Comparison of Time Management Disposition among College Students from Different Majors

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Abstract

Objective To explore the characteristics of time management disposition among college students of several major majors, and analyze the impact of majors on the time management disposition. Methods: A stratified random sampling was used to select 1424 undergraduate students. They were surveyed with Adolescence Time Management Disposition Scale (ATMD). Results: The total average score of ATMD for undergraduate students in this group is (3.40 ± 0.49). There were 703 individuals (49.37%), 513 individuals (36.03%), and 208 individuals (14.60%) with high, medium, and low time management disposition in this group. The percentage difference in high, medium, and low time management disposition among majors is statistically significant ($\chi2=334.289$, $P<.001$). Conclusion: The time management disposition of college students is at a medium level, and there is still room for improvement. Majors may be an important influencing factor on their time management disposition.

Keywords: *Time Management Disposition, College Students, Major*

1. Introduction

For individuals, time is a rare, irreversible and irreparable, non-transferable, and non- renewable resource, and people can only effectively manage their limited time. Time management is the activity of planning, arranging, controlling, allocating, utilizing, and providing feedback on time, with the aim of improving the quality of time [1]. Time management tendency is a personality trait that represents an individual's behavioral patterns and value orientations. It is the manifestation of an individual's behavioral and psychological characteristics in time use [2], and has a significant impact on their physical and mental health, career development, and achievement [1, 3-5].

From the perspective of teaching arrangements in universities, apart from the teaching activities organized by the school and the time for students to eat and sleep, most college students have more than 4 hours of free time per day, but not all college students can fully utilize their time. In terms of effectively utilizing time, college students face the following problems: First, unreasonable allocation of spare time. College students spend significantly less time on learning, real-life communication, physical exercise, and social practice activities, which is not conducive to physical and mental development and ability improvement. However, the proportion of time spent on love, entertainment, and sleeping in is relatively high, resulting in a significant waste of time and insufficient fulfillment of life. Second, the planning and execution

of extracurricular time are poor. Mainly manifested in the lack of specific learning objectives, unclear learning plans, and weak execution of learning plans [6]. The reasons for the above problems are multifaceted, among which the most important is the incomplete development of time management disposition: vague understanding of time management (low sense of time value), lack of time management methods and skills, weak planning, low management efficiency, and low self-satisfaction [7-8]. A series of subcultural phenomena such as boredom, procrastination, internet addiction, otaku, Buddhist youths, and night owls are common in contemporary college students, which reflect well the problem of insufficient time management awareness and ability [8]. Therefore, understanding the influencing factors and mechanisms of time management disposition among college students can help cultivate good time management disposition and promote their healthy growth.

Previous studies on the influencing factors of time management disposition among college students have mostly focused on the following aspects: the first is demographic factors, such as gender, grade, place of origin, academic performance, and whether they are class cadres [9-11]; the second is emotional states, such as state anxiety, depression, etc. [12-13]; the third is personality traits, such as A-type personality, achievement motivation, self-esteem, self-efficacy, etc. [14-17]. There is not much research on the impact of major. As is well known, majors have a strong ability to shape the psychology and behavior of college students. Due to unique methods and styles in training objectives, modes, and teaching arrangements, each major will guide students to develop corresponding daily routine and form a certain way of using time. Therefore, we can assume that there are differences in time management disposition among college students from different majors.

Based on the above analysis, this study intends to use a large sample, multicenter questionnaire survey to explore the current situation and differences in time management disposition among college students in different majors, and analyze the reasons for this difference.

2. Objects and Methods

2.1. Objects

A stratified random sampling is used to select 1500 undergraduates from 8 universities in Guangdong Province, including Guangzhou Medical University, Sun Yatsen University, Guangzhou Second Normal University, South China University of Technology, Zhongkai Agricultural College, Guangdong University of Finance and Economics, Guangzhou Institute of Physical Education, and Guangzhou Academy of Fine Arts. One thousand four hundred and twenty-four valid questionnaires were collected, with an effective rate of 94.9%. The age ranged from 18 to 25 years (mean 20.61±2.23 years). Among them, there are 792 boys and 632girls; 243 majoring in clinical medicine (CM), 218 in science (S), 297 in engineering (E), 199 in agriculture (A), 169 in humanities (H), 161 in normal education (NE), 73 in sports (SP), and 64 in Fine arts (FA).

