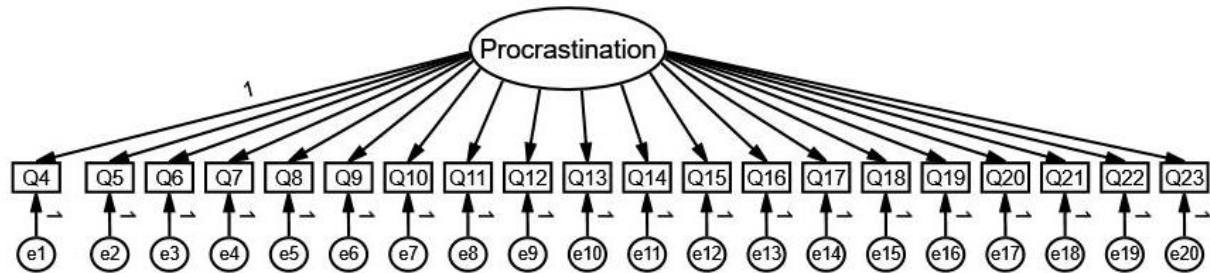

Figure 1: Validation of the factor analysis model.

5. Results

5.1. Gender Differences in College Students's Academic Procrastination

Table 1: T-test analysis of college students' academic procrastination behavior in terms of gender.

	Gender (Mean ± standard deviation)		t	p
	Females(n=81)	Males(n=80)		
procrastination in the learning process	2.16 ± 0.66	2.05 ± 0.65	1.07	0.29

Table 1 shows that none of the samples from the two genders demonstrated significance ($p>0.05$) for the amount of procrastination in the learning process. It meant that the samples of different genders show consistency in the degree of procrastination in the learning process for all of them.

Therefore, the degree of procrastination in the learning process was the same for males and females.

5.2. Differences in College Students' Procrastination Behavior by Grade Level

Using the scores of procrastination behaviors in the 19 questions of the questionnaire as a reference. Students with an average score of 1-2 were identified as not procrastinating. Those with an average score of 3 were identified as relatively procrastinating. Those with an average score 4-5 were identified as very procrastinating. The following conclusions were drawn in Table 2

Table 2: Analysis of differences in college students' procrastination behavior by grade evel.

Procrastination	Level	Grade (%)			Total	χ2	p
		Sophomore Year	Junior Year	Senior Year			
The extent of procrastination in the learning process	Very delayed	8(15.69)	11(14.47)	8(23.53)	27(16.77)	11.23	0.024*
	Comparative Delay	25(49.02)	52(68.42)	13(38.24)	90(55.90)		
	No Delay	18(35.29)	13(17.11)	13(38.24)	44(27.33)		
Total		51	76	34	161		

* p<0.05

Using the chi-square test (cross-tabulation), it could be seen from Table 2 that the different grade samples showed significance (p<0.05) for the level of procrastination in the learning process.

According to the table, 73% of the students surveyed considered themselves to be procrastinating in their studies. 17% of the students considered themselves to have reached a very high level of procrastination. The degree of procrastination in learning in each grade was 63%, 83%, and 62%, respectively. This showed that the most significant level of procrastination among the four grades is in the third year. The lowest level of procrastination was in the fourth year of college, followed by the second year of college.

5.3. The Relationship Between the Degree of Academic Procrastination and Academic Performance

A multivariate logit regression model was created for the whole sample to study the relationship between the degree of academic procrastination and the academic performance of college students. Modeling:

$$\text{Logit}(p) = \ln\left(\frac{P}{1} - P\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots\ldots + \beta_n X_n \quad (1)$$

Where the independent variable X was the degree of academic procrastination among college students (the average score of the 20 questions in the questionnaire assigned to the degree of procrastination). The dependent variable Y was the ranking of students in the same grade and major each year. β_0 is a constant term, which indicated the estimated value of logit P when the independent variables were all zero. β_i was the partial regression coefficient, which indicated the change in logit P for each unit increase in X_i, i.e., a1 increase in major ranking, with no change in the independent variables.

Multinomial logistic regression analysis was conducted using the questionnaire's ranking in the same class and major in the same year of schooling as the dependent variable and the degree of procrastination behavior as the independent variable. There were four categories of academic performance, with the first category (i.e., "top 10%") as the reference group and the other three categories ("top 35%," "top 50%," and "after 50%") being the target groups.

Table 3: Model fitting information.

Model	Model Fitting Conditions	Likelihood ratio test		
	-2 log-likelihood	Chi-square	Degree of freedom	Significance
Intercept	238.74			
Final	229.76	8.98	3	0.03

As can be seen from the above table (Table 3), the difference between the model that introduces the independent variable and the model that did not contain the independent variable was significant ($p<0.05$). It meant that the independent variables affect the dependent variable and the model fit better.

