

A REVIEW OF TIME MANAGEMENT RESEARCH AMONG UNDERGRADUATE STUDENTS IN CHINESE UNIVERSITIES

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ABSTRACT – This paper adopts a qualitative approach, conducting a literature review which studies time management among undergraduate students in Chinese universities at home and abroad through libraries, reference rooms and online resources. There is significant gender, urban/rural, arts and science, grade, academic performance, and school-type discrepancies in time management among Chinese university undergraduates. Professional time management training and group counselling can help develop undergraduate students' time management abilities. In addition, according to the theoretical analysis framework of "time management tendency", issues in time management among Chinese university undergraduates appear to be closely related to psychological characteristics and behaviours of individuals. Previous research on undergraduate time management has focused on the management of the current situation, while systematic research on the underlying causes of poor time management has been neglected. While it has been suggested that time management skills can be improved through training, little has been written about research into other educational interventions. Compared with students' previous educational experience, the proliferation of after-school free time is a distinctive feature of university life. An individual's time management skills directly affect his or her ability to study independently and further influence the personal qualities of the individual as a whole. This study aims to investigate the current situation of Chinese undergraduates' after-school time management ability, reveal the problems underlying Chinese undergraduates' after-school time management, disclose the shortcomings in the current management process and identify the factors affecting Chinese undergraduates' after-school time management ability, in order to help improve time management skills among Chinese undergraduate students.

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1.INTRODUCTION

Effective time management is a requirement for quality education and a skill that undergraduates need to master, as it can directly affect the efficiency of their studies, life and work. The campus life of undergraduates in Chinese universities is a rich experience, but it is vital that undergraduates learn to plan and use their time wisely and to organise and arrange their schedules effectively. Better time management can enable undergraduates to maintain a good work-life balance or allow them to consciously reflect on, discover and adjust to the imbalance if it exists. Thus, educating and guiding their students to manage their time wisely and improve their ability to manage time has become an urgent issue that universities presently need to address.

There are major problems with time management for Chinese university undergraduates. First, for undergraduates in Chinese universities, wasting time is common, and they tend to lack effective time management skills; second, many undergraduates in Chinese universities stay up late and do not pay attention to their circadian rhythms; third, many undergraduates in Chinese universities developed bad habits, forming a vicious cycle of poor time management. Educators in Chinese universities have previously attributed the good or bad performance of undergraduates to whether or not they work hard and fail to recognise the impact of proper time management after school, thus failing to provide proper guidance for the undergraduates.

Therefore, it is of great importance to understand and study how Chinese university undergraduates as a group view and use their time. Their similarities and differences will be examined

to reveal the factors influencing the time management skills of Chinese university undergraduates, the current situation of undergraduate time management regulations by Chinese educators, and any existing problems. Furthermore, how Chinese universities can help students improve their understanding of time management is equally significant.

2. PROBLEM STATEMENT

It is necessary to study and understand various aspects of how Chinese undergraduates view time management and use their time, examining questions like what the commonalities among these students are, what factors affect the time usage of Chinese undergraduates, and whether a concerted effort to reverse these deleterious effects should be made in school education. It reveals the shortcomings of the research on time management of undergraduates in Chinese universities.

3. LITERATURE REVIEW

This paper investigates the definition of time management and time management ability, the measurement of time management, research on Time management behaviour, Research on time management interventions and time management skills, definition of time management tendency, measurement of time management tendency, relationship between time management tendency and mental health, relationship between time management tendency and academic performance, relationship between time management tendencies, learning procrastination and learning fatigue, the relationship between time management tendency, personality, and meaning in life, the relationship between time management tendency and family education.

3.1 Definition of Time Management and Time Management Ability

In the literature on time management research, Lakein (1973) was the first to define the concept of time management. In subsequent studies, many researchers have defined time management in different ways; however, there is no widespread consensus. The following are the various definitions of time management that have been proposed by researchers: time management includes the process of need identification, setting goals to meet those needs, suggesting priorities and planning tasks to achieve goals (Lakein, 1973). Time management is the ability to improve the usage of time spent performing activities (King et al., 1986). Effective time management is the practice that maximises intellectual productivity (Britton & Tesser, 1991). Time management is the use of self-regulation strategies with the purpose of discussing plans and their efficiency (Eilam & Aharon, 2003). Time management includes the act of time evaluation (immediate or past, present and future awareness, self-awareness of time use, guiding the individual to accept tasks and responsibilities that suit his level of competence), the act of time planning (preparing ahead of time to use one's time effectively). Time management involves a series of tasks carried out to enhance the usage and effectiveness of time. The application of modern management methods on the consumption of time includes a series of actions, such as tricky prediction, re-control, planning, implementation, inspection, summary, evaluation, feedback, etc., in order to achieve a rational allocation of time. The effective use of time aids in the continuous improvement of time utilisation and work efficiency (Sun, 1990). Time management is an individual's capacity to monitor and evaluate activities and time relationships on the basis of their understanding of the value and meaning of time (Huang & Zhang, 2001).