2.2. Tools

2.2.1. Adolescence Time Management Disposition Scale, ATMD

Compiled by Huang Xiting et al. (2001) [3]. There are a total of 44 items, divided into three dimensions: sense of time value (STV),

sense of time monitoring (STM), and sense of time efficacy (STE). Likert 5-point scoring method is used to score from 1 to 5 points corresponding to "completely disagree" to "completely agree", with 5 questions being scored in reverse. The higher the score, the better the time management dispostion (TMD). A total score of ATMD>3.50 indicates high time management disposition (HTMD), 2.50 ≤total score of ATMD≤ 3.50 indicates medium time management disposition (MTMD), and a total score of ATMD<2.50 indicates low time management disposition (LTMD). In this study, the Cronbach'a coefficient of the total scale is 0.931, and the Cronbach'a coefficients of 3 dimensions are 0.788, 0.863, and 0.877, respectively.

2.2.2. Self-compiled personal general information Questionnaire

It includes gender, age, only child or not, grade, school attended, major, etc.

2.3. Data processing

SPSS 20.0 software is used for statistical analysis. The main statistical methods include descriptive statistics, rank sum tests, and χ^2 tests.

3. Results

3.1. The general situation of time management among various majors

From Table 1, it can be seen that among the ATMD scores of various majors, the highest is the sense of time value, and the lowest is the sense of time monitoring. The total average score of ATMD in clinical medicine, engineering, and agriculture students all exceeds the lower limit of high score by 3.5, indicating a high score; The total average score of ATMD of science, humanities, normal education, sports, and arts is below the lower limit of high score by 3.5 and above the upper limit of low score by 2.5, which is considered a medium score.

Table 1 Descriptive statistics of ATMD scores of various majors

	STV	STM	STE	ATMD
CM	4.08 ±0.66	3.64±0.56	3.80±0.52	3.68±0.58
S	3.59±0.68	3.22±0.59	3.41±0.60	3.35±0.63
E	3.82±0.49	3.59±0.47	3.67±0.54	3.66±0.51
A	3.69±0.73	3.51±0.65	3.55±0.57	3.56±0.62
H	3.26±0.44	3.04±0.47	3.18±0.43	3.12±0.46
NE	3.42±0.56	3.25±0.60	3.21±0.41	3.28±0.54
SP	3.05±0.45	2.58±0.48	2.86±0.51	2.72±0.47
FA	2.88±0.42	2.43±0.45	2.47±0.39	2.54± 0.43
F	17.337	16.998	19.169	15.451
P	<0.001	<0.001	<0.001	<0.001

3.2. Ranking of ATMD total scores of students in various majors

Rank the total average ATMD scores of students in various majors in ascending order, as shown in Table 2.

From Table 2, it can be seen that the time management disposition from strong to weak are clinical medicine, engineering, agriculture, science, normal education, humanities, sports, and fine art.

Table 2 Ranking of ATMD total score by major

Major	ATMD total score	Ranking of ATMD total score
CM	3.68±0.57	8
S	3.35±0.64	5
E	3.66±0.50	7
A	3.56±0.66	6
H	3.12±0.45	3
NE	3.28±0.53	4
SP	2.72±0.48	2
FA	2.54±0.42	1

3.3. Comparison of the percentage of time management disposition among students in different majors at different levels

From Table 3, it can be seen that there are 703 (49.37%), 513 (36.03%), and 208 (14.60%) students with high, medium, and low time management disposition in this group, respectively. The percentage difference in high, medium, and low time management disposition among different majors is statistically significant (χ^2=202.774, P<0.001).

