Structural Invariance of the Future Time Perspective and Academic Delay of Gratification Model among Chinese and Thailand University Students

By

FANG CHAOHUA

A Dissertation Submitted in Partial Fulfillment of the Requirements

for the Degree of Doctor of Philosophy in Education Management

Graduate School, China-ASEAN International College

Dhurakij Pundit University

2019

Certificate of Acknowledgement of the Dissertation

China-ASEAN International College, Dhurakij Pundit University

Doctor of Philosophy Program in Education Management

Title of Dissertation	Structural Invariance of the Future Time Perspective and Academic Delay of Gratification Model across Chinese and Thailand College Students
Researcher	ChaoHua Fang
Program	Doctor of Philosophy (Education Management)
Principle Supervisor	Dr. Ren-Cheng Zhang
Co-Supervisor	

Has been approved by

..... Chairman of the Committee
(Dr. Hugo Yu-Hsiu Lee)

..... Committee Examiner
(Dr. Jian-Hao Huang)

..... Committee Examiner
(Dr. Renee Chew)

..... Committee Examiner
(Dr. Yuan-Cheng Chang)

..... Principal Supervisor
(Dr. Ren-Cheng Zhang)

Approved by the DPU China-ASEAN International College

..... Dean of China-ASEAN International College
(Dr. Chun-Shuo Chen)

Date .....

Dissertation Title: Structural Invariance of The Future Time Perspective and Academic Delay of Gratification Model among Chinese and Thailand University Students

Author: ChaoHua Fang

Dissertation Supervisor: Ren-cheng Zhang

Program: Ph.D. (Education Management)

Academic Year: 2019

ABSTRACT

Future time perspectives and academic delay of gratification among university students are highly important topics in the field of development and educational psychology. This study explored the relationship between future time perspectives and academic delay of gratification among university students in China and Thailand. Specifically, a cross-cultural perspective was employed to establish a structural equation model between the two variables. Surveys were distributed to 200 randomly selected students from five universities in China and Thailand. All resulting data were analysed using SPSS 22.0, while statistical analyses were conducted using the AMOS 17.0 software. Results showed that there are significant differences between Chinese and Thai college students with different background variables. There are significant differences between Chinese and Thai college students with different

background variables in academic delay satisfaction.Future time perspectives had a significant impact on academic delay of gratification among Chinese university students, but there was no significant such influence among Thai university students. The research discusses the practical significance of these results in regard to mental health education. These findings provide a valuable point of reference in the general pedagogical context.

Key words: Future Time Perspective, Academic Delay of Gratification, Chinese university students, Thai university students

ACKNOWLEDGEMENTS

Time flies, the doctoral study and life in Bangkok is coming to an end. When the graduation thesis is about to be completed, there are too many thanks to express.

First of all, I would like to thank my supervisor Dr. Zhang Rencheng for his tireless guidance and care for me in my studies during the whole dissertation writing period. The successful completion of this doctoral thesis is inseparable from Dr. Zhang's careful instructions and help. He gave me lots of suggestions in the proposal, and gave me meticulous instructions in the process of writing the dissertation. Mr. Zhang has always been tireless, spent a lot of time and efforts in helping me to complete this dissertation. I have been deeply impressed by Dr. Zhang's profound knowledge, meticulous attitude towards learning, vivid and rigorous way of instructions and cheerful and straightforward personality.

At the same time, I would also like to extend my thanks to all the external audit experts Dr. Li Yuxiu, internal audit committee members Dr. Huang Jianhao,Dr. Renee Chew, Dr. Zhang Yuancheng, and CAIC staff Dr. Chen Pengfei, Dr. Chen Junshuo, Dr. Du Jiajing for their hard work and instructions. I have benefited a lot from your wisdom, rigorous scholarship and sincere efforts. I am indebted to my classmates for their selfless help in my study and life.

Finally, I owe great debt of gratitude to my families who support me to

finish my study. I would like to thank the leaders and colleagues of my institute Wuzhou College for their care, support and help. I think in the days ahead, only my unremitting efforts can be worthy of their concerns for me.

Fang Chaohua

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INTRODUCTION

1.1 Research background and motivation

The development of global integration has promoted the cooperation and division of labor in various parts of the world. In particular, the exchange of global education has been paid more and more attention by countries, including Thailand. Different from Chinese students who works hard in their academics, Thai students are reckless, undisciplined, and easy to be satisfied with their performance in academics. Instead, they have the study attitude of being free, self-satisfied and even undisciplined in their studies (Wen, 2012). Human nature is future-oriented due to a yearning for the pursuit of human development; it is full of infinite power and creativity (Simon, 2004). However, people are different in perceiving future time, understanding the value of future time, managing future time, and decision making. That is, people have different future time perspective. (Husman, 2000). Different cultures have different norms, values and expectations, and this learning attitude of Thai students is related to the customs of their nation. (Wang, 2016). Learning culture in Thailand is deeply influenced by the country's religion and western thought (Wen, 2012). Thailand is a Buddhist country. People are happy and obedient, kind-hearted

and courteous. Buddhism has taken education as the way of social care throughout the ages. For people from the royal family, ministers, civilians, all received Buddhist moral education (Shi & Chu, 2014). Is the perception and understanding of future time of Thai university students directly influenced by Thai culture? Is there any significant difference between Thai university students and Chinese college students in terms of time perspective in the university stage?

For Thai students, learning is relaxation and happiness of teaching through lively activities, liveliness and fun of situation-oriented teaching, and participance and creation of subsistence education. Thailand is country deeply influenced by Buddhism. There culture is completely different from Chinese culture. Is this the direct cause of different learning attitude of the two countries? Time treats every nation equally. It is transregional and cross-cultural (Zhao, 2002). Is there any difference in different cultural background between different nations? Are the different learning attitudes in Chinese and Thai cultural context the specific manifestation of different time perspectives?

The study of time perspective has always been an eternal topic in the field of philosophy and science, and Chinese and western researchers have expanded the study to the field of economy, management, psychology, and education, etc. Future time perspective explores how individuals anticipate the future, plan for the future, and think through the future to guide current actions. （Kauffman & Husman,2004）。As the cognition towards future, experience, and behavior tendency of an object, the

formation of future time perspective provides individuals with the opportunity to shape their own destiny. It can help the individuals to adapt to the tasks of society and the development task. It can help them to establish academic goal according to their expectations and their actual purposes to enhance their purpose awareness.; To make developing plans to have a clear image of future; To master the time management skills and strategies to improve behavioral commitment; And eventually, it helps the individuals to develop self-control ability in the academic field, improve their level of delay of gratification, and thus strive for better development and opportunity (Zhuang, 2011).

Here, academic delay of gratification refers to how students make choices regarding their expectations and aims during the learning process. That is, they decide how to begin pursuing long-term academic performance and may choose to give up immediate gratification and, or other rewards in favor of self-control (Bembenutty, 1998). Research into the academic delay of gratification is relatively new, but has proven to be helpful in understanding and explaining student behaviors in the learning context. Because academic performance is one of the most essential things in the lives of university students, it is necessary to study academic delay of gratification among their demographic. The research results of a questionnaire study by Zhuang (2011) showed that future time perspectives and academic delay of gratification were significantly correlated among university students. However, few studies have comprehensively focused on the relationship between future time perspectives and

academic delay of gratification (Zhuang, 2011; Liu, 2012; Zhang, 2015). Further, studies isolating the postponement of gratification have tended to focus on children (Mauro & Harris, 2000). Although the current research scope now includes adolescents and adults, the areas of investigation are limited to career and consumer psychology contexts. As such, there is no complete framework for examining other issues. This study addressed this research gap by focusing on the above points in the context of two national university systems. First was Thailand, where learning culture is deeply influenced by Buddhism. The second was China, which provided a useful point of comparison due to its markedly different learning culture. This study, therefore, empirically analyzed how future time perspectives influenced academic delay of gratification among both Chinese and Thai university students to develop suggestions for related interventions.

In addition, the researchers mainly focus on the psychological structure of the future time perspective, but they seldom take university students as research objects..In view of this, this study aims to analyze the influence of the future time perspective of Chinese and Thai university students on the academic delay of gratification under the cross-cultural background through empirical research, so as to provide guidance for the intervention of the future time perspective and academic delay of gratification of university students.

In previous studies on cross-cultural comparison of future time perspective and delay of academic gratification, most of them adopt literature analysis, questionnaire

survey and interview for qualitative analysis (Yuan, 2016). For example, Yang (2005) compares the impact of Sino-Australian culture on the three-to five-year-old children's delay of gratification. The present study takes Chinese and Thai university students as the research objects and conduct the research from the perspective of cultural difference. We adopt the analysis method of multi-group structural equation model to construct a structural model in which university students' future time perspective has impact on their academic delay of satisfaction, and discusses the path relationship between latent variables.

This study is divided into basic model test, factor identity analysis and structural relationship. Before the basic model test, the data should be tested first (Asparouhov & Muthen, 2014). Then, Chinese university students are tested in terms of basic model test. We adopt confirmatory factor analysis to confirm the adaptability of structural model (Byrne, 2016). Finally, we test whether there is cross-regional differences between Chinese and Thai university students in the structural model of future time perspective and academic delay of gratification of Chinese and Thai university students.

For processing and analyzing the data, we conduct internal consistency and confirmatory factor analysis, as well as Structural Equation Modeling and multi-group analysis. Multi-group SEM analysis aims to evaluate whether the model of certain sample also matches well with other different sample groups. That is, whether the hypothesized model proposed by the researchers also works well in different samples

or can generate consistent parameters. In multi-group analysis, we have to restrain various parameters c to find the most suitable path model (Hox & Bechger, 1998).

The structural equation model is used to analyze the adaptation degree of the potential variational path model and the actual data in the future time perspective and academic delay of gratification of university students. However, the multi-group analysis is used to verify whether the structural model established in this study has cross-country and cross-region model differences.

1.2 Research objectives

The present study aims to test whether there is a correlation between future time perspective and academic delay of gratification so as to establish a structural model of the relationship between the two variables. We conduct the present study among Chinese and Thai university students. The variable term is the future time perspective, and the dependent variable term is the academic delay of gratification. The Structural Equation Modeling (SEM) proposed by Byrne (2016) is used to conduct the Path Analysis of Latent variables and analyze whether there is model difference between Chinese and Thai university students. The research objectives are as follows:

1) To understand the current situation of future time perspective of Chinese and Thai university students.

2) To understand the current situation of academic delay of gratification of Chinese and Thai university students.

3) To construct an explainable structural model of academic delay of gratification and future time perspective of university students.

4) To construct a structural model of the future time perspective of university students and their academic delay of gratification. Therefore, we can explore whether there is cross-region difference in the model of future time perspective and academic delay of gratification of Chinese and Thai university students.

1.3 Research questions

According to the above research objectives, the research questions of the present study are stated as follows:

1)What is the difference of future time perspective between Chinese and Thai university students under different background?

2) What is the difference of academic delay of gratification between Chinese and Thai university students under different background?

3)How is the relationship between future time perspective and academic delay of gratification of Chinese and Thai university students?

1.4 Noun explanation

1.4.1 Future time perspective

This study adopts the definition of future time perspective proposed by Kauffman & Husman (2004), which refers to how individuals anticipate the future, plan for the future, and guide current actions through future thinking. Future time perspective contains four dimensions: the value of future time, the sense of time length, the sense of time urgency and the perception of the relationship between the present and the future. The four dimensions are stated as follows:

1. Future time value refers to whether the individual himself thinks that future is important. In the scale of this study, a working definition of a future time value refers to the values on the sub-table of future time perspective scale composed by the researcher. The higher the average scores are, the higher the future time value of the student is.

2. The sense of time length refers to the length of time projected by one's own thoughts. The sense of time length in the research scale composed by the present study means that the higher the average scores of the sense of future time are, the higher the sense of the student's sense of time length.

3. Sense of time urgency refers to individual's ability to plan for the future and predict the future. In the scale of this study, it means that the higher the average scores of future time urgency are, the higher the sense of time urgency is.

4. Sense of connecting the present and the future refers to the ability to connect one's actual actions in the present with one's goals in the future. In this research scale, it means the higher the average scores of sense of connecting the present and the future, the higher the sense of connecting the present and the future is.

1.4.2 Academic delay of gratification

This study adopted the concept of academic delay of gratification proposed by Bembenutty & Karabenick (1996), which is defined as the tendency of students to delay the opportunity for immediate gratification in pursuit of more valuable long-term learning goals (Bembenutty & Karabenick, 2003). In the scale of the present study, it means that the higher the average scores of the academic delay of gratification are, the higher the academic delay of gratification of the student is.

1.5 Significance of the study

1.5.1 Practical significance

This study is conducive to the government to draw up a macro-education guidance policy, so as to help university students establish the future time perspective, and improve the ability of delay of gratification. It is also conducive for the personnel in higher education to help students explore their future time perspective and delay of gratification. It is a good quality for university students to set up a good future time perspective and the ability of delay of gratification. Those with low ability of delay of

gratification are easily distracted by various temptations, and have poor persistence in learning, which makes it difficult for them to complete academic tasks on time, leading to poor academic performance. People with different time perspectives have different emotional experiences and understandings of the past, present and future, which will lead to different behaviors in different situations.

Therefore, this study aims to explore the nature of future time perspectives and delay of gratification of Chinese and Thai university students, the impact of future time perspective of Chinese and Thai university students on their academic delay of gratification, so as to provide guidance for promoting good ability of academic delay of gratification and future time perspective of internationalized university students.

1.5.2 Academic significance

This study aims to explore the inner relationship between the two variables, which will further deepen Kauffman & Husman's (2004) study on future time perspective and Bembenutty's (1998) study on academic delay of gratification by profoundly understanding the status quo of future time perspective and academic delay of gratification of Chinese and Thai university students.

At present, there are only a few cross-cultural studies on future time perspective and delay of academic satisfaction, and the existing problems are mainly manifested in the following aspects:

First, the researches on future time perspective mainly focuses on the discussion of its psychological structure. These researches seldom take university students with

cross-cultural background as the research object.

Second, studies on delay of gratification mainly focus on children, but few on university students.

Thirdly, the researches on the future time perspective and academic delay of gratification mainly focus on the impact of academic delay of gratification on the future time perspective. Gorman (2011) believes that time orientation, experience of time and attitude towards time can be regarded as stable personality traits, and future time insight is also a kind of time personality, which is an individual's cognition, emotion and behavioral tendency towards future events (Zhang, 2012).

By the implementation of future time perspective scale and academic delay of gratification scale, the present study will explore the relationship between the future time perspective and academic delay of gratification. We will explore the factors of good ability of delay of gratification of university students, the inner relationship between future time perspective and academic delay of gratification, so as to deepen the relationship of future time perspective and academic delay of gratification of university students under the cross-culture background.

1.6 Innovative points of the research

This study takes Chinese and Thai university students as the research objects, start from the perspective of cultural differences, adopts the analysis method

of multi-group structural equation model to construct a structural model in which university students' future time perspective affects their academic delay of gratification, and discusses the path relationship between latent variables.

At present, there are few relevant studies on the cross-cultural comparison between the future time perspective and delay of academic gratification. The existing studies focus on the correlation between the two factors (Liu, 2016), not intensive enough. Most studies only analyze this problem when they solve other problems. Therefore, it is necessary to discuss this problem in different cultural backgrounds.

The formation of an individual's time perspective is influenced by many factors (Zhao, 2008), such as gender, cultural background, family environment, educational background and other factors. Therefore, it is necessary to study the relationship between future time perspective and delay of academic satisfaction among university students from different countries and cultures.