Table 4: Multiple logistic regression analysis of academic performance (N=161).

Dependent variable	Independent variable	B	S.E.	Wald	df	Sig.	Exp(B)
Top35%	Constants	-0.18	0.88	0.04	1.00	0.84	
	Procrastination	-0.04	0.36	0.01	1.00	0.92	0.96
Top50%	Constants	-0.03	0.79	0.00	1.00	0.97	
	Procrastination	0.06	0.33	0.03	1.00	0.87	1.06
Last 50%	Constants	2.31	0.92	6.32	1.00	0.01	
	Procrastination	-0.96	0.42	5.33	1.00	0.02	0.38

From the above table (Table 4), it is evident that there was little variation between the procrastination behavior of both the top 35% and the top 50% of the college students with grades in the top 10% compared to those with grades in the top 10% ($p>0.05$). The procrastination behavior of the college students with grades in the bottom 50% was significantly lower (B=-0.96, $p<0.05$), indicating that college students' academic achievement and their procrastinating behavior both had a positive correlation.

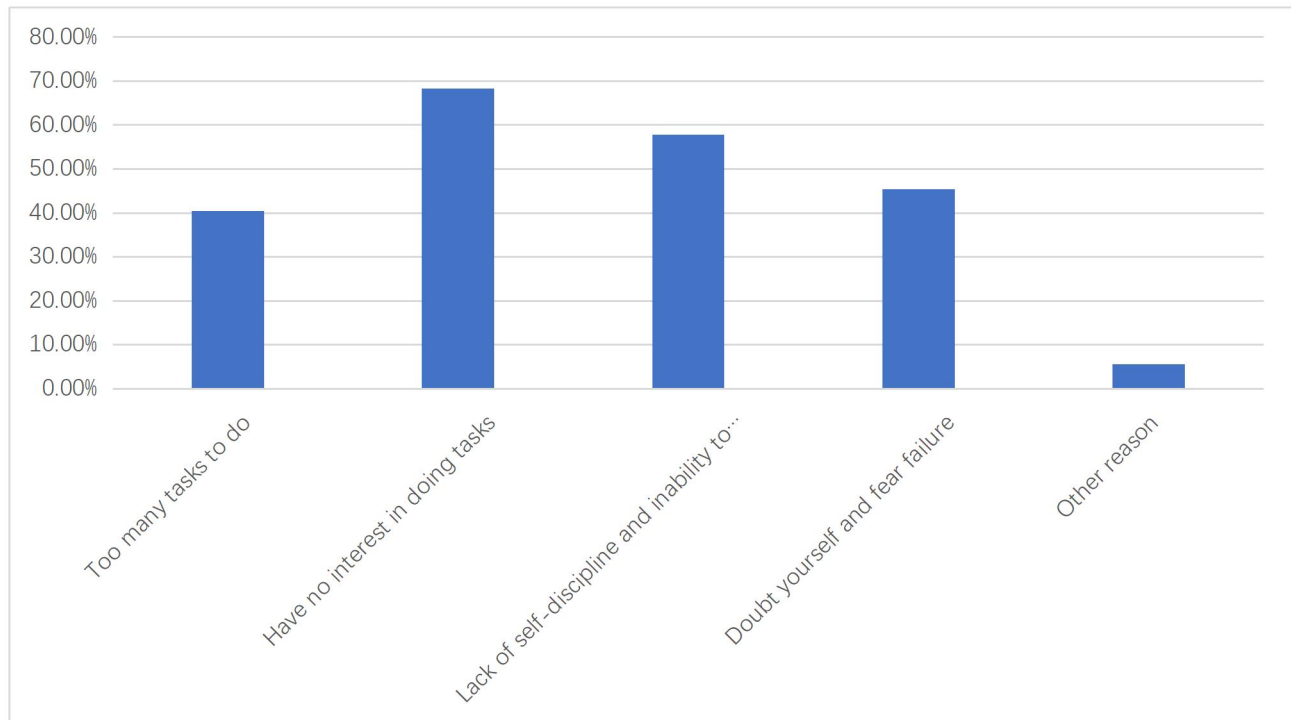## 5.4. Major Causes of Academic Procrastination Behavior

Figure 2: Percentage of reasons for the degree of academic procrastination.

As can be seen in Figure 2 that in the investigation of the factors affecting college students' procrastination behavior, it can be found that the two reasons for their lack of interest in the tasks assigned by the teachers and not wanting to do them and the college student's lack of self-discipline and inability to concentrate on the tasks themselves caused a high proportion of academic procrastination behavior.

In addition, among the nine students who thought that other factors caused their procrastination, three of them thought that they procrastinated because they were afraid of the task being too tiring.