Table 3 Comparison of the percentage of time management disposition (TMT) at different levels in various majors

Group / TMD	CM	S	E	A	H	NE	SP	FA	χ^2	P
HTMD	175	95	203	108	54	60	6	2	334.289	<.0.001
MTMD	42	101	75	60	89	86	27	33		
LTMD	26	22	19	31	26	15	40	29		

4. Discussion

Among the ATMD scores of various majors in this group, the highest is the sense of time value, and the lowest is the sense of time monitoring. The total ATMD scores of clinical medicine, engineering, and agriculture are at a high level; The total ATMD scores for science, humanities, normal education, sports, and fine arts are at a moderate level. It is higher than previous research results [18-21], suggesting that the time management disposition of college students in various majors have been increasing year by year, but the relative development speeds of the three dimensions of time management disposition remain unchanged.

This study found significant differences in the average level of time management disposition, and significant differences in the percentage of high, medium, and low time management disposition among students from different majors. The ranking results show that the time management disposition, from strong to weak, are clinical medicine, engineering, agriculture, science, normal education, humanities, sports, and fine art. It is suggested that the disposition of time management has strong major difference, which is closely related to the training objectives, teaching modes, and teaching arrangement of various majors.

The clinical medicine major is a 5-year program with a relatively long duration, because is has a strong specialization and a wide range of content, involving not only public courses such as biology, chemistry, physics, advanced mathematics, English, Marxist Leninist, physical education, but also specialized related courses such as dialectics of nature, sociology, psychology, as well as major backbone courses such as anatomy, physiology, biochemistry, pathology, internal medicine, surgery, obstetrics and gynecology, pediatrics, infectious diseases, otolaryngology, Neuropsychiatry, oncology, emergency medicine. Each course is covered with knowledge points, and the logical connections between knowledge points are crisscrossing, extremely complex but difficult to discover. Medical students need to have a macro understanding of the connections between each course and its knowledge points, form the knowledge structure of their own major, and also need to memorize and practice more in order to integrate all knowledge points, and proficient in various experimental and clinical operation skills is also required. It can be said that the clinical medicine major has the characteristics of both humanities and sciences, with the nature of sciences being more prominent, and medical students are required to possess strong cognitive abilities such as attention, sensation, observation, memory, imagination, and thinking abilities, as well as multiple practical abilities. Therefore, the learning tasks for clinical medicine students are extremely heavy, difficult, and interrelated, with a very tight curriculum arrangement, and less than two hours of free time available for daily leisure time. When dealing with such heavy and complex learning tasks, medical students have gradually developed higher time management skills: First, more than 70% of medical students have a certain time planning ability, are good at formulating study schedules, use dedicated time, and try to squeeze out time for learning while ensuring basic daily needs. Second, they determine the order and length of learning time based on the importance and urgency of learning tasks. Third, they can use complete time periods for systematic learning, as well as make reasonable use of fragmented time to memorize mnemonics and recall knowledge points. Fourth, they have clear stage goals and career plans, continuously reinforce themselves to achieve stage learning goals, greatly satisfying their sense of achievement and achieving self-motivation, thereby forming a virtuous cycle. Fifth, personalized use of learning tools to achieve twice the result with half the effort; be able to work hard to resist interference from electronic devices. Sixth, under the joint influence of external motivation and internal motivation (self-learning desire), the vast majority of medical students study at least once a day, while a few students study three to five times a week to maintain their optimal learning state. Final, they are able to develop a study schedule based on their own learning type (visual, auditory, literacy, or kinesthetic learners) [22].