CHAPTER 2

LITERATURE REVIEW

2.1 Future time perspectives and previous studies

2.1.1 Notion of future time perspective

Research on future time perspectives first began with Wallace (1956), who defined the concept as "anthropomorphized time and a sequence of future events." Gjesme (1983) later asserted that future time perspectives entailed the general psychological abilities of anticipation, clarification, and next construction. The same study defined future time perspectives as comprising the skills of prediction, interpretation, and next development to form a type of searchlight for illuminating upcoming situations to help individuals take appropriate actions. Lens (1975) are pioneers in the research of future time perspectives. They think that the time perspective itself is goal-oriented and can help predict behavior consequences. It comes from the process of individual development, and it is an internal stabilizing power of individuals.

Scholars tend to regard the ability to use future time perspectives as stable, thus guiding individual future aims (Van Calster, Lens, & Nuttin, 1987). Simon's (2004) literature review indicates that future time perspectives can be seen as a combination

of cognition, experiences, and behaviors related to individual cognitive structures rather than mere personality traits. Some researchers believe that future time perspectives entail personal views of time toward particular aims (Husman & Lens, 1999; Peetsma, 2000). Indeed, Kauffman and Husman (2004) contend that the concept of future time perspective is based on how individuals anticipated and planned for the future and thus guided current actions through future thinking.

Bembenutty and Karabenick (2003, 2004) believed that the future time perspective referred to a hopeful belief in one's future aims. Here, learners with stronger feelings have a greater awareness of how current inputs influence future intentions. These individuals take existing investments and efforts as essential ways to achieve goals and can thus focus on future achievements rather than immediate satisfaction.

Scholars studying individual time perspective from a cognitive viewpoint have divided it into three orientations (i.e., past, present, and future) (Zimmerman, 1998). As such, these researchers believe that individual attitudes toward time consists of history, present, and future cognition (Zimbardo & Boyd, 2015). Here, individuals can use all three-time orientations to code, store, and form new expectations, aims, and opinions about situational developments (Husman, Brem, Banegas, Duchrow, & Haque, 2015).

In sum, this study adopted the definition of future time perspective proposed by Kauffman and Husman (2004), which refers to how individuals anticipate and plan

for the future while guiding current actions through future thinking.

2.1.2 Motivation view point of future time perspective

In recent years, many researchers have begun to study the role of motivation in the future and come up with self-determination theory. Future time perspective is a concept related to cognition and motivation, not only because it comes from the setting of motivational goals, but also because it comes from motivational outcomes related to individual differences in the long run of future time perspective (Kooij & Van De Voorde, 2011). The cognitive aspect of future time perspective enables people to anticipate the long-term future, to process the motivational goals, plans and tasks set by individuals within a long-time interval. It also guides the current behavior of individuals towards the long-term goals in the future (Nuttin, 2014). The motivation of future time perspective refers to high temptation of high goals, even though they can only be realized in the future. Ainslie (1992) and Rachlin (1995) find that the more the motivational value of future goals decreases, the later the realization of future goals will be delayed.

From the perspective of psychological distance of distant future goals, people with a long-term future time perspective will consider it shorter than those with a shorter future time perspective, thus the reduction of expected value as a function of temporary delay tends to be smooth (Rabinovich, Morton, & Postmes, 2010). Therefore, the present task is considered more valuable because the future goals it raises are more valuable. As a result, individuals with a long-term future time

perspective will consider their current behavior as more motivative because it helps them achieve broader goals.

Researchers have also conducted a lot of studies on the importance of future time perspective in education. De Volder and Lens (1982) find that the motivation of students in grade 11 is positively correlated with the length of their future time perspective. Moreas and Lens (1991) provide more evidence for the related researches on future time perspective, perception means and students' motivation. Individuals with a long-term future time perspective are more motivated than those with a shorter future time perspective.

In a word, future time perspective is one of the indicators that influence one's motivation belief. In the past, we discussed the relationship between learning behavior and learning performance from the differences in the form of motivation, but ignored the influence of future time perspective on students' learning motivation. To enhance individuals' future time is one of the means to improve learning motivation, and the future time perspective is a long-standing issue in an individual, which has long and specific impact on one's life, and will further affect one's behavior. It also affects the close relationship among behavior, academic achievement and learning behavior. Therefore, it is a time point that has not come yet but deserves our forward-looking attention.

2.1.3 The impact of academic achievements on future time perspective

Future time perspective is a concept in the sense of cognition. To build up

one's future time perspective involves the integration from the perspective of cognition, and such integration ability is related to academic performance to some extent. (Gupta, Hershey, & Gaur, 2012)。

Husman, McCann, & Crowson (2000) also point out that the future time perspective is related to a students' achievement performance. Nuttin and Lens (1985) also find that academic performance is correlated to achievement motivation and future time perspective. Students with good academic performance and strong achievement motivation have a longer future time perspective and a more positive attitude. In terms of the relationship between future time perspective and academic performance, De Volder and Lens (1982) find that the extensibility of future time perspective is one of the factors influencing academic performance. High-achieving students assigned higher values to their future goals, and high-achieving students were more able to understand the long-term results of behaviors. Therefore, high-achieving students work harder and stick to their daily academic activities and achieve better academic performance.

Adelabu (2008) finds in his study of 661 African American adolescents that the scale score of future time perspective is positively correlated with academic achievement, indicating that people who were more concerned about the future and more future-oriented are more likely to have higher achievement in the future. Other researchers (Nurmi, 1991; Nurmi, Poole, & Kalakoski, 1994) find that the optimism of future self-image of students can inspire them to have higher academic

achievement and they can thus actively plan for future purposes.

Based on the above viewpoints, the longer the student's future time perspective is, the more values they will assign to their personal tasks, and the more personalized internal future goals they will develop. In this way, learning will become meaningful and thus improve their willingness to learn (Meece, Anderman, & Anderman, 2006). Therefore, the future time perspective is closely related to the academic achievements of students. It further reminds the personnel who deal with student affairs in the universities that in the academic tutorship for students, future time perspective is an important factor that is conducive to enhance students' motivation and regulate their behaviors, which should be attach more importance to and need further exploration.

2.1.4 The impact of background variable on future time perspective

2.1.4.1 Correlation research on future time perspective and age

Scholars have done a lot of research on the relationship between future time perspective and age. People of different age group have different understandings of future time perspective (Piaget & Inhelder, 1975). Wessman & Gorman (1977) compare the future time perspective of teenagers of 12-18 years old and find that in this group, older teens attach more importance to future. while younger teens are more concerned about their past. That is, older teens concern more about their own future than younger ones. (Klineberg, 1967; Kalakoski & Nurmi, 1988; Fingerman & Perlmutter, 1995).

However, Chen et. al (1998) find that future time perspective is not closely

related to age, and the same is true in different age groups. Han (2009) believes that age was negatively correlated with future time perspective. That is, people focus on the near future, to have the clearest thinking about the near future. But other researchers have come to the contradictory conclusion. Their researches show that teenagers are more concerned with the present rather than with the future (Bowles, 1999).

In summary, the existing studies (Piaget, 1975; Wessman & Gorman, 1977; Klineberg, 1967; Kalakoski & Nurmi,1988; Fingerman & Perlmutter, 1995) show that future time perspective is related to age, and to clarify the influence of gender differences on individuals' future time perspective can reduce the bondage of gender stereotypes, which will contribute to the exploration of individuals' future goals, and help personnel who deals with students affairs to provide more adaptive counseling programs.

2.1.4.2 The impact of gender on future time perspective

Most studies on gender focus of physical gender and time perspective. Some researchers believe that people's time perspective varies due to gender and age differences (Huang, 1994). Compared with men, women are more optimistic about their past, present and future (Lens, 1975). Lamm, Schmidt, and Trommsdorff et al. (1976) investigate the relationship between gender, social class and time insight of 100 young people aged 14-16 years. Results show that lower-class boys have higher time insight than lower-class girls. Men have a higher density of time insight (hope

and fear) than women in occupational domains. Jin (2014) analyzes the relationship between gender of university students and their time perspective. Results shows that in university students, androgyny individuals account for the biggest proportion than those undifferentiated. At the same time, the contrastive research shows that the androgyny individuals have higher level of future time insight.

From the perspective of studies on the relationship between gender and future time (Huang, 1994; Lens, 1975; Jin, 2014), men and women have different time perspectives. In a word, gender has certain influence on the attitude and attention to future time perspective.

2.1.4.3 The impact of grade on future time perspective

Grade can be regarded as an indicator to distinguish the psychological maturity of university students. University students are facing a critical period of psychological development, and there will be differences in many aspects with the growth of grade.

Among the related studies on future time perspective, Daltrey & Langer (1984) find that the extensiveness and connectivity of grade and future time perspective are significantly correlated, but the intensity is not high. Husman et al. (2000) explore the relationship between volition-based strategies and future time perspective and find that sophomore students have the highest future time perspective, while senior students have the lowest.

As far as academic work is concerned, grade-level differences may cause certain

effects, but there are still many different points of view on the influence of individual's future time perspective, which need to be explored in later researches.

Different gender, major, grade and other personal background variables have different impact on future time perspective, which needs to be further explored by researchers to provide reference for in-depth understanding of future time perspective. The object of this study is university students in China and Thailand. We take the reality into consideration, exploring whether there are significant differences in the future time perspectives of university students of different genders, majors and grades. Therefore, hypothesis H1 is proposed in this study: There different background variables have significant impact on the future time perspective of university students.

Background variables and future time perspective are summarized in Table 2.1

Table 2. 1 Background variables and future time perspective

Background variables	**Results**	**Source**
Age	Older teens attach more importance to future. while younger teens are more concerned about their past.	Wessman & Gorman（1977）
	Older teens concern more about their own future than younger ones.	Klineberg，1967；Kalakoski & Nurmi,1988；Fingerman & Perlmutter，1995
	Future time perspective is not closely related to age, and the same is true in different age groups.	Chen（1998）
	Age is negatively correlated with future time perspective.	Han（2009）

	Compared with men, women are more optimistic about their past, present and future.	（Lens，1975）
Gender	lower-class boys have higher time insight than lower-class girls. Men have a more intensive time insight (hope and fear) than women in occupational domains.； Men have a higher density of time insight (hope and fear) than women in occupational domains.	Lamm（1976）
	androgyny individuals account for the biggest proportion than those undifferentiated.	Jin（2014）
Grade	the extensiveness and connectivity of grade and future time perspective are significantly correlated, but the intensity is not high.	Daltrey & Lenger（1984）
	sophomore students have the highest future time perspective, while senior students have the lowest.	Husman et al.（2000）

Source: Arranged by the researcher

2.1.5 Measuring instruments of future time perspective

In terms of qualitative description and quantitative analysis of future time perspective, Chinese and other foreign researchers have also explored a lot (Gjesme, 1983; Peetsma, 2000; Husman & Shell, 2008). Gjesme's (1983) Future Time Orientation Questionnaire contains four dimensions: involvement, anticipation, occupation and haste. The internal consistency coefficient of the scale is greater than 0.7, which has good construction validity and reliability validity.

Daltrey & Langer (1984) develop the Daltrey Future Time Perspective Test (DFTPT). The basic hypothesis of this Test is to take the future time perspective as a dynamic, elastic and possibly changeable cognitive structure. It contains five measuring scales: extensibility, coherence, direction, density and attitude. Each scale

contains 16 questions, a total of 80 questions. The scoring method adopts Likert-style six-point scale, in which 1 means strongly agree, 6 means strongly disagree, there is no neutral (no opinion) option. The reliability of the scale is between 0.84 and 0.96, and the correlation of the five measuring scales ranges from 0.42 to 0.86, indicating a medium to high degree of positive correlation between measuring scales.

Zimbardo & Boyd (1999) develope the Zimbardo Time Perspective Inventory, which consists of 56 questions. The scoring method adopts a five-point Richter scale, ranging from very consistent to very inconsistent, with a score of 5 to 1. Cronbach's α reliability of the future dimension is 0.77, and the reliability of the re-measurement four weeks later is 0.80, which has the best performance among all the measuring scales. Since then, the questionnaire has been widely used, and many researchers have verified and revised the Zimbardo Time Perspective Inventory across cultures.

Based on the previously revised future time perspective scale (value and connectivity, Husman & Shell (2008) refer to other future time perspective, increase the extensibility and hasty subscales, and put forward four connotations of future time perspective. Its framework is clear, the construct stable, and the measuring instruments more perfect. This scale is multidimensional, which is conducive to related studies of future time perspective. This scale is divided into four subscales links, extensibility and 6 hasty sexual problem, and there are 6 problems in each scale, a total of 24 problems. The theoretical framework of the dimensions of the four subscales is clear, which conforms to the requirements of content validity and has

sufficient content validity. The Cronbach's α coefficient of the four dimensions is 0.72, 0.82, 0.74 and 0.72 respectively, with good internal consistency.

Questionnaires are also used in the research on future time insight. For example, the future time perspective questionnaire revised by Chen (1998), the general future time insight questionnaire for university students and the domain-specific future time insight questionnaire compiled by Song (2004). Han (2007) revised the future time insight subscale of the scale in his master's thesis. In this study, the future time perspective scales commonly used by scholars is arranged in table 2.2.

Table 2. 2 The future time perspective scales commonly used by scholars

Compiler (time)	Name of scales	Coefficient of internal consistency	Items	Measuring scale
Gjesme (1983)	Future Time Orientation Questionnaire (FTOQ)	Over 0.7	24	4
Daltrey & Langer (1984)	Daltrey Future Time Perspective Test (DFTPT)	0.42-0.86	80	5
Zimbardo & Boyd (1999)	Zimbardo Time Perspective Inventory (ZTPI)	0.77	56	5
Husman & Shell(2008)	Future Time Perspective Measure (FTPM)	0.72-0.82	24	4

Source: Arranged by the researcher

In summary, the scale proposed by Daltrey & Langer (1984) and Zimbardo time perspective inventory are not measuring instruments specially for future time perspective. Only some subscales involve the future dimension. The researchers find that the Future Time Perspective Scale of Husman and Shell (2008) has been

developed for eight years and has good reliability and validity. The theoretical framework of the four subscales is clear: value (the importance that the individuals attach to their future goals), extensibility (the distance of individual extending the idea to the future), hasty (the time passing speed perceived by the individuals), and connectivity (the cognition of individuals to future time perspective) that not only connects how individuals see their future goals, but also confirmed that future time perspective promotes planning and action of individuals, which is right for the correlation analysis with academic delay of gratification. In addition, Gjesme (1983) divided the empirical structure of the questionnaire into four factors when compiling the Future Time Perspective Scale, and the reliability is higher than 0.7. This indicates that the Future Time Perspective Scale has a high structural validity. Therefore, the present study adopts Husman and Shell (2008) 's Future Time Perspective Scale as a measuring instrument for measuring the future time perspective of university students.

2.2 Academic delay of gratification and previous studies

2.2.1 Notion of academic delay of gratification

Many researchers have indirectly defined the concept of academic delay of gratification. That is, it refers to the manifestation of psychological maturity in which individuals forego instant rewards for more valuable long-term results through self-control and patience (Ho, Tong, & Jia, 2016). Academic delay of gratification is

an extension of the more basic academic concept “delay of gratification.” It refers explicitly to delays of gratification in the context of learning scenarios and the embodiment of individual regulatory abilities in the academic field (Watson & Milfont, 2017). Freud (1991) uses the term “academic delay of gratification” the earliest. His research suggests that delayed gratification results from the ego’s control over the inner self. Mischel and Ebbesen (1970) defined delay of gratification as a manifestation of psychological maturity in which the individual foregoes immediate gratification to achieve more valuable long-term goals through self-control and patience. Ward, Perry, Woltz, and Doolin (1989) demonstrated individual differences in applying a delay of gratification under different circumstances, satisfaction-based features, characteristics, and connotations. For example, academic delay of gratification refers to one’s ability to make choices about their aims and expectations in terms of different academic tasks (e.g., preceding small rewards to pursue more valuable long-term educational purposes through self-control). Bembenutty (1998) originally proposed the concept of academic delay of gratification as explicitly referring to the student tendency to forego immediate gratification to pursue more valuable long-term aims and expectations in the context of education. Mauro and Harris (2000) proposed the term Externally Imposed Delay (EID), which entails that individuals must make choices more often when under external pressures (e.g., from parents, teachers, rules, and expectations) in real-life situations. Such externally imposed delays focus more on outside influences. Bembenutty (2002) found that

academic delay of gratification was an essential part of the student self-control system and that resulting behavior was successful resources and control strategies. There has also been researched on the academic delay of gratification among American university students according to the academic delay of gratification scale (ADOGS) (Bembenutty, 1998). Here, results showed that academic delay of gratification was a component of the student self-control system involving resource-control strategies.