Modern time management methods emphasise time as a most precious and limited resource. From the perspective of management, time is the object of management, and through scientific means, time can be planned and controlled and effectively arranged and used. Through this, one can reduce the waste of time and use their time more effectively. To be the master of time, the passive and natural random passing of time needs to be managed into a systematic, planned and purposeful active allocation and use. All of these factors make up the explicit meaning of "time management". At its core, time management is personal self-control and self-management, namely, the systematic, focused, planned and purposeful allocation of time for productive and creative work.

With regard to time management skills, Fang et al. (2003) were among the first Chinese scholars to propose the concept of "time management skills", arguing that the actual status of time management

can be broken down into three dimensions: time management awareness, time management planning and real-time management ability. The theoretical basis of this concept is based on the research on meta-cognition conducted by American psychologist Freville. They believed that the essence of time management reflects the meta-cognitive ability of individuals, i.e. students' self-awareness of their cognitive activities, self-monitoring and self-regulation strategies and skills.

3.2 Measurement of Time Management

The main research method used in studies on time management has been questionnaires, with individual studies also making use of experiments and diaries. A great deal of research on time management has focused on the development of time management scales, and in terms of the frequent use of these questionnaires, there are three main types of questionnaires that have been utilised, detailed as follows.

3.2.1 Time Structure Questionnaire (Bond & Feather, 1988)

The time structure questionnaire (TSQ) was constructed by Bond and Feather in 1988. The factor analysis of the TSQ items revealed six factors (only five of which could be named), which were a sense of purpose, organisational procedures, current directions, effective organisation and persistence. Bond and Feather further argued that the TSQ was able to satisfy general psychometric principles for further use as a research tool, inferring that the scale has good face validity.

3.2.2 Time Management Behavior Scale (Macan et al., 1990)

The time management behaviour scale (TMBS) was developed by Macan et al. in 1990, who argued that the TSQ questions were too general and did not reflect the specific time management skills of the participant. They felt that characteristics of time management behaviours should include identifying the individual's needs, ranking them according to their importance and then allocating their time and resources accordingly. Macan et al. thus developed the TMBS based on the dimensions of goal setting and prioritisation, mechanism-planning and scheduling, conscious control of time and tendency to chaos. The sub-scales of this questionnaire are mechanics of time management, setting goals and priorities, preference for the organisation (e.g., preference for previous ways of working) and perceived control of time. The reliability coefficient of the TMBS is appropriate, though it varies across different studies. In 1997, Adams and Jex examined the potential factor structure of the TMBS using validating factor analysis, finding additional evidence for a three-factor explanation (although their scale contained only 28 of the 33 original items). In 1993, Shahani, Weiner and Stert tested the convergent validity of the TMBS by examining the relationship between the TMBS and three other scales (including the TSQ). It was found that the factors of the TMBS were significantly correlated with the factors of the other scales, and they concluded that the TMBS had good convergent validity. Thus, they claimed that the TMBS was the most well-developed and valid scale for measuring time management behaviour. However, these studies using the TMBS did not present all internal consistency scores (e.g., Adams and Jex, 1997), only reporting a coefficient of 0.50 to 0.90 for the sub-scales (Adams & Jex, 1999; Davis, 2000; Francis-Smythe & Robertson, 1999; Macan et al., 1990; Macan, 1994; Mudrack, 1997; Shahani et al., 1993). The lowest coefficient was for the preference for the organisation sub-scale (0.50, 0.60, 0.68, 0.70 and 0.83 in the different studies, respectively).

3.2.3 Time Management Questionnaire (Britton & Tesser, 1991)

The time management questionnaire (TMQ) was developed by Britton and Tesser in 1991. It includes items such as attitudes towards time management (do you feel that you are generally in control of your time) and planning time allocation. Its sub-scales contain three factors (short-term planning, long-term planning and time attitudes), which explain 36% of the variance. In 1995, Williams et al. used all sub-scales; however, they did not report internal consistency scores and other psychometric information using the TMQ. In 1996, Barling et al. used two sub-scales (short-term planning and long-term planning) in a short form and conducted a validated factor analysis. Their findings revealed that the interpretation of the two factors fitted their data fairly well (with a coefficient of 0.85 and 0.73, respectively). In 1996, True-man and Hartley used 14 of the 18 items of the original scale to establish two sub-scales, daily planning and confidence in long-term planning, for their study, revealing a

coefficient of 0.85 and 0.71, respectively. After comparing the TMBS and TSQ using psychometric methods, Mudrack (1997) suggested a condensed version of this scale. His goal was to determine whether the factors of TSQ could be accurately replicated in the TMBS, allowing the rotation of the sub-scale components. A coefficient for the TSQ and TMBS subscales was found to be equal to or exceed 0.7, with only yielded minute differences between the original scale and the condensed version. As a result of his findings, Mudrack developed a new version of the scale containing 20 items (instead of the 26 original items) of the TSQ and 26 items (instead of the 46 original items) of the TMBS.

Furthermore, Roberts et al. developed the Australian Time Organisation and Management Scale (ATOMS) based on five sets of criteria: a sense of purpose, on-time completion, time management mechanisms, handling time flow, and planning and organisation.

3.3 Research on Time Management Behavior

Time management behaviour is a process in which individuals actively use time management strategies and methods in order to use their time more effectively. The process begins with a conscious awareness of time management; it is characterised by practical actions taken in one's daily life and is guaranteed by persistence and perseverance (Yuan, 2006).