5.5. In-depth Interview Results

Of the 30 students randomly selected, 3 students indicated that they were in the top 10% of their grade and major, 9 students were in the top 35%, 13 students were in the top 50%, and 5 students were after 50%. 23 (76%) of 30 students considered that they had some degree of delay. Those 23 students including 2 students located in the top 10% of their grade, 7 students located in the top 35% of the same grade and major, 12 students located in the top 50% of the same grade and major, and 2 students located after 50% of the same grade and major.

In terms of the reasons for their procrastination, some students in the top 10% of their class and major said that it was not their subjective desire to procrastinate. But their procrastination was caused by the fact that they had already arranged their study plans in advance, such as the need to study for the teaching qualification exams or participate in various competitions organized on and off campus. The students in the middle of the class believed that although they knew the importance of their tasks, they lacked self-control in completing them and always played with their phones or do other things. The students whose academic performance was in the downstream thought that they did not listen carefully in class so they cannot find a way to complete the tasks assigned by the teacher. At this time, they could directly choose to copy their classmates' homework and finished it

by looking up the answers on the Internet or writing casually to cope with the teacher a few days before the assignment was finished.

In addition, most of the students said they did not have a clear plan in the study process so they often started to review only a week before the exam. They were not able to concentrate on their revision until a few days before they start. They only focused on it the closer they get to the exam. However, at this time, many chapters were not reviewed, resulting in unsatisfactory results.

6.   Discussion

According to Table 2, 117 out of 161 students had procrastination behaviors. Students with procrastination behavior already account for 73% of the total. The survey students thought that the reasons for procrastination were mainly two aspects: "lack of interest, not wanting to do" and "lack of self-discipline and inability to concentrate." This indicated that the phenomenon of academic procrastination was more common among college students in both major universities, ordinary first-class colleges and universities, and local ordinary undergraduate colleges and universities, which showed that the problem of academic procrastination should not be underestimated.

This survey showed that the results obtained from academic procrastination behavior in local undergraduate colleges and universities did not differ from the popular perception. Students with top grades reflected more pronounced academic procrastination behavior than those with bottom academic grades. There was no significant difference in procrastination behavior between the top 35% and the top 50% of grades. And college students with the bottom 50% grades had lower procrastination behavior degrees.

Students who have academic procrastination behavior and have high academic performance have two main reasons for procrastination. One was that they were worried about not completing their tasks well, and the other reason was that they had a lot of knowledge to review and expand according to their study schedule. They had no choice but to compress or postpone the tasks assigned by teachers or the time to review before exams. The reasons for the midstream students' procrastination mainly focused on their lack of self-control and self-discipline after entering university, and their inability to concentrate on their studies. The students in the lower part of the grade said that they did not listen to the lectures or were not interested in their major courses, so they skipped the first day after completing the tasks assigned by the teachers or waited until their roommates or students who were good at their studies finished and copied them directly.

In terms of academic procrastination, there was no discernible gender difference among undergraduate students in the area. Both male and female students tended to delay starting assignments and started "rote memorization" a week or even a few days before an exam.

Grade differences in overall levels of academic procrastination among college students at local undergraduate institutions were also significant. The most severe levels of academic procrastination in their junior year, followed by their sophomore year. The lower level of delay was in my junior year. This was also different from the existing findings, where most scholars had shown that it was usually during the freshman and sophomore years that students had the most severe academic procrastination, followed by the senior year.

It was important to note that there were some limitations to the survey. First, the sample of this survey did not include first-year students, and the survey was not conducted among all 21 colleges of the university. So, the results of the survey may vary to a certain extent and be only applicable to some students. Secondly, there may be some students' untrue answers due to their own subjective or objective circumstances since this questionnaire was distributed online, which may affect the final results.

7.   Conclusions

In this study, the mean value of academic procrastination was 2.16 for female students and 2.05 for male students through questionnaires and in-depth interviews. The mean value of study procrastination was 63%, 83%, and 62% for sophomore, junior, and senior students respectively. In terms of the main reasons for study procrastination, 40% of the students thought that there were too many tasks piling up.68% were not interested in the tasks and did not want to do them. 58% lacked self-discipline and could not concentrate. 45% doubted themselves and were afraid of failure. In addition, some students said that they were afraid of being too tired of the tasks was also the reason for their procrastination.

Meanwhile, using college students with grades in the top 10% as a control, there was no significant difference in procrastination behavior between the top 35% and the top 50%. The college students with grades in the bottom 50% had even lower procrastination behavior.

In summary, this study concluded the following:

Firstly, there were differences in college students' academic procrastination behavior in terms of gender and grade level. In terms of gender, compared to female students, male students procrastinated on their studies more frequently. In terms of grade level, the degree of study procrastination was in the order of junior, sophomore, and senior.