Lin (2003) believes that delay of gratification means that individuals restrain their own desires to obtain greater satisfaction or to obtain satisfaction in the best way. That is, to delay certain satisfaction. He believes that delay of gratification is not only a choice between two temptations, but also an individual's restraint on himself.

Delay of gratification is based on Mischel and Ebbesen (1970) concept of delay of satisfaction, which is described as a deliberate focus on future rewards. Wander (1989) later described the idea as the ability to postpone smaller, more immediate rewards to achieve more valuable long-term goals that require patience and, or effort, As such, delay of gratification can be seen as a self-regulatory ability oriented toward future goals.

Therefore, this study will follow Bembenutty (1996) and define academic delay of gratification as “the tendency of university students to postpone opportunities of immediate gratification to pursue more valuable long-term learning aims in the learning situation.”

2.2.2 Previous studies on academic delay of gratification

Delay of gratification is an important strategy that helps learners transform their beliefs in the future into future-oriented self-normative behaviors (Zimmerman, 2000).

Zimmerman (1998) suggests that academic delay of gratification is not only a strategy to ensure that target-orientated activities are not disturbed so as to carry out effectively, but also an important strategy to help learners transform their expectations and beliefs in the future into self-regulating behaviors. Bembenutty (1999) shows that there is a significant relationship between academic delay of gratification and students' learning strategies. Delay of gratification is a type of resource management. That is, delay of gratification is a strategic instrument used by students to successfully complete their studies. Eisenberg (2003) points out that individuals with low self-control have higher impulse level, lower ability to delay gratification, higher sensitivity to emotion and external distraction stimuli. On the contrary, individuals with high self-control have higher impulse suppression level, higher ability to delay gratification, lower sensitivity to emotion and external distraction stimuli.

Academic delay of gratification interacts with individuals' goal orientation. Different goal orientation has different influence on academic delay of gratification. Academic delay of gratification is influenced by various factors, in which the self-efficacy and learning motivation are the most influential factors that influence the ability to delay academic gratification. Bembenutty (1999, 2002) suggests that there is

a significant correlation between learning motivation and delay of academic gratification in the study of American college students. Students with a high level of delay of gratification use more cognitive and metacognitive strategies during the learning process than students with a low level of delay of gratification and correspondingly have a higher sense of self-efficacy and prefer learning. Xu (2009) conducted a study of major promise and finds that academic delay of gratification plays a certain mediating role between subjective well-being and professional commitment. Liu (2010) finds that academic delay of gratification, academic self-efficacy and parental rearing style are significantly correlated.

Students with high degree of academic delay of gratification have a firm belief in the goal and can effectively use self-regulation strategies to eliminate the interference factors so as to achieve their goals. Bembenutty & Karabennick (2004) find that in the process of learning, individuals should compete for cognitive resources with distractors stimuli and temptations that distract their attention, so as to avoid failure to delay their gratification. This is beneficial for individuals to stick to long-term goals. Wulfert et al. (2002) show that the degree of delay of gratification is related to the individuals' self-regulation learning skills. Students with high self-regulation skills can perceive the facts clearly when the goal or reward is actually far away, and thus they will choose to delay their delay of gratification choice, and maintain their choice until the goal is achieved.

Studies on delay of gratification as a strategic instrument focus on the

relationship between delay of gratification and students' goal orientation, metacognitive strategies and academic performance. Lin & Ke (2015) suggest that there is a direct positive correlation between delay of academic gratification and self-regulating learning. Cao (2015) find that academic delay of gratification has a significant negative impact on academic delay. Ding & Wang (2016) find that the degree of academic delay of gratification of university students is significantly correlated with academic attribution style and can effectively predict academic performance.

Therefore, the integration of academic delay of gratification into self-planning learning in the future can promote our understanding of academic success, so as to resist actions that are not conducive to learning.

2.2. The impact of background variables on academic delay of gratification

Researchers have found that background variables including gender, grade, and family background have an impact of different degree on academic delay of gratification. (Liu, 2010; Wu, 2015)。

There is no consensus at home and abroad on the influence of gender factor in delay of gratification: Chen et al. (2002) find that Considering gender differences, girls in junior high school have higher self-control ability than boys and are more inclined to choose delay their gratification when faced with temptation. This indicates

that girls in junior high school are more self-disciplined in their academic work than boys, and their ability to delay gratification is higher than that of boys. Xu (2009) find that women's ability of academic delay of gratification is significantly higher than men's ability. On the contrary, Han (2005) finds that there is no significant difference between men and women.

Study results of delay of gratification in students of different grades have also been inconsistent. Xu (2009), Liu (2010) investigate university students of different grade. Results show that students of higher grades are weaker to delay academic gratification than the students of lower grades. Yang (2005) find that in terms of the grade differences, traditional researches are easily come to a conclusion that the ability to delay gratification naturally grows stronger with the increase of age. That is, with the growing of children's age, the ability to regulate themselves according to external requirements become stronger. Li (2011) find that students in Grade 2 and 3 in middle school are less able to delay gratification than students in Grade 1, and Grade 2 is a turning point in the development of delay of gratification ability. Confronted with the inconsistency of the conclusions, Li (2005) and Li (2006) explain in such way that the grade difference reflected in the ability of delaying academic gratification is essentially consistent with the developing characteristics of individuals' self-control ability. The theory of developmental psychology holds that the ability of individual self-discipline goes through the process from external control to internal control. The younger the age is, the more the individual's self-discipline

reflects the characteristics of external control. In terms of academic delay of gratification, the lower the grade is, the more their characteristics of self-regulating ability reflects external control rather than self-motivated control.

In terms of family background, Han (2005) et al. show that authoritative parenting style is more predictable in academic delay of gratification ability. However, authoritarian parenting style has a negative effect on academic delay of gratification ability, which means that the more authoritarian the parents are, the lower the students' ability to delay gratification is. Cui (2007) investigates middle school students' academic delay of gratification and its causes. Results show that the positive the parenting way is (e.g. caring and understanding the children) positively correlated with middle school students' academic delay of gratification. However, the negative parenting way (e.g. a severe punishment, rejection, denial, preference, etc.) is negatively correlated with students' academic delay of gratification.

In summary, age group, gender, grade and family background are all background variables leading to the difference among the individuals. The relationship between these variables and academic delay of gratification needs to be further explored by the researcher. Therefore, this study proposes hypothesis H2: different background variables have significant impact on academic delay of gratification. The relationships between background variables and academic delay of gratification are summarized in Table 2.3.

Table 2. 3 Background variables and academic delay of gratification

Background variables	Results	Source
Gender	Girls' ability to delay gratification is higher than that of boys	Chen et al. (2002)，Xu (2009)
	There is no significant difference between gilds and boys.	Han(2005)
Age	Students of higher grades are weaker to delay academic gratification than the students of lower grades.	Xu(2009),Liu(2010)
	The ability of academic delay of gratification increases with the growth of the age.	Yang(2005)
	Grade 2 and 3 students in middle school are less able to delay gratification than students in Grade 1, and Grade 2 is a turning point in the development of delay of gratification ability.	Li（2011）
Family background	Authoritative parenting style is more predictable in academic delay of gratification ability, but authoritarian parenting style has a negative effect on academic delay of gratification ability.	Han(2005)
	The positive the parenting way is positively correlated with middle school students' academic delay of gratification. The negative parenting way is negatively correlated with students' academic delay of gratification.	Cui (2007)

Source: Arranged by the researcher

2.2.4 Measuring scales for academic delay of gratification study

For the measurement of delay of gratification study, researchers usually adopt a classical experimental method, and the research objects are mostly preschool children. It is obvious that this classical method suffers from some limitations if the research objects of delay of gratification are extended to teenagers. Meanwhile, the

situation of students in study and real life is different from the experiment. That means we cannot directly observe the academic delay of gratification of students from the experiment. The experiment cannot truly reflect the academic delay of gratification of students in their daily life. Therefore, it is very important to change the research methods, extend the research objects and use questionnaires that can better reflect the real learning situation of students at different ages.

Bembenutty and Karabennick (1998) compiled the ADOGS (Academic Delay Of Gratification Scale). This scale is a single-factor scale with ten items. In each item, students are provided with two choices (A and B). One is immediate gratification, and the other is the gratification after waiting for a period of time. Students are required to choose one of two choices, and the consequences of such choice are explained at the end of each choice. There are also four options of different degrees between the two options in each item. It has been verified that the Cronbach's α value of the scale is 0.76. The scale is with good reliability and validity, and is an effective measurement tool to measure the ability of delay of gratification of university students.

For the present study, the measurement tools for delay of Gratification are mainly based on the "Academic Delay Of Gratification Scale" (ADOGS) compiled by Bembenutty & Karabenick (1998). We have modified this scale to different degrees according to the actual situation in China according. Xu (2009) sets ten learning activities related situations according to the actual situation of Chinese university students and Bembenutty's academic delay of gratification questionnaire. The

questionnaire adopts 4-point rating, with A indicating that students preferred instant gratification and B indicating that students preferred delay of gratification. The higher the score is, the higher the level of delay of gratification is. The internal consistency coefficient of this questionnaire is 0.7558, and the confirmatory factor analysis shows that it has good structural validity and can be used as an effective tool to investigate the current situation of university students' delay of gratification.

Liu (2010) revises Bembenutty's (1998) questionnaire on university students' academic delay of gratification. There are 10 items in this questionnaire. All of these items are AB dilemma situations. Likert 4-point rating is used in the questionnaire. The higher the total score of delay of academic gratification, the stronger the ability of academic delay of gratification of university students is. The internal consistency coefficient of the questionnaire is 0.85, in which the semi-reliability coefficient is 0.80, and the internal consistency coefficients of the two dimensions of in-class academic delay of gratification and after-class academic delay of gratification are 0.81 and 0.71, respectively.

Zhang et al. (2013) translate and revise the "University Student Academic Delay of Gratification Scale". The scale after revision includes two dimensions: delay of entertainment and delay of interest. The reliability and validity of the scale meet the requirements of psychometrics. Under the framework of self-regulation learning theory, based on Academic delay of gratification and combined with classical experiment paradigm of delay of gratification, Lu et al. (2017) explore time,

expectation, and value and compose a situation questionnaire of academic delay of gratification of high school students with good reliability and validity. Table 2.4 presents the scales of academic delay of gratification commonly used by researchers.

Table 2. 4 the scales of academic delay of gratification commonly used by researchers

Compiler（time ）	Name of scales	Reliability	Items
Bembenutty & Karabenick（1998）	Academic delay of gratification scale of university students	0.76	10
Xu (2009)	Academic delay of gratification scale of university students	0.75	10
Liu（2010）	Academic delay of gratification scale of university students	0.85	10
Zhang（2013）	Academic delay of gratification scale of university students	0.83	8

Source: Arranged by the researcher

2.3 Studies on the relationship between future time perspective and academic delay of gratification

Future time perspectives significantly influence academic delay of gratification. The rewards of achieving present tasks are secondary to realizing future goals for students who employ such views.

Lomranz, Shmotkin, and Katznelson (1983) argue that the relationship between future time perspective and delay of gratification is based on the assumption that a lack of the ability to delay rewards damaged one's ability to anticipate and plan for the future (i.e., the essential elements involved in future time perspectives). Individuals who cannot delay gratification may thus be expected to have shorter and less-structured future time perspectives. Research has also shown that there are significant relationships between future time perspectives, delay of gratification, and social class. Here, individuals in the middle classes tend to have stronger future time perspectives and higher abilities to delay gratification than people in the lower levels.

Bembenutty and Karabenick (2003) studied the difference between students with future time perspectives and those without in the contexts of self-adjustment, future time perspectives, and delay of gratification. Results indicated that students chose to postpone gratification because they could perceive that it would bring value and enhance their ability to achieve long-term goals. To some extent, this ability can be attributed to will. That is, individuals who decide to delay gratification willfully adopt a series of cognition-based resource-management strategies to realize long-term goals. As such, students with long-term goals tend to have specific plans for achieving them and therefore possess higher degrees of instrumental consciousness.

Bembenutty and Karabenick (2003) developed the ADOGS to evaluate the relationship between the delay of gratification and self-adjustment specifically. Their research found that students who were able to delay their gratification also used more

efficient cognitive and behavioral-adjustment strategies. Further, Miller and Brickman (2004) asserted the importance of having valuable future aims; such an approach makes school tasks more meaningful, thus enhancing both individual instrumental and motivational value. In turn, this guides self-adjustment behaviors. Future intentions, therefore, play pivotal roles.

Zhuang (2011) find that students' future time perspectives and academic delay of gratification are significantly correlated. The four factors of future time perspectives (i.e., behavior commitment, future effectiveness, objective consciousness, and future image) can well predict academic delay of gratification of university students.

Therefore, future time perspective is closely connected with delay of gratification. Those who have a higher future time perspective are more inclined to delay the gratification of tasks at the present stage, but pursuit the gratification of long-term goals. Therefore, future time perspective has a significant impact on self-realization.

However, the formation of a future time perspective is influenced by many factors, including gender, cultural background, the family environment, and education (Zhao, 2008). Thailand is a Buddhist country. However, Thai learning culture is deeply influenced by both Buddhism and Western ideas (Wen, 2012). To achieve a more thorough understanding, it is thus necessary to study the relationship between future time perspectives and academic delay of gratification in different cultural contexts. Therefore, examined both concepts among Chinese and Thai university students. Therefore, the present study propose the hypothesis H3: Future time perspective has a positive impact on their academic delay of gratification.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research framework

Based on the previous studies, the purpose and motivation of the present study, we will take future time perspective as an independent variable, and academic delay of gratification as a dependent variable. Background variables such as gender, grade, major and nationality are also taken into consideration to further explore the path relationship among variables. The relevant path diagram is shown in figure 3.1:

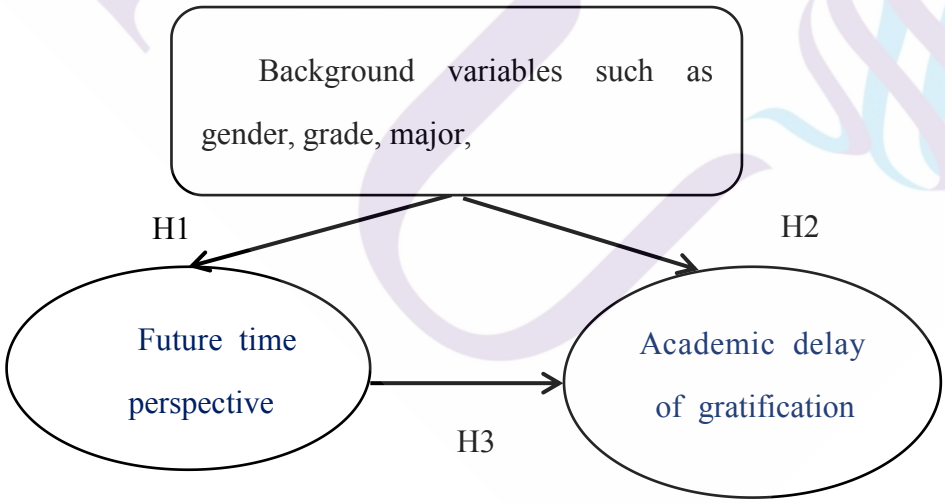

Figure 3. 1 Research framework

3.2 Research hypothesis

According to the research questions and research framework, the present study proposes the following hypotheses:

H1：Background variables including gender, grade, major, and nationality have a significant influence on future time perspective of Chinese and Thai university students. Similar hypotheses mention by Fingerman & Perlmutter (1995）and Ely & Mercurio (2011) .