A study on the time management behaviour of undergraduate students in Chinese universities brought to light major differences in students' time management tendencies depending on their gender, type of university and the region where the university was located (Tang, 2002). On the other hand, their grades and the current employment crisis did not seem to have a significant impact on their time management (Wu, 2008). Additionally, whether they lived in an urban or rural area, whether they studied arts or science, their grades and how they performed academically led to differences in how students chose to manage their free time (Yu & Li, 2010). By conducting a study on the outcome of undergraduate students' time management behaviours in terms of rooted theory by interviewing and observing two groups of students, the superior and the troubled students, a theoretical model of the outcome of their time management behaviours can be established (Hu, 2009). The different time management behaviours of undergraduate students can be classified into six types, as follows: excellence, follow-up, balance, high demand, social and stray. There were found to be significant differences between these six types of students in terms of their attendance experience, learning outcomes and time management (Wei et al., 2020).

Based on the assessment of their time management behaviour, it was found that there are major problems in how many students manage their after-school activities. The average schedule of university students is dominated by leisure time and increased short-term self-interests, which have blurred their identities and made them fragmented. The diversification of the internal needs of university students, the expansion of social media and entertainment, the loosening of school management in their personal lives, and the infiltration of negative social trends are the main factors leading to the above-mentioned lack of time management skills among university students (Yi et al., 2021). Such a lack of self-consciousness has led to their poor evaluation of the environment of their leisure life (Li, 2002). They do not fully understand the importance of leisure time; they do not make reasonable arrangements for their leisure time; their leisure life is monotonous and boring, and the efficiency of their leisure time is relatively low (Ye, 2003). Some undergraduates in many universities simply do not know how to arrange their leisure time rationally (Ding & Zhao, 2006), leading to a lack of sense of time value and improper time allocation (Guan, 2015). Few undergraduates actually take the initiative to participate in physical exercise after school, with a majority preferring to play games on the Internet. This makes it difficult for them to organise group activities and communicate effectively with one another (Zhang, 2003). Undergraduates tend to read books for "recreational" and "utilitarian" purposes, and thus, their reading schedule is very unorganised (Li & Song, 2007). Some undergraduates lack friends in their academic circles or after-school lives, meaning that club activities do not take up much of their leisure time. Instead, online socialising takes up most of their leisure time. Coupled with the fact that most undergraduates do not work part-time, they have even less contact with society (Tian & Wang, 2017).

Specifically, Chinese undergraduate students of different majors have unique characteristics in terms of their time management. For example, undergraduates majoring in science and engineering have a certain degree of "leisure confusion" and "leisure poverty" in their after-school lives (Wang, 2002). The self-management of leisure time for adult education students is relatively poor. There are significant grade differences regarding time allocation, initiative, planning and satisfaction in leisure time management among adult education students (Xiao & Jiang, 2011). As an example, undergraduate nursing students' level of online self-directed learning was found to be poor. Therefore, schools and nursing educators should take specific measures to improve their students' time management skills, as well as their affinity for online self-directed learning (Chen et al., 2019).

The main problem facing undergraduates is that they do not know how to organise their life after school, which has a lot to do with the current situation of higher education in China (Huang, 2008). The lack of awareness and education in higher education coupled with the lagging research are definitely factors that affect undergraduate students and their ability to manage their time after school while they are enrolled in Chinese universities (Bi, 2011). Additionally, online information technology is also seriously affecting the way that undergraduate students spend their time (Zhang, 2013).

Undergraduates must apply the following rules in order to manage their leisure time effectively: first, they must establish and then strictly follow their own work and rest schedule; second, they must take their leisure time seriously and pay attention both when they are "working" and when they are "relaxing"; third, they must plan their leisure time effectively, no matter what activities are involved, such as sports or recreational activities, and where necessary, they should appropriately adjust (Xiong, 1995). Undergraduates should also make full use of their school's available programs and activities that can help them use their time wisely and focus on their studies in accordance with the requirements of a rounded development of morality, intelligence and physical fitness (Zhao, 1998). There needs to be a logical relationship between fragmented time management and the sustainable development of undergraduate students in Chinese universities; fragmented time management is a recent breakthrough, highlighting a new path that promotes the more sustainable development of undergraduate students (Wang et al., 2017).

3.4 Research on Time Management Interventions and Time Management Skills

The time management of Chinese university undergraduates has major problems and comes with several negative effects. In light of this, it is urgent to improve the current time management skills of Chinese university undergraduates. Time management interventions (including professional time management training, group counselling sessions, and time management theory education) are the primary methods for developing time management skills and abilities in Chinese university undergraduates.

Time management training activities, especially when implemented in high school students, can go on to influence their academic achievements in university. As has been shown, the more time management training is provided to students with very poor time management, the more significant improvements in academic achievement can be seen later on (Britton & Tesser, 1991). Through time management training, many students have developed good time management habits and have improved their academic performance levels (Weinstein & Zimmer, 1994). This being the case, effective time management education may be an effective way to promote academic development among students (Fang et al., 2003).