Secondly, the degree of academic procrastination had an impact on academic performance, and students who ranked high in academic performance reacted more significantly to procrastination than those who ranked low in academic performance.

Finally, the main factors contributing to academic procrastination were a lack of interest in the task, a lack of desire to do it, and a lack of self-discipline to concentrate.

This study gave initial evidence to further apprehend procrastination among college students and offered research guidelines.

References

[1]   Glick, D. M. and Orsillo, S. M. (2015). An investigation of the efficacy of Acceptance-Based Behavioral Therapy for academic procrastination. Journal of Experiment Psychology, 2,400 -409.
[2]   Qu, X.Y, Lu, A.T., Song, P.F., Lan, Y.L. and Cai R.Y. (2017). The impact of cell phone addiction on academic burnout. Applied Psychology, 1,49-57.
[3]   Solomon, L. J. and Rothblum, E. D. (1984). Academic procrastination: frequency and cognitive–behavioral correlates. Journal of Counseling Psychology, 4,503-509
[4]   Milgam, N. (1991). Procrastination. InR. Dulbeeeo(Ed).Encyclopedia of human biology, 6,149-155.
[5]   Senecal. C, Koeatner. R and Vallerand.R. (1995). Self-regulation and academic procrastination. The Journal of Social Psychology, 135,607-619.
[6]   Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. Psychological Bulletin, 1, 65-94.
[7]   Ferrari, J. R. (1994). Dysfunctional procrastination and its relationship with self-esteem, Interpersonal dependency, and self-defeating behaviors. Personality & Individual Differences, 5,673-679.
[8]   Aitken, M. E. (1982). A personality profile of the college student procrastinator[D]. Unpublished doctoral dissertation. University of Pittsburgh.
[9]   Lay, C. H. (1986). At last, my research article on procrastination. Journal of Research in Personality, 4, 474–495.
[10] Guan, X.J. (2006). A study of the effects of temporal discounting and the nature of tasks on academic procrastination behavior[D]. Master dissertation. Changchun: Northeast Normal University.
[11] Chen, X.L., Dai X.Y. and Dong, Q. (2008). A study on the application of Aitken procrastination questionnaire among college students. Chinese Journal of Clinical Psychology,1, 22–23,76.
[12] Ellis, A. and Knaus W. J. (1977). Overcoming procrastination–productivity skills. New York: Signet Books.
[13] Ferrari, J.R., Johnson, J. I., & Mccown, W. G. (1995). Procrastination and Task Avoidance–Theory, Research and Treatment.
[14] Kachgal, M. M., Hansen, L. S. and Nutter, J.K. (2001). Academic procrastination prevention/intervention: strategies and recommendations. Journal of Developmental Education,1.

[15] Clark, J. L. and Hill, O. W. (1994). *Academic procrastination among African–American college students. Psychological Reports, 2, 931–936.*

[16] Bandua, A. (1997). *Self–efficacy: The Exercise of Control. New York: New York Freeman, 3–51.*

[17] Zakeri, H. Esfahani, B and Razmjoce, M.(2013).*3rd World Conference on Psychology, Counselling and Guidance(WCPCG-2012): parenting styles and academic procrastination. Procedia—Soc Behavl Sci, 51,57—60.*

[18] Erdogan, U. Pamuk, M., Süleyman, E. and Kübra,P.(2013).*Academic procrastination and mobile phone. International Academic Conference on Education-IAC-ETeL.*

[19] Wang X.X., Dai M.X., Guo C.H., Luo M.F., Li X.H. and Wang Q.X. (2018). *The current situation of undergraduate students' academic procrastination and its related factors in a university in Guangzhou. Chinese Journal of Mental Health, 4, 344–349.*

[20] Pang, W.G, and Han, G.N. (2009). *Research on the current situation and causes of academic procrastination among college students in China. Tsinghua University Education Research, 6,59—65.*

[21] Luo, Y, Ma L.Y. and Li P.C. (2014). *Investigation and psychological analysis of the current situation of college students' study procrastination behavior. Editorial Department of Hexi University, 6,119-122.*

[22] Li Y. (2018). *Research on the current situation investigation and debugging methods of delaying psychology among college students in higher education. Rural Economy and Science-Technology, 16,288-289.*

[23] Li S.L. and Wang X.L. (2022). *Analysis of the current situation of academic procrastination among college students in local undergraduate institutions and its influencing factors. Editorial Department of Jining University, 1,98-102.*

[24] Ren J. and Kong R. (2016). *A study of farm household income quality based on validated factor analysis. Journal of Chongqing University (Social Science Edition), 4, 54-61.*