H2：Background variables including gender, grade, major, and nationality have a significant influence on academic delay of gratification of Chinese and Thai university students. Similar hypotheses mention by Wu (2015）and Ding & Wang (2016).

H3： Future time perspective of Chinese and Thai university students has a significant influence on their academic delay of gratification. Similar hypotheses mention by Zhuang (2011).

3.3 Research objects

The objects of this study are undergraduates from universities in China and Thailand. We adopt random sampling for the present study for many reasons. First, it is convenient for such transnational study. Second, the researcher of the present study

used to work in a university in Guangxi Province where there is an international exchange program. This makes it possible for the cooperation with universities in Thailand. Third, the researcher of the present study used to make lots of friends in the university in Guangxi Province and Thailand, which makes it convenient to hand out questionnaires with their help. To some extent, this will reduce the students' distrust in the researcher of the present study, and thus can improve the authenticity and reliability of the questionnaire results.

This study is divided into two stages: preliminary test and formal test. In the test of inferential statistics, the number of samples not only affects the selection of statistical methods, but also affects the reliability of inferences. Hinkle and Oliver (2000) make it clear that: (1) Other things being equal, research findings obtained from a larger sample are more reliable than those obtained from a smaller sample; (2) If the sample is too small, it is difficult to reject the null hypothesis; (3) Even in a well-designed study, the variance of the criterion variable may be large while the treatment effect is small. Therefore, the selection of a larger sample is appropriate and necessary. However, when considering the actual research situation, the acceptable sample size should be regarded as a reference index. No matter what the sample size is, the most important thing is to extract samples that can correctly reflect the parent group (Wu, 2005). The pre-test scale uses item analysis and factor analysis. Anderson & Gerbing (1988) believe that when using confirmatory factor analysis for parameter estimation, 150 is the sample floor. The parent group of Chinese university students is

33.83 million. If the sample number is 150, the confidence error is 6.4% based on the reliability of 95%. The parent group of Thai university students is 1.9 million. If the sample number is 150, the confidence error is 6.4% based on the reliability of 95%. Therefore, Chinese and Thai university students are selected as objects for the preliminary test, and 300 paper questionnaires are distributed, in which 150 are distributed to Chinese university students and 150 are distributed to Thai university students. After the questionnaire is recovered, we test whether the correlation between the test items and the measurement dimension is significant. After that, some of the contents of the questionnaire are revised in terms of wording according to the results of data analysis, and inappropriate items are deleted.

In the formal sample analysis, SEM stability estimated by SEM parameters is related to the size of the sample (Wu, 2013). Generally, the smallest sample size should be over 200. As there are 33.83 million Chinese university students, a sample size of 200 achieves a confidence error of 5.54% according to a 95% CI. On the other hand, there are 1.9 million Thai university students. As such, a sample size of 200 achieves a confidence error of 5.54% according to a 95% CI. In stage of formal test, 400 questionnaires are handed out to students in Chinese and Thai universities. 200 questionnaires are delivered to Chinese students and 200 to Thai students.

In the formal sample, four background variables including gender, major, nationality and grade are investigated. The results showed that in terms of gender, 208 male students account for 54.5% of the sample, while 174 female students account for

45.5% of the sample. In terms of majors, 185 students majored in liberal arts, accounting for 48.4% of the sample, and 197 students majoring in science, accounting for 51.6%. In terms of nationality, 194 Chinese students, accounting for 50.8% of the sample, and 188 Thai students, accounting for 49.2%. In terms of grade, 49 freshmen, accounting for 12.8% of the sample, 107 sophomores, accounting for 28%, 134 juniors, accounting for 35.1%, and 92 seniors, accounting for 24.1%. In this sample, there are more male students than female students, more science students than liberal arts students, more Chinese students than Thai students, the least number of freshmen, sophomores, juniors and seniors are more balanced, which is shown in table 3.1.

Table 3. 1 Statistics of background variables of formal sample

Background variables	Category	frequency	Percentage
Gender	Male	208	54.5
	Female	174	45.5
Major	Liberal arts	185	48.4
	Science	197	51.6
Nationality	Chinese	194	50.8
	Thai	188	49.2
Grade	Freshman	49	12.8
	Sophomore	107	28
	Junior	134	35.1
	Senior	92	24.1

3.4 Research tools

This study distributed questionnaires consisting of three parts (i.e., primary data, a future time perspective scale, and the ADOGS). Both preexisting scales were each translated into Chinese and Thai. Two experts translated the Chinese versions with high English proficiency. However, this study's researcher further modified their translation. Two other experts with high Thai skills then translated the Chinese survey

into Thai. Finally, both scales received cross-cultural adjustments based on expert consultation.

3.4.1 Future time perspective scale

This study used the scale developed by Husman and Shell (2008), which contained 24 items across four subscales (i.e., six items each for value, connectedness, extensibility, and haste). Each item was scored using Richter's 5-point scale (i.e., 1 = "very inconsistent," 2 = "roughly inconsistent," 3 = "ordinary," 4 = "roughly consistent," and 5 = "very consistent"). Cronbach's α coefficients for value, connectedness, speed, and extension were 0.77, 0.75, 0.80, and 0.72 for the Chinese version, respectively, and 0.80, 0.83, 0.78, and 0.85 for the Thai version, respectively. Internal consistency was determined as sufficient.

Table 3. 2 Dimensions of future time perspective and content of items

Dimension	Item
value	wl1-1. I think my future goals are valuable.
	wl1-2.My life will be more meaningful if I can achieve my future goals.
	wl1-3.I value my future goals.
	wl1-4.I am willing to sacrifice the present to achieve my future goals.
	wl1-5.I think future success is more important than happiness now.
	wl1-6.If hard work at present can get me my future success, I think it is worthy.
extension	wl2-1.I plan for long-term future goals.
	wl2-2.I started thinking about my future career goals a long time ago.
	wl2-3.Half a year looks like a short period of time.
	wl2-4.It feels like a long semester.
	wl2-5.I often envision things in the distant future.

	wl2-6.I will think forward.
speed	wl3-1.I have trouble getting things done without deadlines. (Reverse question) wl3-2. I will not start to do something unless I feel it is urgent. (Reverse question) wl3-3.I often start doing things at the last minute. (Reverse question) wl3-4.When I start thinking about doing things, it's usually too late. (Reverse question) wl3-5.I will finish what I should do ahead of time. (Reverse question) wl3-6.I'll do my job step by step. (Reverse question)
connectedness	wl4-1. I know that it is difficult to achieve my future goals without hard working. wl4-2. I think what I learn now will help in the future. wl4-3.I know my efforts will not be wasted. wl4-4.I hope that my future work is related to what I have learned. wl4-5.I know how to work now to achieve my future goals. wl4-6.Before making a decision, I will think about its impact on my future.

Source：Husman and Shell(2008)

3.4.2 Academic delay of gratification scale

This study adopted Bembenutty and Karabenick (1998) the academic Delay of Gratification scale to measure the academic delay of gratification. The scale consisted of 10 total questions, each of which required students to choose one of two options that were then answered on a 4-point Likert scale (i.e., 1 = choice A is positive, 2 = choice A is possible, 3 = choice B is possible, and 4 = choice B is positive). Cronbach's α coefficients for the Chinese and Thai scale versions were 0.74 and 0.95, respectively.

Table 3. 3 Dimensions of academic delay of gratification and content of items

Dimension	Item
academic delay of gratification	yc1-1.A. Even if it will affect the exam tomorrow, you will still surf the Internet or watch your favorite TV show the night before the exam. B. Stay in the classroom to increase your chances of getting a good grade. yc1-2.A. Your Classmate invite you to travel, you will skip class and travel you're your classmate. B. Postpone the travel until the exam ends. yc1-3.A. The exam is approaching, you still go to classmate party and only study when you have time. B. Study first and go to the party if you have time. yc1-4.A. Play with your friends whenever you have time, and study only before the exam. B. In order to take the exam, you insist on studying every day. Only after completing the learning tasks, do you have time to play with friends. yc1-5.A. In subject learning, you mostly focus on what you are interested, even if it is not advantageous for the exam. B. You will learn all the material related to every subject, whether you are interested or not, so as to increase the chance of getting good grades. yc1-6.A. You will skip class and go out to play in good weather, and ask your classmates' help to take notes later. B. You will not be affected by good weather, and will attend all classes, so as not to miss the anything taught by the teacher. yc1-7.A. You will play with friends first, and then spend some time in the evening to complete your homework that need to be submitted tomorrow. B. You will stay in the library for a whole day to ensure that you can submit the homework tomorrow. yc1-8.A. You prefer to study in some busy places, even if you are easy to get distracted. B. You prefer to study in some quiet and less distracting places, so that you can study better. yc1-9.A. You will do what you like to do after class, even if you don't fully understand what the teacher said. B. You will stay after class or after school to ask the teacher questions that you don't understand.

	yc1-10.A. You tend to like funny teachers more, even if he or she is not very good in teaching or research. B. You tend to like teachers who are excellent in teaching or research, even if he or she is not so funny.

Source：Liu Linghua（2010）

3.5 Implementation of the scales

This study was divided into two stages (i.e., preliminary and formal tests). First, a pretest sampling plan entailed that colleagues of the researcher distributed the scales among their university classes. Test papers were then completed on-site (all answers were given anonymously). The experimenters first explained the study purpose, specific measurement methods, and provided testing instructions. Each scale took approximately 20 minutes to complete; all test papers were then collected and analyzed to improve validity and recovery rates. Inappropriate items were deleted to result in a formal scale for use in stage two.

The researcher then contacted friends to assist in distributing the formal questionnaires according to a sampling plan. All completed questionnaires were then collected for statistical data analysis. This process resulted in 189 and 193 valid surveys from China and Thailand, respectively (invalid samples with missing and, or suspected random answers were excluded for effective rates of 94.5% and 96.5%, respectively). The SPSS 22 and AMOS.17 software programs were used for all statistical analyses. A structural equation model was also constructed to examine the relationships between future time perspective and academic delay of gratification in both countries.

3.6 Data analysis method

3.6.1 Data processing

In this study, after the questionnaire is recovered, the data content is firstly examined manually. If the answers are incomplete, the same answers are filled in or the questionnaires are not filled in in accordance with the regulations, the questionnaires were eliminated as invalid questionnaires, and the data are coded and recorded. The handling principles of incomplete questionnaires are stated as follows:

1. If over two basic information items of the object's are missed (including two items), the questionnaire will be treated as data missing one. After data verification, each valid questionnaire is coded and stored in a computer file to facilitate data analysis.

2. The questionnaire that misses part of the data will be disposed by partially. That means the items lost will not be taken into analysis, but the other data of the object are still subject to statistical analysis.

3.6.2 Statistic analysis methods

In terms of research questions and hypotheses, the research methods are explained as follows:

1.Reliability and validity of item analysis

In the item analysis, Cronbach's α coefficient test is used to test the reliability of the questionnaire and internal consistency of the scale. We analyze the statistical

method and test the validity of construction in terms of factors, based on which the formal scale is revised.

2.Descriptive statistics

We describe the characteristics and distribution of variables such as personal background, future time perspective and academic delay of gratification of the tested students in terms of the sample size, mean, standard deviation, frequency distribution and percentage. By doing this, the distribution values of variables are compared, which lays foundation for further data processing.

3. Independent sample t test

The independent sample t test is used to test the influence of different background variables (gender, grade, major, nationality, etc.) on future time perspective and academic delay of gratification so as to test the research hypothesis H1 and H2.

4. Multi-group structural equation model

Multi-group analysis is an SEM framework whose function is to examine the differences of similar models between objects in different groups. Analysis of this research is divided into the exploration of basic model test, the factors of identity (Factorial Invariance) analysis and structure relationship. It is used to analyze the adaptability of the potential variational path model and the actual data in the future time perspective and academic delay of gratification of university students. Then, the basic model is used to test university students in China. We adopt confirmatory factor analysis to ensure the Goodness of Fit of the structural model. Finally, the multi-group

analysis is used to test whether the trans-region has a significant impact on the structure model of Chinese and Thai university students' future time perspective and academic delay of gratification.

3.7 Pre-test questionnaire test

3.7.1 Project analysis and reliability test

In order to improve the reliability and validity of this research tool, the questionnaire pre-test is conducted before the formal questionnaire is issued.

In this study, after the recovery of the pre-test questionnaires, the questionnaire data are processed, and the valid samples are taken into project analysis, exploratory factor analysis and reliability analysis, so as to test the Goodness of Fit of the questionnaire content. Besides, the appropriate questions are screened for further reference in the preparation of the formal questionnaire. The results of the 143 valid pre-test questionnaires are input into the computer for project analysis. We use SPSS 22.0 to conduct item analysis, exploratory factor analysis and reliability analysis. We also use AMOS 17.0 to conduct confirmatory factor analysis, In the final result, that there should be at least three items for each potential dimension five to seven items would be better (Bollen, 1989).

(I) Item analysis

Item analysis aims to evaluate Goodness of Fit of items for pre-test (Qiu, 2000). The present study adopts Wu's (2008) analysis standards and divide the item analysis

into three broad categories (extreme group comparison method, correlation analysis method, homogeneity detection method. The six standards are used to guide whether or not to delete items in item analysis.

1.Extreme group comparison - determination value

The total scores of the pre-test questionnaire are sorted top-down. The items of highest score to those of 73% are sorted into the high-scored group. The items with the lowest score to 27% are sorted into the low-scored group. Then the average difference *t* test is conducted to obtain the decision value (CR). Those whose $p<0.05$ are suggested to delete.

2. Correlation test

(1) Correlation between each item and total score

In calculating the correlation of the score of each items with total score of the questionnaire, Wu (2008) contends that if the correlation coefficient of the score of each item and the total items in the questionnaire is above 0.400, there is significant difference. That is, the item is significant correlated with the total score of the questionnaire, and the item should be kept. If a single item's correlation coefficient does not reach 0.400, the item can be deleted.

(2) Correlation between revision and total score

The revised item and the total score correlation method is to calculate the Pearson product difference correlation coefficient between each item and the sub-level total score (excluding the score of the item). The standard for multiple choice items in this

study is that the correlation coefficient between the revised item and the total score of the scale must be over 0.400. Those lower than 0.400 should be deleted.

3. Homogeneity test

(1)The αvalue after the items is deleted

Cronbach's α coefficient is used to verify the internal consistency of the questionnaire items, evaluate the reliability and stability of the whole scale, and modify and adjust the items with low reliability. The Cronbach 's α coefficient after the item is deleted refers to the Cronbach α coefficient of the whole scale after the item is deleted. Therefore, in order to obtain the scale with high stability, after the item is deleted it is necessary to conduct the Cronbach α coefficient. That is, the standardized Cronbach α coefficient is taken as the benchmark.

（2）Commonality and factor load

The purpose of homogeneity test by factor analysis is to extract the common basic factors of the items, and the main purpose is to reduce the main factors of multiple variables according to their degree of correlation, so as to simplify the complexity of variables, and to maximize the possible interpretation of the original variables. Therefore, in the part of factor analysis, the items are deleted based on the commonality and factor load, so as to maximize the homogeneity of the items among common factors. It is recommended to delete the test items where the commonality of the whole measuring scale is less than 0.2 under the method of principal component analysis. According to Wu (2008), if the sample ranges from 120 to 150 people, the

factor load should reach 0.5. Otherwise, the item should be deleted.

(II)Exploratory factor analysis

The purpose of exploratory factor analysis is to obtain the construction validity of the scale. Since the scale has a definite factor construct, the factor structure of the previous scale questionnaire can be used to limit the number of common factors extracted (Wu, 2010). According to the viewpoint of Kaiser (1974), larger KMO value indicates more common factors among variables, and is more suitable for factor analysis. If the KMO value is less than 0.5, the factor analysis is not suggested. The principal component analysis method is adopted for extraction, and the maximum variation method is used for the rotation axis. If the item is loaded with two dimensions at the same time and the factor load is less than 0.4, it is considered to be deleted for the second factor analysis.