In terms of undergraduate time management and training approaches to time management, universities should strive to implement after-school education programs to help undergraduate students use their after-school time wisely (Wei & Si, 2015). Universities should also address the issue of time management awareness by offering training courses and providing group counselling sessions to discuss the problems arising from poor time management (Yuan, 2006). The addition of some short-term training or related courses relating to time management can help undergraduate students manage their time more effectively (Li, 2013).

In addition to time management training, group counselling helps undergraduate students develop better time management abilities, further contributing to their development of time

management-related intervention studies (Ding, 2007). Group counselling based on time management disposition theory and time management self-monitoring theory has been shown to have a positive effect on improving undergraduate students' time management skills (Zhang & Zhu, 2014). It helps them to focus on building good qualities and character traits, which helps them to set more attainable goals. Mental health education is also a very important way to help the time management skills of undergraduate students in Chinese universities improve to higher levels (Tong, 2011). By organising time management-themed psychological counselling sessions for university students, they will not only be helped to better manage their time but also to improve upon their self-management skills, develop their personalities and face challenges in life head-on (Zhang, 2013). To assist with this, universities should make an effort to enhance the guidance they give to their students in terms of management managing their time and skills; at the same time, students should raise their own awareness of fragment time management by developing good habits (Lv et al., 2018).

Concerning the time management skills of university freshmen, the following three aspects could be addressed: time management skills training courses, career planning education for university freshmen, and gradual progress in student management with the goal of achieving a "soft landing" at the interface of high school and university education (Yang, 2009). Group psychological counselling sessions can be effective tools for improving the time management of new students; to illustrate, team psychological counselling activities in medical schools can affect the time management level of new medical students (Ma et al., 2011).

Furthermore, introducing time management theory into the education program of university students in the new era, educating them on time management theory and shifting away from the inculcation of time concepts to more specific time management methods are essential for promoting time management skills among undergraduate students (Dai, 2010). The SMART goals management principle focuses on goals and time management. Applying the SMART goals reasonably to undergraduate students' time management education throughout their university years could improve students' independent learning abilities and efficiency (Yang et al., 2020).

Time is an important factor that can influence students' independent learning through factors such as time division, time duration division and time execution. Teachers need to consider these factors in order to help students plan their independent learning time more rationally, emphasise students' identity and enhance their awareness of time management; grasp the timing of learning and determine the schedule of independent learning; adjust the time allocation of independent learning according to their personal time experience; consider individual differences and increase the flexibility of time management for independent learning (He, 2020).

3.5 Definition of Time Management Tendency

Time management tendency consists of an individual's attitude towards time, how they plan and use their time, and their values and behavioural preferences towards time. It is a personality trait with a multi-level psychological structure (Huang, 2006). Time is not only the way in which basic psychological processes manifest themselves. They also bring out a person's personality traits. Huang (2006) defined the differences in people's personalities in their approach to time as the temporal personality. Time management tendency refers to the psychological and behavioural characteristics that individuals display with their time management. This particular trait is very dynamic, with differing degrees of expression in different people. It is cross-situational and potentially measurable; it is mainly reflected by a relatively stable sense of time value, time monitoring and time effectiveness (Huang & Zhang, 2001).

An individual's time value reflects their stable perceptions and mindset towards the value and function of time; time monitoring refers to their perceptions and competencies in the use and planning of time; and time effectiveness refers to their expectations about their own ability to control time, which limits their perception of time monitoring (Fu, 2009).

3.6 Measurement of Time Management Tendency

In the study of time management, many time management questionnaires have been developed by foreign scholars according to different schools of thought relating to time management. The common thread within these questionnaires is analysing the behavioural performance of time management tendencies. However, there is no consensus on how to use this factor to measure time management tendencies.

Huang and Zhang (2001) proposed the concept of time management tendency by considering an individual's personal dominance and personality. This led to the development of the adolescence time management disposition (ATMD) scale, which is based on the combination of foreign literature and the social and cultural background of China. This scale is widely used in China for research on time management, academic procrastination, Internet addiction, subjective well-being, and group counselling training.

Yu and Li (2011) developed the undergraduate time management scale based on theories involving time management tendencies at home and abroad. This allowed them to conduct research on time management from a psychological perspective, which had not been done previously.

Liu et al. (2011) were able to use their theories on time management to prove that (1) the undergraduate time management tendency questionnaire consisted of six factors: planning, procrastination, time perspective, conscious control, chaotic tendency and stress resistance; (2) the internal consistency reliability, split-half reliability and retest reliability of the questionnaire were high, and the questionnaire had good reliability and validity; (3) vertical individualism in cultural orientation was shown to have a significant predictive effect on planning, conscious control and chaotic tendency in time management tendency, while vertical collectivism in cultural orientation had significant positive predictive effects in time perspective and stress resistance on the time management tendency.

3.7 Relationship Between Time Management Tendency and Mental Health

There seems to be a negative correlation between undergraduate students' time management tendency and their mental health and a positive correlation between interpersonal distress and their mental health; the better their time management, the lower their interpersonal distress, and the better their mental health. (Ma et al., 2011).