Science is a major that studies the basic laws of natural material motion, that is, how matter comes from, with a focus on the study and research of basic theories. The vast majority of science majors have a four-year program, which is generally one year shorter than medicine. Although science has strong specialization, its content scope is more concentrated compared to clinical medicine. In addition to public courses such as chemistry, physics, advanced mathematics, English, Marxist Leninist, and physical education, each science major has its own major backbone courses . Science

majors have distinct scientific characteristics. Compared to medical majors, science majors have fewer course knowledge points, and the logical connections between knowledge points are close and easy to understand through deduction. There is also less content that needs to be memorized. The focus of learning is to grasp the macro level connection between the knowledge points within the course and between various courses, form the knowledge structure, and on this basis, practice more on key principles, formulas, etc. to integrate them, proficienting in operating various important experimental instruments at the same time. Science also requires students to possess strong comprehensive abilities such as attention, sensation, observation, memory, imagination, thinking ability, and practical skills. However, students need to memorize much less content than medical subjects, and focus on cultivating and applying abstract logical thinking, especially the ability to discover and solve problems. Although there are many learning tasks, the logical connections between tasks are strong, and the entire subject often forms a clear system, which facilitates students to integrate learning content and gradually learn. Therefore, the use of time is more flexible, and there is more free time. The urgency of time management is not as strong as that of medical students, and the training of time management skills is not as good as that of medical students. According to a survey, science students have more than 7 hours of free time, but most students have an average of less than 3 hours of self-directed learning time per day. The remaining 4 hours or more of free time are used for low-level leisure activities such as sleeping in, watching short videos, and chatting online. There is a lack of scientific time planning and a lack of detailed study schedules [23].

Engineering is the major with study and practice of specific engineering principles, process, and implementation technologies, and is also the general term for disciplines that apply natural sciences to industrial and agricultural production. It can be said that the study of materials in engineering focuses on the practical application of technology and can be classified as a technical field. Therefore, the broad definition of engineering includes agriculture, and we will merge engineering and agriculture to discuss them. Basic theory is a fundamental knowledge that engineering and agricultural students must understand, the practice, mastery, application of professional skills are their learning priorities, and project design is the main form of learning and homework. Engineering and agriculture students have a more phased and complete use of time compared to science students, and undergraduate students generally have 4-5 hours of free time per day [24]. According to Xiang Hong's research, the proportion of engineering college students who mainly spend their leisure time on shopping, socializing, entertainment, and studying is 45%, 58.6%, 63%, and 37.9%, respectively. 33.10% of engineering college students self-study for 1-2 hours per day, 51.9% for 3-4 hours per day, 14.18% for 5-6 hours per day, and 0.76% for more than 7 hours per day [25]. Zhao Yaqi's survey shows that engineering college students have approximately 25 hours of class time per week, with 5 times their weekly spare time, 36% of them self-study for more than 3 hours per day, and 24% for 1-3 hours per day, 25% almost never attend self-study, while 15% say they only attend self-study before exams. They work especially hard before exams and study all through the night. Of course, they will be also in love, make phone calls, and send WeChat messages in the class room [26]. The above research results indicate that the time management of engineering students is not reasonable enough, and most of their free time is not used for learning. So,

Their time management skills still need to be improved [27]. One of the important reasons for the weak time management ability of engineering college students is their inadequate learning attitude. Lu Yang's research [25] shows that only 18% of them believe that learning is important, 32% are enthusiastic about various club activities, 28% focus on developing various social networks, and 15% are enthusiastic about part-time jobs to make money. This result reflects that many engineering students are restless and utilitarian.

The situation in agriculture college students is similar to that in engineering. Chen Xingyu et al.'s research [28] shows that more than half of agricultural students have 3-5 hours of spare time, 9 6% have more than 8 hours of spare time per. On the other hand, 49.9% of them are in love, 49.9% are part-time workers, 28.3% participate in collective activities such as physical exercise, and 31.1% participate in extracurricular learning, including reading extracurricular books, training and reviewing for postgraduate entrance exams, civil service exams, and certification exams, 23.8% participate in student union and club activities, 81 9% of college students engage in leisure activities such as surfing the internet, watching movies, listening to music, online shopping, and playing the mobile phones, and 21.1% like sleeping in. Only 11.3% and 31.2% of them are very satisfied or satisfied with their spare time arrangements respectively. The main reasons why agricultural students fail to arrange their spare time are: lack of clear goals, confusion about college life, not knowing what to do (32.8%), lack of guidance and supervision (21.1%), lack of self-control (20.6%), lack of planning and arrangement of the spare time (28.3%), and the impact of school environment such as poor learning atmosphere and other negative phenomena (24 2%), extensive use of the internet and mobile phones (51.2%), crazy entertainment to compensate for the lost entertainment opportunities (20.9%) [28], etc.