(III) Confirmatory factor analysis

1. Items with insignificant estimated parameters

The full standard solution and the estimated t-value of each parameter in the model show that the estimated parameters are significant ($t > 1.96$, $p \geq 0.05$). The positive and negative signs of the estimated value are consistent with the theory, indicating that the factor structure of the scale has been verified and has good construction validity.

2. Items with lower load

In terms of item selection, this study used the factor load between variables and

potential variables as the criteria for item selection. Bagozzi & Yi (1988) point out that the factor load of potential variable and the measuring indicator ranges from 0.50 to 0.95.

3.Indicators of Goodness of Fit

The indicators used for Goodness of Fit of the whole scale usually include x^2 /df<5.000，RMR, RMSEA < 0.080，GFI, AGFI, NFI, IFI, CFI, TLI, RFI > 0.900，PNFI, PCFI, PGFI >0.500. All of these can be regarded as high degree of Goodness of Fit (Bentler & Chou, 1987; Hair, Anderson, Tatham, & Black, 1998; Lomax & Schumacker, 2004. Therefore, the present study will take the above indicators to evaluate Goodness of Fit of the model.

（IV）Reliability analysis

Reliability analysis is used to analyze the consistency of the results obtained by repeated measurements of the same or similar parent sample. The statistical coefficient Cronbach's α is often used to measure the consistency of the items on the same dimension. In this study, Cronbach's α reliability coefficient analysis is used to test the reliability of each scale. When the α is higher than 0.7, the questionnaire is highly reliable. When the α is between 0.35 and 0.7, it is moderately reliable. If the value is less than 0.35, it is not reliable(Qiu, 2013).

(V)Analysis of convergent validity

The convergent validity of the convergent validity analysis instrument is tested by factor load and construct reliability. Fornell & Larcker (1981) point out that the

higher the component reliability is, the higher the internal consistency of each potential variable is. It is recommended that the value should reach .60, which indicates high quality of the model.

3.7.2 Item analysis results of future time perspective of Chinese students

According to the item analysis in Table 3.4, it is found that the statistics of wl2-3, wl2-4, wl3-5, wl3-6 and wl4-4 in the above six indicators are unexpected. Therefore, after the comprehensive evaluation of item analysis, the above five questions are deleted from 24 questions of the future time perspective scale but reserve the rest 19 items.

Table 3. 4 Item analysis of future time perspective of Chinese university students

Item	Extreme value comparison	Correlation test		Homogeneity test				
	Critical ratio (CR value)	Item & total score	Revised item & total score	α value after item deletion	commonality	Factor load	Items not qualified	Note
Threshold	≧3.0	≧0.4	≧0.4	<.733	≧.20	≧.50	0	Retained
wl1-1	11.016***	.717***	.543	.654	.622	.762	0	Retained
wl1-2	9.747***	.661***	.505	.671	.726	.750	0	Retained
wl1-3	9.511***	.696***	.529	.661	.627	.751	0	Retained
wl1-4	9.330***	.608***	.373	.711	.642	.496	2	Retained
wl1-5	7.424***	.572***	.326	.726	.715	.434	2	Retained
wl1-6	8.918***	.663***	.507	.671	.487	.697	0	Retained
Threshold	≧3.0	≧0.4	≧0.4	<.632	≧.20	≧.50		
wl2-1	10.015***	.729***	.544	.500	.630	.786	0	Retained
wl2-2	11.927***	.765***	.585	.476	.666	.814	0	Retained
wl2-3	4.262***	.414***	.126	.669	.486	.280	3	Deleted
wl2-4	3.709***	.344***	.054	.692	.630	.132	4	deleted

wl2-5	8.006***	.644***	.444	.546	.558	.662	0	Retained
wl2-6	8.799***	.662***	.478	.536	.572	.755	0	Retained
Threshold	≧3.0	≧0.4	≧0.4	<.616	≧.20	≧.50		
wl3-1	12.920***	.759***	.572	.508	.632	.776	0	Retained
wl3-2	12.166***	.728***	.518	.531	.689	.830	0	Retained
wl3-3	11.017***	.719***	.524	.532	.655	.809	0	Retained
wl3-4	8.489***	.678***	.479	.554	.544	.732	0	Retained
wl3-5	0.472	.202*	-.053	.726	.741	-.256	4	Deleted
wl3-6	3.472**	.414***	.200	.649	.753	.043	3	Deleted
Threshold	≧3.0	≧0.4	≧0.4	<.686	≧.20	≧.50		
wl4-1	6.921***	.413***	.248	.388	.812	.556	1	Retained
wl4-2	9.751***	.553***	.405	.335	.682	.778	0	Retained
wl4-3	13.591***	.620***	.477	.303	.675	.820	0	Retained
wl4-4	2.542*	.753***	.110	.740	.038	.186	5	Deleted
wl4-5	9.194***	.543***	.381	.336	.708	.718	1	Retained
wl4-6	6.846***	.446***	.274	.376	.660	.610	1	Retained

After item analysis, the rest 19 items of the future time perspective scale are taken into a factor analysis. Principal component analysis is used, the value of the factor should be greater than 1, and the maximum variance method is used for the rotation axis to analyze the factor structure of the scale in accordance with the theory. It is found that the two items wl1-4 and wl1-5 do not fall into the expected dimension, thus these two items are deleted. Then, the remaining 17 items are taken into factor analysis. It Is found that wl4-5 Is loaded on two dimensions at the same time, thus this item is deleted. After that, the remaining 16 items will again be taken into a factor analysis. Results show that the factor load of all items is above0. 55, and it is still in the factor levels set originally. Explainable variance of the four factors is 61.818%. This indicates that the scale is highly valid, and thus all the16 items are retained. The results as shown in Table 3.5.

Table 3. 5 Factor analysis of future time perspective of Chinese university students

Factor	Item	Explanatory variance (%)	Accumulated explanatory variance (%)	Eigenvalue	Factor load	Commonality
Value	wl1-1	17.719	17.719	2.749	.743	.718
	wl1-2				.817	.695
	wl1-3				.689	.574
	wl1-6				.642	.467
Extension	wl2-1	16.112	33.291	2.578	.703	.663
	wl2-2				.758	.636
	wl2-5				.673	.555
	wl2-6				.758	.586
Speed	wl3-1	15.765	49.056	2.522	.788	.627
	wl3-2				.803	.699
	wl3-3				.819	.679
	wl3-4				.722	.533
Connectedness	wl4-1	12.762	61.818	2.042	.700	.632
	wl4-2				.785	.665
	wl4-3				.708	.605
	wl4-6				.575	.558
KMO=0.738, Bartlett spherical test=805.414, P=0.000						

According to the confirmatory factor analysis of Chinese university students' future time perspective scale in Table 3.6, Goodness of Fit is basically sound, Chi-square value is of Goodness of Fit is 140.807(p=.000). This indicates that the sample covariate matrix fit well with the theoretical model covariate matrix. After that, other indicators are used to evaluate Goodness of Fit of the model. According to the analysis of RMSEA, SRMR, GFI and CFI, the corresponding values were.083,.069,.882 and.888, respectively. Most of these indicators inicate that Goodness of Fit reaches the standard. On the whole, the adaptability of this model is good. Other indicators are shown in Table 3.6.

Table 3. 6 Confirmatory factor analysis of Chinese university students of future time perspective

	Item for evaluation	Fit criteria	results	Fit or not
Basic Goodness of Fit	Whether there is no negative error variance	>0	Nil.	Fit
	Factor load ranges from 0.5 to 0.95	0.50~0.95	0.551~0.854	Fit
	Whether there is major standard error	Not too high	0.1~0.2	Fit
Goodness of Fit of the whole model	$\chi 2$	P>0.05	140.807	Fit
	$\chi 2$ df	1-5	1.983	Fit
	GFI	>0.90	.882	Acceptable
	AGFI	>0.90	.826	Acceptable
	RMR	<0.05	.072	Fit
	SRMR	<0.05	.069	Acceptable
	RMSEA	<0.08	.083	Acceptable
	NFI	>0.90	.803	Acceptable
	CFI	>0.90	.888	Acceptable
	IFI	>0.90	.892	Acceptable
	PNFI	>0.50	.627	Fit
	PGFI	>0.50	.597	Fit
	RFI	>0.90	.748	Unfit
Inner quality of the model	All parameters are significant	t>1.96	5.826~7.572	Fit
	Reliability of certain items	>0.50	0.30~0.73	Acceptable

Composite reliability of potential variables	>0.60	0.725~0.800	Fit
Average variation extraction of potential variations	>0.30	0.465~0.513	Fit

Table 3.7 shows that factor load of each observed variable of the future time perspective scale of Chinese students is 0.551 ~ 0.854, all above. 50 (an indicator of relatively high reliability). The construct reliability is. 725 ~ 800, above. 60 (an indicator of relatively high reliability). The explanatory variance of the observed variables of the potential variables in the future time perspective scale reached the ideal value.

The average variation extraction is 0.465 ~ 0.513, indicating that the observed variable effectively reflected the characteristics of its potential variables. That is to say, the convergent validity is good.

Considering the validity of future time perspective, it can be seen from the standardized factor load between the observed variables and their potential variables, the factor load of all observed variables reached a significant level (p<.000，α＝.05). This indicates that this scale is of good construction validity.

Table 3. 7 Validity and average variation extraction of the observed variables and potential variables in the future time perspective scale of Chinese university students

Potential variables	Observed variables	R^2	Construction validity	Average variation extraction
Value	wl1-1(0.744)	.55	0.775	0.465
	wl1-2(0.705)	.50		

	wl1-3(0.712)	.51		
	wl1-6(0.551)	.30		
Extension	wl1-1(0.854)	.73	0.754	0.513
	wl1-2(0.707)	.50		
	wl1-6(0.556)	.31		
Speed	wl1-1(0.701)	.49	0.801	0.503
	wl1-2(0.800)	.64		
	wl1-3(0.720)	.52		
	wl1-4(0.603)	.36		
Connectedness	wl1-1(0.602)	.36	0.725	0.470
	wl1-2(0.737)	.54		
	wl1-3(0.710)	.50		

After the above analysis, the remaining items are taken into the internal consistency reliability analysis of the subscales and the whole scale. Results show that in value subscale, the Cronbach's α coefficient is 0.771, that of the extensibility subscale is 0.753, that of hasty subscales is 0.800, and that of the connectivity subscales is 0.721. The Cronbach's α coefficient of the whole scale is 0.677, which indicates that the scale has good internal consistency reliability. The data results are shown in Table 3.8.

Table 3. 8 Reliability of future time perspective of Chinese university students

Scale name	Subscale name	Numbers of items	Reliability of subscale	Reliability of the whole scale
Future time perspective scale	Value	4	.771	.677
	Extension	3	.753	
	Speed	4	.800	
	Connectedness	3	.721	

3.7.3 Item analysis of academic delay of gratification of university students

According to the results of item analysis in Table 3.9, it is found that all

items satisfy the six indicators of the academic delay of gratification scale except Item 10. Therefore, after comprehensive evaluation of the item analysis, item 10 is deleted from the scale of future time perspective, but other 9 items are retained.

Table 3. 9 Item analysis of academic delay of gratification of Chinese university students

Item	Extreme value comparison	Correlation test	Homogeneity test				Items not qualified	Note
	Critical ratio (CR value)	Item & total score	Revised item & total score	α value after item deletion	commonality	Factor load		
Threshold	≧3.0	≧0.4	≧0.4	<.796	≧.20	≧.50	0	Retained
yc1-1	3.854***	.711***	.603	.756	.583	.748	0	Retained
yc1-2	1.004	.493***	.361	.787	.560	.506	2	Retained
yc1-3	3.486***	.658***	.547	.766	.526	.680	0	Retained
yc1-4	3.427***	.639***	.510	.770	.541	.636	0	Retained
yc1-5	2.811**	.622***	.499	.771	.470	.609	0	Retained
yc1-6	1.982	.511***	.404	.783	.496	.543	1	Retained
yc1-7	2.716**	.726***	.620	.755	.622	.731	0	Retained
yc1-8	3.267**	.510***	.395	.783	.565	.544	1	Retained
yc1-9	2.246*	.574***	.447	.778	.520	.538	0	Retained
yc1-10	1.120	.476***	.295	.801	.418	.522	3	Deleted

After item analysis of academic delay of gratification, the remaining 9 items are taken into factor analysis. Principal component analysis is used, the eigenvalue of the factor criterion should be greater than 1, and the maximum variance method is used for the rotation axis to analyze the consistency of the factor structure and the theory of the scale. It is found that yc1-1 falls into two dimensions at the same time, thus this problem is deleted. Then the eight remaining items are taken into to factor analysis. Results found that the factor load of each item is above .55, and is still within the factor level originally set. Total explainable variance of the four factors is 56.460%,

which indicates that this scale has good construction validity, thus all the 8 items shall be retained. The results are shown in Table 3.10.

Table 3. 10 Factor analysis of academic delay of gratification of Chinese university students

Factor	Item	Explainable variance%	Accumulated explainable variance%	Eigenvalue	Factor load	Commonality
Academic delay of gratification	yc1-2	56.460	56.460	2.330	.803	.645
	yc1-3				.628	.514
	yc1-4				.784	.620
	yc1-5				.685	.497
	yc1-6				.715	.528
	yc1-7				.793	.672
	yc1-8				.748	.567
	yc1-9				.688	.476
KMO=0.745, Bartlett spherical test=275.513, P=0.000						

After exploratory factor analysis of the Chinese college students' achievement delay satisfaction scale, the remaining 8 questions were analyzed by confirmatory factor analysis. The results showed that the factor load of questions yc1-2, yc1-6 and yc1-8 was relatively low (.373,.425 and.397, respectively), so these 3 questions were deleted. After deletion, a confirmatory factor analysis was conducted again, and it was found that the factor load of question 3 was relatively low (.414). Finally, questions yc1-4, yc1-5, yc1-7 and yc1-9 were retained.

According to the confirmatory factor analysis of the Chinese university students' academic delay of gratification scale, Goodness of it is basically satisfactory, and the chi-square test value of the fitness index is 7.799 (p=.000). This indicates that the covariate matrix of the sample fits well with the covariate matrix of the theoretical

model. We further use other indicators, such as RMSEA, SRMR, GFI, and CFI, to evaluate Goodness of Fit of the model, whose value are.052,.030, .990, .994 respectively. Most of these indicators suggest that Goodness of fit is satisfactory. Overall, the model features Goodness of fit.

Table 3. 11 Confirmatory factors of Chinese university students' academic delay of gratification

	Item for evaluation	Fit criteria	Results	Fit or not
Basic Goodness of Fit	Item for evaluation	>0	Nil.	Fit
	Whether there is no negative error variance	0.50~0.95	0.510~0.835	Fit
	Factor load ranges from 0.5 to 0.95	Not too big	0.124~0.179	Fit
Goodness of Fit of the whole model	Whether there is major standard error	P>0.05	2.758	Fit
	χ2	<2.00	1.379	Fit
	χ2 df	>0.90	.990	Fit
	GFI	>0.90	.951	Fit
	AGFI	<0.05	.025	Fit
	RMR v	<0.05	.030	Fit
	SRMR	<0.08	.052	Fit
	RMSEA	>0.90	.979	Fit
	NFI	>0.90	.994	Fit
	CFI v	>0.90	.994	Fit
	IFI	>0.50	.326	Unfit
	PNFI	>0.50	.198	Unfit
	PGFI	>0.90	.937	Fit
	RFI	>200	475	Fit
Inner quality of the model	All parameters are significant	t>1.96	5.217~6.566	Fit
	Reliability of certain items	>0.50	0.260~0.697	Unfit
	Composite reliability of potential variables	>0.60	0.748	Fit
	Average variation extraction of potential variations	>0.30	0.436	Fit

Table 3.12 show that the factor load of the observed variable in academic delay of gratification scale of Chinese university students is. 52 ~. 80, all are above. 50 (an indicator of good reliability). The construction reliability is. 745, above. 60 (an

indicator of good reliability). The explainable variance of the observed variables of potential variables in the academic delay of gratification scale reaches an ideal value.