3.7.1 About subjective well-being

There was also a positive correlation noted between all aspects of time management tendency and positive emotions in subjective well-being and a negative correlation between time management tendency and negative emotions (Zhang et al., 2001). Time management tendency was regarded as a reliable way to assess the subjective well-being of undergraduate students in Chinese universities (Li et al., 2006).

While we did not find any significant differences in gender and grade levels in terms of students' time management tendencies, different aspects of time management tendencies affected undergraduates' overall well-being differently. Time monitoring and time effectiveness significantly and positively predict undergraduate students' subjective well-being, and time effectiveness significantly and positively predicts undergraduate students' positive emotions and emotional balance while also significantly and negatively predicting their negative emotions (Fan et al., 2012). Time effectiveness proved to be a positive indicator of a student's adaptability and life satisfaction (Dong, 2015). Considering one's subjective well-being and time management tendency can also factor in the prediction of achievement motivation on micro-blogging addiction among undergraduate students (Shi et al., 2018).

There is not only a direct link between undergraduate time management tendency and self-harmony (Chen et al., 2008) but also a correlation with life satisfaction (Wang, 2009). Thus, it is recommended that students receive regular guidance in order to help them establish the right concepts of happiness. To accomplish this, relevant courses should be offered to foster the development of good

time management skills. Furthermore, a good atmosphere needs to be present within the university, as this can provide external support for students as they develop their concepts of time (Yang, 2017).

3.7.2 Relevant sources of psychological control

Sources of psychological control refer to an individual's perceptions of the outcome of their actions in a situation; these outcomes are divided into internal and external control. People who are internally controlled believe that the outcome of an event is determined by factors they can control, while individuals who are externally controlled believe that the outcome of an event is determined by external factors. Undergraduate students' time management tendency is closely related to sources of psychological control, mainly in that sources of psychological control are significantly and negatively related to the total score of time management tendency and the perception of time effectiveness and time monitoring. Studies have shown that individuals who are internally controlled are better at time management, confirming that those with high and low scores of time management tendencies have different sources of psychological control (Zhang, 2003).

This means that the more internal control students have, the better they manage their time. When internally controlled students are able to analyse the consequences of their own actions, they are fully aware that they could actively find solutions; otherwise, they are ignoring the fact that they could do something to make a difference. Thus, it is vital to help students improve their time management by guiding them to be better internally controlled, examining the root causes of their struggles with time management, and encouraging them to actively find ways to better time management (Ruan, 2004 and Zhang, 2005).

3.7.3 About self-confidence

Although all three elements of time management were found to be linked to academic performance, only time effectiveness was a reliable indicator of it (Gu & Tan, 2004). The time management tendencies of undergraduate students were also significantly related to their self-harmony (Xie, 2007).

For Chinese undergraduate medical students, for example, their self-harmony proved to be indicative of their time management tendencies (Bo et al., 2011). In fact, their self-confidence and self-flexibility were able to predict 29.5% of the variance among these students' time management tendencies (Qu et al., 2012).

3.7.4 About mental health, including anxiety and depression.

Time management tendency can also be affected by undergraduate students' anxiety levels (Chen et al., 2005). Specifically, high stress levels experienced by freshmen can negatively affect their ability to manage their time (Liao et al., 2005). Due to their unique characteristics, social media networks increase anxiety among undergraduate students in three ways: fragmented time management, self-identity crisis and excessive focus on social efficiency (Huang & Sang, 2018).

Time management tendencies and anxiety levels are known to affect the quality of sleep among college students (Yang et al., 2008). Chinese university science students tend to place a higher value on their time than arts students. Additionally, there are observable differences between gender and grade levels when it comes to coping mechanisms for stress. Differences between students with high and low time management tendencies are statistically significant in terms of problem-solving, withdrawal, and self-blame factors (Li, 2008).

Undergraduate students from different grade levels managed their time differently in response to test anxiety. Total time management tendency score, time monitoring and time effectiveness were negatively and significantly associated with test anxiety, and the difference in test anxiety levels between those with high and low time management tendency was statistically significant (Huo et al., 2010; Peng, 2014). Time management tendencies have a significant impact on the relationship between subjective time stress and depression experienced by undergraduate students (Deng & Chen, 2005), as well as their levels of stress and anxiety (Chen et al., 2011).

In undergraduates from different majors, the time management tendencies of undergraduate nursing students were positively affected by their self-efficiency, while they were negatively affected by their anxiety (Du et al., 2012). Furthermore, time management tendencies and competitive attitudes were both found to be linked to anxiety for medical students (Wu et al., 2013). Time management tendencies were shown to somewhat moderate the effect on medical students' self-efficiency, self-esteem, and levels of anxiety (Wu et al., 2014). Greater time management skills were observed among 5-year undergraduate nursing students, and their time management tendencies are negatively correlated to their anxiety levels. Thus, choice of profession and time effectiveness proved to be good indicators of anxiety levels (Liu et al., 2017).

3.7.5 About network dependence

Time management tendencies among Chinese undergraduate students were negatively correlated with their Internet addiction scale scores. The higher-scoring time management group scored lower on the Internet addiction scale, and it was also noted that male students scored significantly higher than female students on the Internet addiction scale. Students who can manage their time better are known to have a lower risk of Internet addiction compared to students with poorer time management (Liao & Lin, 2011). On interpersonal relationship health and time management, first-year students were reported as scoring significantly higher than third-year students in terms of their internet dependence, and the difference is statistically significant (Liu et al., 2014). Thus, the time effectiveness of undergraduate students was a good predictor for Internet addiction (Peng & Jiang, 2011).