The normal education majors belong to the educational direction of various disciplines, which employment goals are basic education and teaching work in primary and secondary schools or similar educational institutions. The total duration of 4-year undergraduate normal students is 2600-2980 hours, with more than 12 hours of free time per day. With the advancement of normal education reform, the concept of teaching and learning is also constantly evolving and updating. Teachers are no longer simply imparting knowledge, skills, and information directly to students. Instead, they should combine the characteristics of their profession, carefully design teaching and create scenarios, flexibly adopt teaching methods, stimulate students' learning motivation, promote their learning, and help them develop comprehensively. Therefore, in addition to learning professional knowledge and skills, normal students also need to master relevant teaching methods. Research [29] shows that 26.4% of normal students make a study plan once a day, 34.1% make a study plan once a week, 12.4% make a plan once a month or every semester, 0.7% make a study plan once a year, and 20.9% of normal students never make a study plan. At the same, the scope of learning for normal students should not be limited to their own majors, and 76% of students are willing to learn other knowledge besides professional courses. The main sources of their extracurricular learning content are books and training classes. The extracurricular learning time for normal students is generally guaranteed, with over 52.4% of students ensuring an average of 1-3 hours of extracurricular learning per day. 15.4% of students have completed 3 hours or more. However, 32.2% of normal students have an average extracurricular learning

time of less than 1 hour or even do not study. In terms of time arrangement, 60.4% of normal school students can achieve a balance between learning and leisure. However, a considerable number of students do not have a reasonable time arrangement, which is manifested as learning when they are tired of playing, cramming before exams, and staying up late before exams. Normal students usually attach great importance to the learning environment and can effectively utilize school resources and modern tools. Libraries and multimedia are the most commonly used resources for them. The main purpose of normal students entering libraries is to broaden their knowledge, read interesting entertainment books, enrich professional knowledge, and complete homework by consulting materials. However, some normal students have never even entered the library. With the advent of the information age, computers have become an important learning tool for college students. However, only 30.5% of normal students spend most of their time using computers searching for information and expanding their horizons, while 35.9% beyond learning. It can be seen that the scientificity of time management for normal students needs to be strengthened, and leisure activities (such as part-time jobs) need to be reduced [30].

The neglect of learning by students majoring in sports is a recognized fact in the education industry. The sports students who spend more than 80%, 50%~80%, 30~50% and less than 30% of their spare time on learning account for 4.09%, 11.78%, 29.10% and 56.13%, respectively. At the same time, physical education students who have a classroom attendance rate of over 90%, 80%~90%, 70%-80%, 60%~70%, and less than 60% account for 26.02%, 23.79%, 22.68%, 21.19%, and 10.02%, respectively. It can be seen that the attendance rate of sports students is not high, with over half (50.19%) of them having a classroom attendance rate of less than 80%. In recent years, the classroom attendance rate has been declining [31]. Although 93.56% of sports students have clear learning goals, they are unable to grasp the key points in their spare time. Because sports students not only need to learn theoretical knowledge, but also professional skills, classroom learning alone is not enough. However, few of them will improve themselves through extracurricular learning. Most sports students believe that extracurricular learning is not important [32].

Art students have the weakest time management disposition. Their learning interest is significantly lower than those of other students, and their consciousness and initiative are also significantly lower than those of other students, In addition, 8% of students of other majors believe that they "participate too much in extracurricular activities", while 19% of art students believe that they "participate too much in extracurricular activities". Art students spend less time (63%) on learning than other students (77%) [33].

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