The average variation extraction is.436, indicating that the observed variables can effectively reflect the characteristics of their potential variables. That is to say, the convergent validity is sound.

Considering the validity of academic delay of gratification, it can be seen from the standardized factor load of each observed variable and its potential variable that the factor load of all the observed variables are statistically significant ($p <. 000$, $\alpha =. 05$). Therefore, these observed variables can effectively reflect the characteristics of their potential variables.

Table 3. 12 Reliability and average variance extraction of the observed variables and potential variables of academic delay of gratification of Chinese university students

Potential variable	Observed variable (factor load)	R^2	Construction reliability	Ave
Academic delay of gratification	yc1-4(0.704)	.495	0.436	0.748
	yc1-5(0.540)	.292		
	yc1-7(0.835)	.697		
	yc1-9(0.510)	.260		

After the above analysis, the remaining items are taken into the internal consistency reliability analysis of the subscale and the whole scale. The results show that the Cronbach's α coefficient of the scale is 0.745, indicating that the scale had good internal consistency reliability. The results are shown in Table 3.13.

Table 3. 13 Reliability of academic delay of gratification scale of Chinese university students

Scale name	Subscale name	Number of items	Subscale reliability	Reliability of the whole scale
Academic delay of gratification scale	0	4	.744	.744

3.7.4 Item analysis of future time perspective of Thai university

According to the results of item analysis in Table 3.14, only wl3-5 performs bad in the above six indicators. Therefore, after comprehensive evaluation of item analysis, we delete Item 17 is deleted from the 24 items of the future time perspective scale and but retain 23 items.

Table 3. 14 Item analysis of future time perspective of Thai university students

Item	Extreme value comparison	Correlation test		Homogeneity test				
	Critical ratio (CR value)	Item & total score	Revised item and total score	A value after item deletion	Commonality	Factor load	Items not qualified	Note
Threshold	≧3.0	≧0.4	≧0.4	<.819	≧.20	≧.50	0	Retained
wl1-1	14.832***	.774***	.630	.777	.584	.764	0	Retained
wl1-2	11.268***	.730***	.591	.786	.539	.734	0	Retained
wl1-3	12.085**	.771***	.662	.773	.635	.797	0	Retained
wl1-4	12.579***	.770***	.652	.773	.618	.786	2	Retained
wl1-5	8.732***	.653***	.481	.810	.389	.623	2	Retained
wl1-6	9.284***	.649***	.488	.807	.411	.641	0	Retained
Threshold	≧3.0	≧0.4	≧0.4	<.831	≧.20	≧.50		
wl2-1	7.740***	.662***	.514	.821	.429	.655	0	Retained
wl2-2	12.946***	.779***	.656	.792	.612	.782	0	Retained
wl2-3	10.868***	.748***	.622	.800	.566	.752	3	Deleted
wl2-4	13.902***	.759***	.622	.800	.570	.755	3	Deleted

wl2-5	12.316***	.752***	.621	.800	.566	.753	0	Retained
wl2-6	8.732***	.714***	.579	.809	.514	.717	0	Retained
Threshold	≧3.0	≧0.4	≧0.4	<.731	≧.20	≧.50		
wl3-1	7.116***	.340***	.223	.316	.335	.557	2	Retained
wl3-2	10.115***	.530***	.405	.251	.625	.790	0	Retained
wl3-3	10.883***	.556***	.454	.253	.679	.824	0	Retained
wl3-4	12.184***	.557***	.443	.246	.642	.797	0	Retained
wl3-5	2.033*	.865***	.160	.779	.910	.262	3	Deleted
wl3-6	10.813***	.309***	.179	.323	.567	.635	2	Deleted
Threshold	≧3.0	≧0.4	≧0.4	<.861	≧.20	≧.50		
wl4-1	9.542***	.720***	.586	.849	.503	.709	1	Retained
wl4-2	20.642***	.784***	.683	.832	.629	.793	0	Retained
wl4-3	9.436***	.708***	.577	.850	.493	.702	0	Retained
wl4-4	12.520***	.823***	.728	.823	.692	.832	5	Deleted
wl4-5	10.171***	.788***	.666	.835	.611	.782	1	Retained
wl4-6	11.213***	.785***	.680	.832	.623	.790	1	Retained

After item analysis of future time perspective of Thai university students, the remaining 23 items are taken into factor analysis by principal component analysis. The eigenvalue of the factor criterion should be greater than 1, and the maximum variance method is used for the rotation axis to analyze the consistency of the factor structure and the theory of the scale. It is found that the three items wl1-5, wl1-5 and wl4-1 do not fall into the dimension, thus these three items are deleted. The remaining 20 items are then further taken into factor analysis. Results show that the factor load of each item is above 55, and is still within the original factor level set originally. Total explainable variation of the four factors reaches 60.843% respectively, which indicates that the scale has good construction validity. Therefore, all the 20 items are to be reserved. The results are shown in Table 3.15.

Table 3. 15 Factor analysis of future time perspective of Thai university students

Factor	Item	Explainable variance%	Accumulated explainable variance%	Eigenvalue	Factor load	Commonality
Value	wl1-2	17.868	17.868	3.574	.822	.714
	wl1-3				.766	.677
	wl1-1				.740	.654
	wl1-4				.662	.585
Extension	wl2-4	16.449	34.317	3.290	.788	.636
	wl2-3				.737	.615
	wl2-5				.701	.607
	wl2-6				.613	.605
	wl2-2				.691	.589
	wl2-1				.538	.449
Speed	wl3-4	13.421	47.738	2.684	.801	.715
	wl3-3				.731	.668
	wl3-2				.676	.560
	wl3-1				.560	.524
	wl3-6				.539	.430
Connectedness	wl4-6	13.105	60.843	2.621	.803	.705
	wl4-4				.742	.692
	wl4-5				.735	.644
	wl4-2				.673	.628
	wl4-3				.590	.472
KMO=0.876, Bartlett spherical test=1336.436, P=0.000						

According to the confirmatory factor analysis of the future time perspective scale for Thai university students, Goodness of Fit is basically satisfactory, and the chi-square value of Goodness of Fit is 296.562(p=.000). This indicates that the sample covariate matrix fits well with the theoretical model covariate matrix. Further, we use other indicators to evaluate the model such as RMSEA, SRMR, GFI and CFI whose value are .074,.075,.839,.892 respectively. This indicates that Goodness of Fit of this model is satisfactory. Other indicators are shown in Table 3.16.

Table 3.16 Confirmatory factory analysis of future time perspective of Thai university

	Item for evaluation	Fit criteria	Results	Fit or not
Basic Goodness of Fit	Item for evaluation	>0	Nil.	Fit
	Whether there is no negative error variance	0.50~0.95	0.535~0.809	Fit
	Factor load ranges from 0.5 to 0.95	Not to big	0.118~0.290	Fit
Goodness of Fit of the whole model	Whether there is major standard error	P>0.05	296.562	Fit
	χ2	1-5	1.802	Fit
	χ2 df	>0.90	.839	Acceptable
	GFI value	>0.90	.794	Acceptable
	AGFI value	<0.05	.037	Fit
	RMR value	<0.05	.075	Acceptable
	SRMR value	<0.08	.074	Fit
	RMSEA value	>0.90	.790	Acceptable
	NFI value	>0.90	.892	Acceptable
	CFI value	>0.90	.894	Acceptable
	IFI value	>0.50	.682	Fit
	PNFI value	>0.50	.655	Fit
	PGFI value	>0.90	.757	Unfit
Inner quality of the model	RFI value	t>1.96	4.999~9.159	Fit
	All parameters are significant	>0.50	0.286~0.654	Acceptable
	Reliability of certain items	>0.60	0.790~0.851	Fit
	Composite reliability of potential variables	>0.30	0.433~0.536	Fit

Table 3.17 shows that the factor load of each observed variable in Thai students' future time perspective scale is between. 59 ~. 81, above. 50 (an indicator of good reliability). The construction reliability is. 790 ~ 851, above. 60 (an indicator of good reliability). The explainable variance of the observed variables of the potential variables in the academic delay of gratification scale reaches ideal value.

The average variation extraction is 0.433 ~ 0.536, indicating that observing variables effectively reflect their potential variables. That is, convergent validity is sound.

Considering the validity of academic delay of gratification scale, it can be seen

from the standardized factor load of each observed variable and its potential variable that the factor load of all the observed variables reach the significant level (p <. 000, α =. 05). Therefore, all these observed variables can effectively reflect the potential variables.

Table 3. 17 Average variation extraction of observed variables and potential variables in the future time perspective scale of Thai university students

Potential variable	Observed variable	R^2	Construction reliability	Aver
Value	wl1-1(0.692)	.479	0.793	0.490
	wl1-2(0.658)	.432		
	wl1-3(0.711)	.595		
	wl1-4(0.737)	.544		
Extension	wl2-1(0.590)	.348	0.832	0.453
	wl2-2(0.741)	.549		
	wl2-3(0.675)	.456		
	wl2-4(0.668)	.446		
	wl2-5(0.680)	.462		
	wl2-6(0.676)	.458		
Speed	wl3-1(0.535)	.286	0.790	0.434
	wl3-2(0.681)	.464		
	wl3-3(0.759)	.577		
	wl3-4(0.710)	.504		
	wl3-6(0.581)	.337		
Connectedness	wl4-2(0.718)	.515	0.851	0.536
	wl4-3(0.601)	.362		
	wl4-4(0.809)	.654		
	wl4-5(0.750)	.563		
	wl4-6(0.767)	.588		

After the above analysis, the remaining items are taken into internal consistency reliability analysis. The results show that the Cronbach's α coefficient of value subscale is 0.804, that of the extensibility subscale is 0.831, that of the hasty subscales

is 0.779, and that of the connectivity subscale 0.849. The Cronbach's α coefficient of the whole scale is 0.904. The scale has good internal consistency reliability. The results are shown in Table 3.18.

Table 3. 18 Reliability of future time perspective scale of Thai university students

Scale name	Subscale name	Number of items	Subscale reliability	Reliability of the whole scale
Future time perspective	Value	4	.804	.904
	Extension	6	.831	
	Speed	5	.779	
	Connectedness	5	.849	

3.7.5 Item analysis of academic delay of gratification of Thai university students

According to the results of item analysis in Table 3.19, it is found that all the items satisfy the standards of the above six indicators. Therefore, after comprehensive evaluation through item analysis, all 10 items are retained.

Table 3. 19 Items analysis of academic delay of gratification of Thai university students

Item	Extreme value comparison	Correlation test		Homogeneity test			Items not qualified	Note
	Critical ratio (CR value)	Item & total score	Revised item & total score	α value after item deletion	Commonality	Factor load		
Threshold	≧3.0	≧0.4	≧0.4	<.946	≧.20	≧.50	0	Retained
yc1-1	9.682***	.732***	.663	.945	.516	.718	0	Retained
yc1-2	12.978***	.820***	.773	.939	.664	.815	0	Retained
yc1-3	12.523***	.822***	.773	.939	.666	.816	0	Retained
yc1-4	10.771***	.841***	.800	.938	.712	.844	0	Retained
yc1-5	11.828***	.836***	.795	.938	.711	.843	0	Retained
yc1-6	14.080***	.857***	.821	.937	.745	.863	0	Retained
yc1-7	13.417***	.834***	.788	.939	.699	.836	0	Retained
yc1-8	13.838***	.835***	.792	.938	.708	.841	0	Retained
yc1-9	10.560***	.800***	.750	.940	.639	.800	0	Retained
yc1-10	11.353***	.815***	.768	.939	.667	.817	0	Retained

After item analysis of academic delay of gratification scale, the remaining 10 items are analyzed by factor analysis. Principal component analysis Is used. The eigenvalue of the factor criterion should be greater than 1, and the maximum variance method is used for the rotation axis to analyze the consistency of factor structure and theory of the scale. It is found that yc1-1 is loaded on two dimensions at the same time, thus this item is deleted. Then the rest of the 9 items are taken into factor analysis. The results show that the factor load of each item is above .55, and is still within the factor level set originally. The total explainable variance of the four factors reaches 76.016%. This indicate that the scale has good construction validity, and thus all the 9 items are to be preserved. The results are shown in Table 3.20.

Table 3. 20 Factor analysis of academic delay of gratification scale of Thai university students

Factor	Item	Explainable variance%	Accumulated explainable variance%	Eigenvalue	Factor load	Commonality
	yc1-3				.803	.869
	yc1-2				.795	.846
	yc1-5				.858	.764
Academic	yc1-4				.846	.719
delay of	yc1-8	76.016	76.016	4.348	.853	.802
gratification	yc1-6				.870	.776
	yc1-7				.845	.738
	yc1-10				.825	.686
	yc1-9				.802	.643
KMO=0.913, Bartlett spherical test=1090.716, P=0.000						

From the confirmatory factor analysis of the academic delay of gratification scale

of Thai university students, the Goodness of Fit is satisfactory. The chi-square value of the Goodness of fit is 111.427(p=.000), indicating that the covariate matrix of the sample fits well with the covariate matrix of the theoretical model. We use other indicators to evaluate the model, including RMSEA, SRMR, GFI and CFI whose value is .145,.044, .979, .922 respectively. Most of these indicators show satisfactory Goodness of Fit. Generally, Goodness of Fit of this model is satisfactory. Other indicators are shown in Table 3.21.

Table 3. 21 Confirmatory factor analysis of the academic delay of gratification of Thai university students

	Item for evaluation	Fit criteria	Results	Fit or not
Basic Goodness of Fit	Item for evaluation	>0	Nil.	Fit
	Whether there is no negative error variance	0.50~0.95	0.756~0.862	Fit
	Factor load ranges from 0.5 to 0.95	Not too big	.096~.106	Fit
Goodness of Fit of the whole model	Whether there is major standard error	P>0.05	111.427	Fit
	$\chi 2$	1-5	4.127	Fit
	$\chi 2$ df	>0.90	.979	Fit
	GFI	>0.90	.782	Unfit
	AGFI	<0.05	.038	Fit
	RMR	<0.05	.044	Fit
	SRMR	<0.08	.145	Unfit
	RMSEA	>0.90	.900	Fit
	NFI	>0.90	.922	Fit
	CFI	>0.90	.923	Fit
	IFI	>0.50	.675	Fit
	PNFI	>0.50	.522	Fit
	PGFI	>0.90	.867	Acceptable
Inner quality of the model	RFI	t>1.96	9.74~11.239	Fit
	All parameters are significant	>0.50	.580~.744	Fit
	Reliability of certain items	>0.60	0.945	Fit
	Composite reliability of potential variables	>0.30	0.656	Fit

From Table 3.22, the factor load of each observed variables of academic delay of

gratification scale of Thai university students is between. 756 ~ 862, above. 50 (an indicator of good reliability). Construction reliability is. 945, above. 60 (an indicator of good reliability). The explainable variance of potential variables and the observed variables reaches ideal value.

The average variation extraction is.656, which is higher than the critical value of the discriminant standard. Therefore, the observed item can effectively reflect the features of the potential variable. That is to say, the convergent validity is satisfactory.

Considering the validity of academic delay of gratification of Thai university, it can be seen from the standardized factor loads of each observed variable and its potential variable that the factor load of each observed variable reaches a significant level ($p<.000$, $\alpha=.05$). Therefore, these observed variables can effectively reflect the characteristics of the potential variables to be measured.