Undergraduate students displayed differences between genders in all aspects of Internet effectiveness, with male students' Internet effectiveness being significantly higher than that of female students. There was also a significant positive relationship between Internet effectiveness and time management tendencies, with feedback, prioritisation, and time management behavioural efficiency being relevant predictors of undergraduates' Internet effectiveness (Cai & Zhou, 2012). Undergraduate students' online deviance was shown to have a negative relationship to their time management tendencies; regression analysis revealed that time effectiveness and time value work together to predict their online deviance (Cheng, 2016). Living expenses and time management abilities of university students greatly impact their internet dependence. Therefore, there should be more guidance offered by universities on living expenses and time management (Duan et al., 2020). Another factor is mobile phone dependence, which was shown to be negatively correlated with students' total time management scores, sense of value and efficiency, and monitoring levels (Chen, 2021). There was an observable predictive effect between levels of boredom, mobile phone dependence, and time management (Liang et al., 2022).

3.8 Relationship Between Time Management Tendency and Academic Performance

There was a positive connection between the three factors of time management tendency. Time monitoring had a significant effect on students' academic performance, and their sense of time value and time effectiveness indirectly influenced their academic performance (Zhang et al., 2001). Time value and time effectiveness have significant predictive power for the study satisfaction of undergraduates. After accounting for self-esteem and self-control, time management tendencies were still shown to have a significant effect on their levels of academic satisfaction, proving the incremental validity of time management tendencies (Zhang et al., 2004). Their academic performance was related to their total time management scores on the dimensions of time monitoring and time effectiveness but not to time value. Time monitoring was the factor that played the biggest role in students' academic performance (Chen, 2004). Students who were satisfied with their majors and had positive attitudes towards learning scored significantly higher scores in relation to their time management tendencies than those who were dissatisfied with their majors and had less of a positive attitude towards learning. This indicates that a student's sense of self-worth, their attitude towards life, and their perceptions and emotions are all related to their development of time management skills (Huo et al., 2008). Significant differences were noted between male and female students' scores on independent learning, time management, and self-efficacy; however, there were no significant differences in scores related to

independent learning, time management and self-efficiency among students of different grade levels (Chen & Zhou, 2009).

In terms of learning adaptability, the differences were all significant between both male and female students apart from learning motives, and male students scored higher than female students in all aspects. It was observed that learning ability and time management tendencies were positively correlated for undergraduates from normal universities, while attitude to learning is negatively correlated with all dimensions of management tendencies (Pan et al., 2011).

The dimensions of time management tendencies of Chinese undergraduate students were positively related to their internal motivations, while their external motivations were positively linked to their time monitoring and the total scores of time management tendencies. Also, time monitoring and time effectiveness had significant predictive effects on internal motivations, while time value and time effectiveness were measured to have negative predictive effects on external motivation (Zhang, 2010). The relationship between time management tendency and internal motivation is strong, and undergraduate time management tendencies may be an important factor influencing students' learning motivation (Feng & Fu, 2011). Undergraduates with high time management tendencies have significantly higher levels of achievement motivation than those with low time management tendencies. It has also been shown that time monitoring is a significant predictor of the pursuit of success and that time effectiveness plays a significant role in avoiding failure (Zhong, 2003). In terms of students reaching their goals, time management tendencies mediated the relationship between achievement goal orientation and learning engagement. This indicates that undergraduate students' achievement goal orientation indirectly influences their learning engagement through time management tendencies (Huang et al., 2017). There were significant differences observed in the total scores and dimensions of reasons for students' motivation as well as time management disposition among medical and Mongolian undergraduate students and non-medical and Han students. The higher grades scored higher than, the lower grades. Further, male students were more motivated to pursue achievement than female students and were better than female students in their knowledge and ability to organise and manage their time (Xin & Song, 2020).

3.9 Relationship Between Time Management Tendencies, Learning Procrastination and Learning Fatigue

There is a negative correlation between time management tendencies and procrastination (Bi & Peng, 2005). Chinese students' academic procrastination is closely related to their time management tendencies, with this relationship being influenced by related factors (Li et al., 2018). Higher levels of time effectiveness and time value are protective factors for procrastination, while a stronger sense of time monitoring and higher grades are risk factors for procrastination (Sun et al., 2018). The main causes of academic procrastination among Chinese undergraduate students are insufficient motivation, lack of time management skills, negative emotional influences, perfectionist tendencies and laziness. Task characteristics and contextual characteristics of learning are not major influencing factors (Pang & Han, 2009). Time management tendencies were good predictors of academic procrastination levels, and good time management had a positive impact on reducing academic procrastination in undergraduate students (Pan et al., 2010). Time effectiveness negatively predicted academic procrastination, and lack of motivation positively predicted academic procrastination. With this information, universities can improve students' academic procrastination behaviour by developing time effectiveness and learning motivations (Zhang, 2016; Hu, 2016).

Self-esteem has no direct effect on procrastination, but it can indirectly influence procrastination through time management tendencies i.e. time management tendencies play a fully mediating role in the relationship between self-esteem and procrastination (Han et al., 2014). Personality traits have a mediating effect between time management and academic procrastination (Li, 2015). Time management tendencies and dimensions were negatively correlated to procrastination while conversely having positive associations with self-efficiency. Self-efficiency was negatively related to procrastination, with the time monitoring factor, time efficiency factor, and general self-efficiency being negative predictors of academic procrastination in undergraduate students. Also, self-efficacy partially mediated the effect between time management tendencies and procrastination (Zhao et al.,

2016). Time management tendencies work to mediate sources of psychological control and academic procrastination, with increasing time management tendencies proving to enhance internal control. This helps to improve procrastination behaviour (Wu et al., 2018).

The differences in the total score of procrastination behaviour and the total score of time management tendency among undergraduate students of different grades in military schools were statistically significant. The differences in the total score of procrastination behaviour and the total score of time management tendencies between the second and third-year students and the fourth grade were significant. The total score of procrastination behaviour and time management tendencies were negatively correlated, with fourth-grade military clinical undergraduate students having greater self-control, less procrastination behaviour, and higher time management ability than other grades (Wang et al., 2016). Academic procrastination is prevalent among undergraduate nursing students. Personality traits are also shown to influence academic procrastination either directly or indirectly through time management tendencies (Geng et al., 2018).

There is a significant correlation between self-efficacy, time management tendencies and learning fatigue, with time management tendency and self-efficacy having a significant negative effect on learning fatigue. Thus, time management tendencies can indirectly affect learning fatigue through self-efficacy (Ma & Meng, 2013). There are significant differences between gender, chosen major, and whether or not they are student leaders. There is a significant correlation between self-efficacy, time management tendencies and learning fatigue. Also, time management tendencies and self-efficacy have a significant negative influence on learning fatigue, with time management tendencies indirectly influencing learning fatigue through self-efficacy (Ma et al., 2014).

Undergraduate students' time management tendencies are an important factor influencing learning fatigue, and it can be seen as a predictor of learning fatigue (Wu & Li, 2014). The amount of medical students experiencing learning fatigue is at an intermediate level, and reducing procrastination by enhancing their time management skills can help improve this (Wu et al., 2018).

3.10 The Relationship Between Time Management Tendency, Personality, and Meaning in Life.

A person's view of time is directly related to their personality. Researchers refer to people who are impatient, competitive, more efficient, and have a sense of urgency as type A personalities; conversely, people who do not possess these traits are referred to as type B personalities. The time management tendencies of undergraduate students are significantly correlated with type A personalities, who have better time management tendencies than type B personalities due to their higher sense of time value and time monitoring (Di et al., 2004). Type A personalities are positively associated with time management tendencies (Zhang, 2005). Competitiveness and hostility among type A personalities are positively correlated with time management tendencies (Yao, 2006). Higher and lower-scored perfectionists differed significantly in their total scores on the time management tendency sub-scales, with high scorers better at managing and using their time (Tong & Chen, 2008).

There were significant differences in time management tendencies of type A personalities in terms of their gender, grade level, and academic level. There were also significant differences between male and female type A personalities in their total scores. Furthermore, there were statistically significant differences between year one and year two students in time monitoring and total time management tendency scores, while the difference in time value between university and college students was also statistically significant (Tang, 2012). Some undergraduates with type A personalities tend to experience academic procrastination, with some experiencing serious procrastination (Zhang et al., 2012).

Regarding meaning in life, time monitoring and time effectiveness views were able to significantly and positively predict undergraduate students' life experiences, with time value and time monitoring being able to positively predict undergraduate students as they seek purpose in their lives. (Xu & Yu, 2014). Undergraduate students' sense of meaning in life is positively connected to their time management tendencies. Time effectiveness and time monitoring of the undergraduates have a

predictive, explanatory role in the sense of meaning in life (Ji et al., 2017). Coming-of-age beliefs can indirectly affect individuals' sense of meaning in life by influencing their time management tendencies (Fu et al., 2021). Undergraduates with a high sense of meaning in their lives are less likely to procrastinate, with time value having a mediating role between the two. Therefore, enhancing undergraduates' sense of meaning in their lives is conducive to reducing their tendencies towards academic procrastination by increasing their value of time (Dong & Yi, 2021).

3.11 The Relationship Between Time Management Tendency and Family Education

Parenting styles have a significant predictive effect on time management tendencies, with warm and understanding parents and punishing and strict fathers having a significant effect on the development of time management tendencies, while parents' denial and refusal had a significant negative effect on time management tendencies (Li et al., 2007). Acceptance-participation and strictness-supervision all have positive effects on the level and stability of undergraduate time management, with the former having a relatively greater effect; also, time management tendencies of undergraduate students with assertive parents were better than those with autocratic and neglectful parents (Wang & Yuan, 2008).