Table 3. 22 Reliability and average variation extraction of the observed variable and potential variable of academic delay of gratification of Thai university students

Potential variable	Observed variable(factor load)	R^2	Construction reliability	Ave
Academic delay of gratification	yc1-2(0.756)	.571	0.945	0.656
	yc1-3(0.762)	.580		
	yc1-4(0.825)	.681		
	yc1-5(0.849)	.720		
	yc1-6(0.862)	.744		
	yc1-7(0.825)	.680		
	yc1-8(0.847)	.717		
	yc1-9(0.764)	.583		
	yc1-10(0.793)	.629		

After the above analysis, the remaining items are taken into the internal consistency reliability analysis of the subscale and the whole scale was. The results showed that the Cronbach's α coefficient of the scale is 0.745, indicating that the scale has good internal consistency reliability. The data results are shown in Table 3.23.

Table 3. 23 Reliability of academic delay of gratification of Thai university students

Scale name	Sub scale name	Number of items	Sub scale reliability	Reliability of the whole scale
Academic delay of gratification		9	.945	.945

3.7.6 Multi-group confirmatory analysis of future time perspective of Chinese and Thai university students

As shown in Table 3.24, multi-group confirmatory factor analysis of Chinese and Thai university students' future time perspective show that the difference between the two models reaches a significant level of 0.05 ($p=0.011<0.05$), indicating that the factor structures of model B and model A are not equal. Therefore, multi-group model comparison is not suitable.

Table 3. 24 Multi-group confirmatory analysis of future time perspective of Chinese and Thai university students

Model	DF	CMIN	P	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Measurement weights	8	19.758	.011	.016	.018	.003	.003

Based on the above multi-group confirmatory factor analysis of the future time perspective of Chinese and Thai university students, it is found that the results of model factors of Chinese and Thai university students are not equal. Therefore, it is not suitable to conduct a multi-group comparison between Chinese and Thai university students. Hence, we conduct the structural equation models of Chinese and Thai university students first, and then wen compare the results.

Chapter 4

RESULTS

4.1 Differences in future time perspectives between Chinese and Thai students under different background variables (Analysis of Research Question 1)

Difference analysis is a method to determine whether a range of factors correlate with the variance in data via hypothesis testing. In this study, an independent sample t-test is performed to test the differences in future time perspectives and academic delay of gratification among students of different genders, disciplines, and years of study. Single-factor ANOVA variation is employed to analyze the said differences, where further post-hoc tests would be conducted, determined on the significance of the isomorphism of the variation, if the results show statistical significance. In this study, the explanatory strength of the independent variable to dependent variables is represented by the different Size of Effect values (d). As defined by Cohen (1988), when $0.5 > d \geqq 0.2$, the size of effect is small, and when $0.8 > d \geqq 0.5$, the size of effect is medium, and when $d \geqq 0.8$ the size of effect is large.

4.1.1 Differences in the future time perspectives of Chinese college students under demographic variables

4.1.1.1 Differences in the future time perspectives of Chinese college students by gender

The results of the independent sample t-test analysis are shown in Table 4.1. No significant difference is found in the future time perspectives of Chinese college students of different genders (t = -0.578, p = 0.56). The future time perspectives of the male students (M = 3.621, SD = 0.485) is not greater than those of the female students (M = 3.661, SD = 0.463). The effect size d = 0.042, which indicates gender has almost no effect in the future time perspectives for Chinese students (Cohen, 1988). There is no gender difference in terms of the students' perception of time value (t = -0.350, p = 0.727), time extension (t = 0.982, p = 0.327), time speed (t = -1.091, p = 0.277), and time connection （t= -0.954，p=0.068）, with the effect size being 0.026, 0.072, 0.080, and 0.068 respectively. This shows gender is no impacting factor in each dimension of future time perspective among Chinese students of different genders (Cohen, 1988). It can thus be concluded that there is no difference by gender among Chinese college students in their perception of future time across different dimensions. This is consistent with the findings of Peetsma (2000), who points out that college students' future time perspectives do not vary by gender.

Table 4. 1 T-test results on the future time perspectives of Chinese college students by gender

Variable	Mean (SD)		df	t	p	d
	Male(n=102)	Female(n=87)				
FTP	3.621(.485)	3.661(.463)	187	-.578	.564	.042
Value	4.020(.709)	4.055(.656)	187	-.350	.727	.026
Extension	3.637(.876)	3.517(.789)	187	.982	.327	.072
Speed	2.968(.951)	3.115(.887)	187	-1.091	.277	.080
Connection	3.860(.781)	3.960(.637)	187	-.954	.341	.068

4.1.1.2 Differences in the future time perspectives of Chinese college students by discipline

As shown by the results of the independent sample t-test in table 4.2, there is no significant difference in terms of future time perspectives of Chinese college students from various disciplines (t= -0.428, p=0.669). It is shown that students from arts and humanities disciplines (M=3.622, SD=0.421) have no stronger sense of future time than students from STEM disciplines (M=3.652, SD=0.510), with the effect size being d=0.030, which shows there is barely an effect of disciplinary differences on the students' future time perspectives (Cohen, 1988).

There is no difference across students from different disciplines in terms of the perception of value (t= 0.415, p=0.67), extension (t= -1.708, p=0.089), speed (t= -0.051, p=0.959), and connection （t= 0.539, p=0.590）, with effect sizes of 0.124, 0.004, 0.038,and 0.031 respectively. This shows barely any sizeable effect on each dimension of the future time perspectives among Chinese students of different disciplines (Cohen, 1988).

It can thus be concluded that there is no difference by discipline among Chinese college students in their perception of future time across different dimensions.

Table 4. 2 T-test results on the future time perspectives of Chinese college students by discipline

Variable	Mean(SD)		df	t	p	d
	Art&HUM(n=79)	STEM(n=110)				
FTP	3.622(.421)	3.652(.510)	187	-.428	.669	.030
Value	4.060（.643）	4.018(.713)	187	.415	.678	.124
Extension	3.460(.838)	3.670(.830)	187	-1.708	.089	.004
Speed	3.032(.841)	3.039(.981)	187	-.051	.959	.038
Connection	3.937(.609)	3.882(.789)	187	.539	.590	.031

4.1.1.3 Differences in the future time perspectives of Chinese college students by years of study

A single factor independent sample ANOVA test is performed to determine the effect of the number of years in college to students' future time perspectives and results are shown in Table 4.3, which shows there is a significant difference (F=4.3, p=.005) among students from different stages in college. A further Levene's test is taken to determine the homogeneity of the variances, which yielded p=.037, passing the significance threshold of 0.05, which indicated that the variances are inhomogeneous. A post-hoc Dunnett T3 method analysis is conducted and revealed the senior students (M=3.984, SD=0.527) generally have significantly stronger sense of future time (p =.005) than sophomore students (M=3.726, SD=0.615). The effect size value d=0.213 showed that different years of study has a small effect on the future time perspectives of Chinese college students.

In the value dimension, F=4.209 and p=.007, which showed statistical significance. The Levene's test yielded p=.183, above the significance level of 0.05, indicating the variances are equal. A post-hoc Scheffe test is taken and showed senior students (M=4.28, SD=0.519) perceive the value of future time significantly stronger (p =.007) than sophomore students (M=3.831, SD=0.756), with a d value of 0.253, indicating there is a small effect of years of study on the perspectives of future time value among Chinese college students.

There is no significant difference in terms of the students' perception of temporal extension (F=2.44, p=.066), speed (F=0.635, p=.593) and connection (F=1.765, p=.155), with effect size values of 0.195,0.101,and 0.167 respectively, which reveal a small effect of years of study in college on the future time perspectives of students.

It hence goes that students from different stages of college show a difference in their future time perspectives, and senior students perceive future time significantly stronger than sophomore students. The same difference extends to their perception of value dimension of future time, where senior students have significantly stronger perspectives of the value of future time than sophomore students. But no difference can be found in terms of their perception of temporal extension, speed, and connection. These findings are in line with those by Zhang (2012). That senior students generally have stronger sense of future time than other groups of students may be because freshmen tend to be full of hopes and expectations towards the future in the new environment and tend to believe they have sufficient time to achieve their

goals; whereas senior students feel the constraints of time strongly as their academic lives approach an end and their goals in life become clearer.

Table 4. 3 ANOVA results on the future time perspectives of Chinese college students by years of study

Note: 4>2=seniors > sophomores

Variable	Mean(SD)				F	p	d	Post-hoc
	Freshmen	Sophomore	Junior	Senior				
FTP	3.784 (.451)	3.726(.615)	3.862 (.493)	3.984 (.527)	4.300	.005	.213	4>2
Value	4.02 (.672)	3.831 (.756)	4.054 (.677)	4.280 (.519)	4.209	.007	.253	4>2
Extension	3.624 (.613)	3.441 (.838)	3.471 (.857)	3.833 (.899)	2.440	.066	.195	-
Speed	2.871 (.716)	3.089 (1.03)	3.136 (.841)	2.980 (.974)	0.635	.593	.101	-
Connection	3.796 (.837)	3.828 (.711)	3.869 (.661)	4.100 (.681)	1.765	.155	.167	-

In conclusion, there is no significant difference in future time perspectives among Chinese college students by gender and by discipline. However, there is a significant difference in terms of their future time perspectives, specifically their perspectives of temporal value, and the seniors tend to have stronger perspectives on than sophomores.

4.1.2 Differences in the future time perspectives of Thai college students under demographic variables

4.1.2.1 Differences in the future time perspectives of Thai college students by gender

The t-test results are shown in Table 4.4. It can be found that there is no significant difference (t= -.690, p=0.491) in terms of future time perspectives among Thai college students of both genders, where males (M=4.033, SD=0.519) show no stronger results than females (M=4.081, SD=0.428). The effect size of gender d=0.050, which shows there is no effect of gender on the future time perspectives of Thai students (Cohen, 1988).

There is no gender difference among Thai college student in terms of their perspectives of value (t= -0.350， p=0.680), extension (t= 0.982， p=0.937), speed (t= -1.091， p=0.490) and connection (t=-1.34, p=0.893), with the effect sizes of gender being 0.046, 0.034, 0.108,0.010.This demonstrates no effect of gender on the future time perspectives of Thai students.

Thus, it can be concluded no difference exist between two gender groups among Thai college students in terms of their future time perspectives as well as the four temporal dimensions, which is consistent with the findings of Peetsma (2000). It maybe because the many professional skills that students acquire during college allow individuals to have more career options and opportunities, which in turn helps them to move beyond gender stereotypes when thinking about their life goals and career plans

and eventually break down the traditional gender constraints and redefine gender roles through self-actualization.

Table 4. 4 T-test results on the future time perspectives of Thai college students by gender

Variable	Mean (SD)		df	t	p	d
	Male(n=106)	Female(n=87)				
FTP	4.033(.519)	4.081(.428)	191	-.690	.491	.050
Value	4.076(.628)	4.132(.595)	191	-.638	.524	.046
Extension	4.063(.614)	4.025(.495)	191	.466	.642	.034
Speed	3.877(.826)	4.037(.622)	191	-1.547	.124	.108
Connection	4.117(.634)	4.129(.569)	191	-1.34	.893	.010

4.1.2.2 Differences in the future time perspectives of Thai college students by discipline

As shown in Table 4.5, the t-test results suggest there is a significant difference [t(191)= 2.049， p=0.042)] between arts & humanities students and STEM students in terms of their future time perspectives. It further shows that arts & humanities students (M=4.118, SD=0.058) tend to have more evident future time perspectives than STEM students (M=3.977, SD=0.433). However, the effect size d=0.147, suggesting disciplinary differences have barely any effect on the future time perspectives of Thai students (Cohen, 1988).

There is a difference in terms of the perception of temporal value (t= 1.971， p=0.05) and temporal extension (t= 2.160， p=0.032) with the sizes of effect being 0.141 and 0.154 respectively. These results show disciplinary differences do not affect the perception of time value and extension among Thai students (Cohen, 1988). But such difference does not exist when it comes to their perception of temporal speed (t=

0.562， p=0.575) and connection (t= 1.790， p=0.075), with the sizes of effect being 0.041 and 0.128 respectively. This shows there is barely any effect of disciplinary difference on Thai students' perception of temporal speed and connection (Cohen, 1988).

It thus shows the there is a disciplinary difference among Thai students in terms of their future time perspectives, specifically their perspectives on temporal value and extension, where arts & humanities students tend to have more intense perspectives than STEM students. There is no such difference in terms of Thai students' perception of temporal speed and connection across disciplines. These findings are in line with those of Zhang Yunxia (2012). Such differences may be attributed to the potential differences in the knowledge structures among disciplines, i.e. arts & humanities students predominantly think abstractly and show a tendency to perceive time in a non-linear fashion, and thus tend to perceive future time more strongly. Whereas STEM students predominantly think logically and coherently, and thus would have a weaker sense of future time.

Table 4. 5 T-test results on the future time perspectives of Thai students by discipline

Variable	Mean(SD)					
	Arts& HUM (n=106)	STEM(n=87)	df	t	p	d
FTP	4.118(.058)	3.977(.433)	191	2.049	.042	.147
Value	4.179(.652)	4.006(.551)	191	1.971	.050	.141
Extension	4.124(.590)	3.950(.513)	191	2.160	.032	.154
Speed	3.976(.836)	3.915(.615)	191	0.562	.575	.041
Connection	4.192(.594)	4.037(.609)	191	1.790	.075	.128

4.1.2.3 Differences in the future time perspectives of Thai college students by years of study

As shown in Table 4.6, the results of the ANOVA on the effect of years in college on the future time perspectives for Thai students suggest significant differences (F=3.963, p=.009) exist among students from different years of study. The Levene's test yielded p=.156, which is above the 0.05 threshold and suggest the variances of samples are equal. The post-hoc Scheffe test demonstrates seniors (M=4.255, SD=0.390) in Thai colleges have significantly stronger future time perspectives than juniors (M=3.968, SD=0.448), where the seniority difference has a small effect in the size of 0.243.

There is a significant difference (F=3.962, p=.009) among Thai students from various stages in college in their perception of temporal value. The result of Levene's test （p=.898, above the 0.05 threshold） indicates the samples are homogeneous. The post-hoc Scheffe test suggests there is no significant difference among students from different stages of college in terms of their perception of temporal value. The seniority difference here has a small effect size of 0.243.

As suggested by the ANOVA result (F=2.317, p=.097), which shows no significance, there is no significant difference among the sample in terms of their perception of temporal extension. The effect size is 0.181, suggesting no effect of seniority on the perception of temporal extension for Thai students.

The ANOVA result for temporal speed perception (F=3.237, p=.023) shows significance. The Levene's test returned p=.045, below the 0.05 threshold, which means the samples are not homogeneous. The post-hoc analysis are done in the Dunnett T3 method, which showed larger results for senior students (M=4.229, SD=0.509) than for junior students (M=3.868, SD=0.673). The effect size is 0.221, suggesting there is a small effect of seniority on the perception temporal speed.

In terms of temporal connection, the results are significant (F=3.320, p=.021). The Levene's test returned p=.386, above the 0.05 threshold, suggesting the samples have equal variances. The post-hoc analysis via Scheffe test showed there is no significant difference among students in different years of study. The size of effect is 0.224, which suggests there is a small effect of years in college on Thai students' perspectives on temporal connection.

In conclusion, Thai students in different years of study have different future time perspectives, specifically in their perception of time speed, where seniors tend to have stronger future time perspectives than juniors. However, such difference does not exist in their perception of temporal value, extension, and connection. This is consistent with the findings of Zhang (2012), which may be because senior students feel the constraints of time strongly as their academic lives approach an end and their goals in life become clearer.