There were gender differences in fathering styles, with boys scoring significantly higher than girls on the dimensions of harsh punishment, excessive interference, refusal, denial and over-protection; regarding time management tendencies, girls scored significantly higher than boys on the dimensions of sense of time value and time monitoring; preferences of fathers were shown to have a predictive effect on undergraduates' sense of time value, as well as emotional warmth understanding of fathers on undergraduates' time monitoring and time effectiveness. (Zhao, 2009). The impact of family educational styles on undergraduate time management is particularly profound and can be internalised in different avenues, such as in undergraduate group identity and orientation comparisons. This gives the effectiveness of undergraduate time management a direct impact on the overall healthy growth of the individual (Wang & Teng, 2016). Emotionally warm parenting styles were positively associated with time management tendencies, while negative parenting styles were negatively associated with it. A mother's emotional warmth factor and punitive strictness factor played significant roles in predicting undergraduate students' time management tendencies, with the two having opposite effects. (Xu, 2017).

4. METHODOLOGY

This paper adopts a qualitative approach, conducting a literature review of books, articles, newspapers, and magazines that study time management among undergraduate students in Chinese universities at home and abroad through libraries, reference rooms and online resources such as CNKI, Du Show Academic Search and Baidu Academic. The data were then sorted and summarised to clarify the history, current situation and developing trends in the study of time management among Chinese undergraduates. At the same time, comparative research was performed with the related field of time management tendencies. Issues in time management faced by Chinese undergraduate students were highlighted using this theoretical analysis framework of "time management tendency" to further clarify the developing direction of time management research in Chinese undergraduate students.

5. RESULTS

In this paper, books, articles, newspapers, and magazines on the topic of time management of Chinese university undergraduates in China and abroad through resources from libraries, reference rooms and websites such as CNKI, Du xiu Academic Search and Baidu Academic were studied in order to gather information and data related to the study.

The standard measurement tools of time management applied in the relevant literature are as follows: time structure questionnaire (TSQ), time management behaviour scale (TMBS), time management questionnaire (TMQ) and adolescent time management disposition (ATMD) scale. These

time management measurement tools have provided reference and technical support for subsequent related studies.

Firstly, in the time management research among undergraduate students in Chinese universities, there are significant differences in gender, urban/rural background, arts and science studies, grade levels, academic performance and types of university, which all affect time management skills among Chinese university undergraduates, with significant problems and various negative impacts. As a result, there is an urgent need to improve the time management skills of Chinese university undergraduates. Some studies have utilised self-paced time management training programs to help develop time management skills. Professional time management training and interventions can help to enhance the time management skills of individual students, thus effectively improving students' academic performance. Group counselling has been shown to be effective in developing undergraduate students' time management skills and competencies by improving their time management tendencies, satisfaction with learning, and academic effectiveness. The standardisation of these group counselling sessions also plays a part. These results can point us in new directions for research on developing more strategies to develop time management skills in undergraduate students.

Secondly, in the time management tendency research among undergraduate students in Chinese universities, within the theoretical framework of "time management tendency", the time management of Chinese undergraduate students appears to be closely related to individual psychological characteristics and behaviours. For example, the time management tendency of Chinese undergraduate students shows a close relationship to their psychological health, academic level, personality characteristics, family education, employment, and so on. The results of related studies further show that time management tendency has a significant impact on the achievement of academic performance and the realisation of each student's life goals. Those with a stronger sense of time and more self-control were found to achieve higher grades and were far more likely to master individual self-development. The current research on time management tendencies of undergraduate students in Chinese universities focuses on the influence of time management tendencies on undergraduate students' learning and life, with less analysis of the factors affecting time management tendencies. Therefore, future research on the time management of undergraduate students in Chinese universities should expand beyond the framework of time management tendency and focus more on the factors that influence the time management of undergraduate students in Chinese universities. This will help to provide feasible strategies for improving the time management skills of undergraduate students in Chinese universities.

6. CONCLUSION AND IMPLICATIONS

Relevant research shows that prior studies on time management among Chinese university undergraduates specifically focused on the current situation of time management and time management tendencies while neglecting systematic research on the strategies that can be implemented to address this situation. Although some scholars have suggested that time management skills can be improved through training and group counselling, an insignificant number of articles have been written on these intervention methods.

The increased amount of after-school free time is a hallmark of university life, which makes it different from previous stages of study. This being the case, most university students are not prepared with sufficient time management skills, leading to them squandering their time. How they use their free time is closely related to their personal growth and development. This is now an issue that must be taken seriously on both theoretical and practical levels, which is why it is vital to research on time management of undergraduates.

Additionally, there is a significant cultural gap between urban and rural areas in China; what are the differences in time management and time management skills among students from these areas? Should Chinese universities devise strategies to develop time management skills in response to these

differences? These questions are important topics for time management research in Chinese universities.

Therefore, how educational management approaches the development of after-school time management skills in undergraduate students needs to be reevaluated. By investigating and analysing the current situation and behaviour of undergraduates with different types of household registration (rural and urban), the differences in after-school time management of those students could be revealed. Furthermore, the differences in the time management skills of undergraduate students with different types of household registration (rural and urban) and the impact on their academic performance could be explored. Future research on the current situation and problems faced by undergraduate students with different types of household registration (rural and urban) in Chinese universities needs to be addressed. The underlying reasons for this topic will be explored in order to propose solutions and suggestions. This remains an important direction for future research on time management of undergraduate students in Chinese universities.

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