Table 4. 6 ANOVA results on the future time perspectives of Thai students

Variable	Mean(SD)				F	p	d	Post-hoc
	Freshmen	Sophomore	Junior	Senior				
FTP	4.413	4.001	3.968	4.255	3.963	.009	.243	4>3
	(.381)	(.590)	(.448)	(.390)				
Value	4.34	3.950	4.031	4.304	3.962	.009	.243	
	(.515)	(.667)	(.588)	(.578)				
Extension	4.157	4.000	3.968	4.210	2.317	.097	.181	
	(.418)	(.687)	(.499)	(.568)				
Speed	3.678	3.951	3.868	4.229	3.237	.023	.221	4>3
	(.913)	(.913)	(.673)	(.509)				
Connection	4.389	4.102	4.005	4.276	3.320	.021	.224	
	(.596)	(.692)	(.531)	(.604)				

Note：4>3=Senior>Junior

In conclusion, there is no significant difference in the future time perspectives of Thai students between genders. The difference, however, is significant among Thai students across disciplines, with arts & humanities students having stronger future time perspectives than STEM students, specifically in terms of their percetion of value and extension; and across different stages in college, with senior students perceiving future time more strongly than juniors, specifically in their perception of speed.

4.2 Differences of academic delay of gratification among Chinese and Thai college students under different background variables (Analysis of research question 2)

4.2.1 Differences of academic delay of gratification among Chinese and Thai college students by gender

The t-test results are shown in Table 4.7, which suggests there is no significant gender-based difference (t=0.661， p=0.509) among Chinese college students in terms of academic delay of gratification. The results show male Chinese students (M=2.750, SD=0.735) show no greater tenancy of academic delay of gratification than their female peers (M=2.681, SD=0.690). There is no significant gender-based difference (t=-1.803，p=0.073) among Thai college students in the t-test results, Which show no greater tenancy of academic delay of gratification among male Thai students (M=2.956, SD=0.796) than among female students (M=3.141, SD=0.625). The size of gender effect is respectively 0.048 and 0.126, suggesting gender has barely any effect on the academic delay of gratification. Thus, there is no difference in academic delay of gratification among Chinese and Thai college students between genders. This finding resonates with that of Chen (2014) and may correspond to the traditional gender roles.

Table 4. 7 T-test results on the academic delay of gratification among Chinese and Thai college students by gender

Variable	Mean(SD)		df	t	p	d
	Male(n=102)	Female(n=87)				
Academic delay of gratification Chinese students	2.750（.735）	2.681(.690)	187	661	509	048
Academic delay of gratification Thai students	2.956（.796）	3.141(.625)	191	-1.803	.073	.126

4.2.2 Differences of academic delay of gratification among Chinese and Thai college students by disciplines

The t-test results are shown in Table 4.8, which suggests there is a significant difference [t(187)=-2.084， p=0.039] among Chinese college students across disciplines in terms of academic delay of gratification. Chinese students from STEM majors (M=2.809, SD=0.703) tend to have greater academic delay of gratification than arts & humanities students (M=2.592, SD=0.713). However, such significant disciplinary difference does not exist among Thai students (t=-1.155， p=0.249). The results show no greater tenancy of academic delay of gratification among Thai students from STEM subjects (M=2.986, SD=0.841) than among their arts & humanities peers(M=3.103, SD=0.559). The size of effect is respectively 0.151 and 0.080, suggesting disciplinary differences have barely any effect on the academic delay of gratification.

Thus, there is a difference among arts & humanities and STEM students in Chinese colleges in terms of academic delay of gratification, where STEM students

are more inclined to delay academic gratification, which contradicts with Zhang Yunxia's finding (2012). A possible explanation is STEM disciplines tend to be more practical with more tangible subjects of study, which could cause students to focus on the future temporal field and have more capacity to delay their gratification. There is no disciplinary difference among Thai students from arts & humanities students and STEM subjects in terms of their academic delay of gratification.

Table 4. 8 T-test results on the academic delay of gratification among Chinese and Thai college students by gender

Variable	Mean(SD)		df	t	p	d
	Arts&HUM(n=79)	STEM(n=110)				
Academic delay of gratification Chinese students	2.592（.713）	2.809(.703)	187	-2.084	.039	.151
Academic delay of gratification Thai students	2.986（.841）	3.103(.559)	187	-1.155	.249	.080

4.2.3 Differences of academic delay of gratification among Chinese and Thai college students by years of study

The ANOVA results are shown in Table 4.9. No significant differences can be found among Chinese students from different years of study (F=1.300, p=.276).There is also no significant seniority-based difference (t=1.182， p=.318) among Thai college students in the ANOVA results. The size of effect is respectively 0.144 and 0.136, suggesting years of study in college hardly inserts any effect on the academic delay of gratification of students.

Thus, the results suggest there is no difference among Chinese and Thai students from various stages in college in terms of academic delay of gratification. This is not consistent with the findings of Liu Linhua (2010). According to Liu, the progression of the academic delay of gratification among college students show a reversed u-shape tendency, where freshmen tend to show higher delay, and the capacity tends to go down during sophomore and junior years and go up again in senior years.

Table 4. 9 ANOVA results on the academic delay of gratification among Chinese and Thai college students by years of study

Variable	Mean(SD)				F	p	d
	Freshman	Sophomore	Junior	Senior			
Academic delay of gratification Chinese students	2.669 (.696)	2.621 (.701)	2.707 (.706)	2.880 (.739)	1.300	.276	.144
Academic delay of gratification Thai students	3.191 (.903)	3.015 (.610)	3.099 (.721)	2.876 (.773)	1.182	.318	.136

In conclusion, when it comes to academic delay of gratification, there is no significant gender-based difference (t=0.661， p=0.509) among Chinese college students. There is no significant gender-based difference (t=-1.803， p=0.073) among Thai college students. There is significant disciplinary difference Chinese students (t=-2.084，p=0.039). Chinese students from STEM majors (M=2.809, SD=0.703) tend to have greater academic delay of gratification than arts & humanities students (M=2.592, SD=0.713). However, such significant disciplinary difference does not exist among Thai students (t=-1.155，p=0.249). There is no significant seniority-based

difference (t=1.300， p=.276) among Chinese college students. There is also no significant seniority-based difference (t=1.182，p=.318) among Thai college students.

4.2.4 Comparison between Chinese and Thai college students in future time perspectives and academic delay of gratification

As shown in the t-test results in Table 4.10, there is a significant difference [t(380)=-10.143， p<0.000] among Chinese and Thai college students in terms of future time perspectives. The differences extend to the four dimensions of time perspectives, namely value (t= -2.218， p=0.027), extension (t= -6.777， p<0.000), speed (t= -12.211， p<0.000), and connection (t= -2.134， p=0.033). There is also a significant difference between Chinese students and Thai students in the t-test results for academic delay of gratification [(t(380)= -12.421， p<0.000)]. Thus, the results suggest there is a significant difference among Chinese and Thai students in terms of academic delay of gratification.

Table 4. 10 T-test results on the future time perspectives and the academic delay of gratification among Chinese and Thai college students

Variable	Mean(SD)		df	t	p	d
	Chinese(n=194)	Thai(n=188)				
FTP	3.549(.502)	3.634(.048)	380	-10.143	.000	.462
Value	4.060（.072）	4.068(.497)	380	-2.218	.027	.113
Extension	3.589(.829)	4.085(.583)	380	-6.777	.000	.327
Speed	3.064(.093)	4.043(.608)	380	-12.211	.000	.528
Connection	3.814(.815)	3.989(.786)	380	-2.134	.033	.109
Academic delay of gratification	2.745（.724）	4.021(.1.228)	380	-12.421	.000	.537

In conclusion, there is a significant difference between Chinese and Thai students in their future time perspectives (t= -10.143， p<0.000). The differences extend to the four dimensions of time perspectives, namely value (t= -2.218，p=0.027), extension (t= -6.777， p<0.000), speed (t= -12.211， p<0.000), and connection (t= -2.134，p=0.033). There is also a significant difference between Chinese students and Thai students in the t-test results for academic delay of gratification. t(380)= -12.421，p<0.000).

4.3 Correlations between future time perspectives and academic delay of gratification among Chinese and Thai college students (Analysis of research question 3)

Statistically, the relationship between two continuous variables is usually assessed in terms of linear correlations. This study uses the Person correlation coefficient to analyze whether there is a correlation between the future time perspectives and the academic delay of gratification among students from China and from Thailand. According to Qiu Haozheng (2013), when the correlation coefficient (r value) is 0, it means no correlation between variables; when the absolute value of the coefficient <0.1, it indicates weak correlation; when 0.1 <= r <0.4, it indicates low correlation; 0.4 <= r value <0.7 indicates moderate correlation; 0.7 <= r value <1.0 means high correlation; and r value = 0.1 means full correlation.

4.3.1 Correlations between the future time perspectives and academic delay of gratification of Chinese students

It can be found in the results in Table 4.11, there is a moderate to low positive correlation between value and extension ($r = 0.043$, $p < 0.000$), value and connection ($r = 0.394$, $p < 0.000$), value and academic delay of gratification ($r = 0.181$, $p = 0.013$), extension and connection ($r = 0.283$, $p < 0.000$), extension and academic delay of gratification ($r = 0.417$, $p < 0.000$), and connection and academic delay of gratification ($r = 0.306$, $p < 0.000$). Low negative correlation exists between speed and academic delay of gratification ($r = -0.171$, $p = 0.018$). There is no significant correlation between value and speed ($r = -0.075$, $p = 0.303$), extension and speed ($r = -0.083$, $p = 0.255$), speed and connection ($r = 0.069$, $p = 0.343$).

It can thus be concluded that there is a correlation between the various dimensions of future time perspectives of Chinese college students and their academic delay of gratification, where students' perception of temporal value, extension, and connection are positively correlated to their delay of gratification and their perception of time speed is negatively correlated to the academic delay of gratification.

Table 4. 11 Correlations between the future time perspectives and academic delay of gratification of Chinese students

Factor	1	2	3	4	5
1 Value	1				
2 Extension	.403***	1			
3 Speed	-.075	-.083	1		
4 Connection	.394***	.283***	.069	1	

5Academic delay of gratific ation	.181*	.417***	-.171*	.306***	1

Note: *p<0.05; **p<0.01; ***p<0.001

4.3.1 Correlations between the future time perspectives and academic delay of gratification of Thai students

According to Table 4.12, moderate to low correlations can be found between value and extension (r =0.526, p<0.000), value and speed (r =0.302, p<0.000), value and connection (r =0.449, p<0.000), value and academic delay of gratification (r =0.153, p=0.034), extension and speed (r =0.488, p<0.000),extension and connection (r =0.451, p<0.000), extension and connection (r =0.184, p=0.011), speed and connection (r =0.427, p<0.000), connection and academic delay of gratification (r =0.218, p=0.002). No correlation exists between speed and academic delay of gratification (r=0.81, p=0.266).

It can thus be concluded that there is a correlation between Thai students' perception of temporal value, extension, and connection and their academic delay of gratification. But no correlation can be found between their perception of time speed and their delay of gratification.

Table 4. 12 Correlations between the future time perspectives and academic delay of gratification of Thai students

Factor	1	2	3	4	5
1 Value	1				
2 Extension	.526***	1			
3 Speed	.301***	.488***	1		
4 Connection	.449***	.451***	.427***	1	

5 Academic delay of gratification	.153*	.184*	.081	.218**	1

Note: *p<0.05; **p<0.01; ***p<0.001

4.4 Structural equation model analysis of future time perspective and academic delay of gratification of Chinese and Thai university students

4.4.1 Structural equation model for the relationship between future time perspective and academic delay of gratification (Chinese universities)

This study examined whether future time perspective and delay of gratification were correlated according to a structural model. Specifically, this involved analyzing the degree of adaptation between the potential variable path and empirical data on both future time perspective and academic delay of gratification among Chinese university students. As shown in Figure 4.1, the chi-square value of model's the overall adaptation degree was 235.62 (p <. 000), while the degree of freedom was 125, and the chi-square freedom ratio was 1.89 (RMESA = 0.07, PGFI = 0.65, PNFI = 0.66, PCFI = 0.73); all achieved the adaptation standard. Other adaptation degree indexes also met or were close to the adaptation standard. Overall, the model was considered sufficient for studying the sample data.

Table 4. 13 Adaptation indexes for the future time perspectives and academic delay of gratification of Chinese college students

Tested value	Fit standards	Test results	Model fit
df		125	
Absolute fit index			
χ2	P>0.05	235.618	Fit
RMR	<0.05	.065	Not fit
RMSEA	<0.08	.069	Fit
SRMR	<0.05	.068	Not fit
GFI	>0.90	.883	Not fit
GFI	>0.90	.840	Not fit
CN	>200	132	Not fit
χ2/df	1-5	1.885	Fit
Incremental fit index			
NFI	>0.90	.807	Not fit
RFI	>0.90	.764	Not fit
IFI	>0.90	.899	Not fit
TLI	>0.90	.873	Not fit
CFI	>0.90	.897	Not fit
Simple fit index			
PGFI	>0.50	.645	Fit
PNFI	>0.50	.660	Fit
PCFI	>0.50	.733	Fit

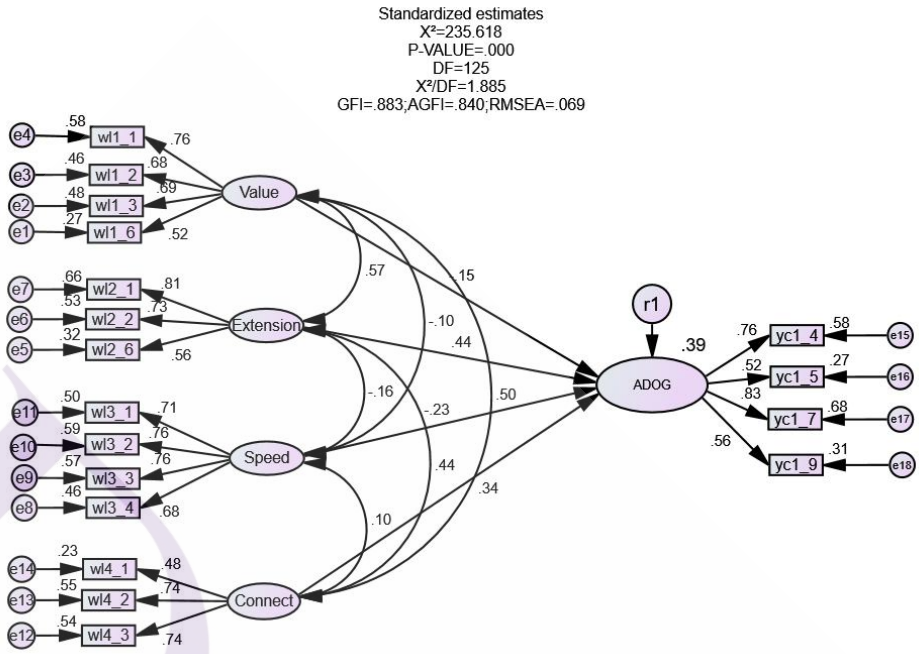

Figure 4. 1 Structural equation model analysis of future time perspective and academic delay of gratification of Chinese and Thai university students

A model parameter estimation summary can be seen in Table 4.14. The estimated values of variance were all positive, thus indicating that no unreasonable solution appeared in the model estimation. According to the observation of variable factors of load (standardized path coefficient), the composite reliability of every potential variable and value of the average variance of the amount taken could be estimated respectively (i.e., value (AVE = 0.45, CR = 0.76), extensibility (AVE = 0.50, CR = 0.75), haste (AVE = 0.53, CR = 0.82), connectivity (AVE = 0.44, CR = 0.70), and academic delay of gratification (AVE = 0.46, CR = 0.77)). This indicated that the observed variables were well-explained by the structural variables. That is, the

observed variables converged with particular structural variables. The above data analysis shows that the causal relationship influenced by potential variables in the structural model conformed to the theoretical construct.

The SEM analysis results revealed no significant relationship between the value dimension of future time perspective and academic delay of gratification (β= 0.15, p = 0.212) among Chinese university students. However, there were significant differences between academic delay of gratification and other dimensions, including extensibility (β= 0.44, p = 0.001), haste (β = 0.23, p = 0.009), and connectivity (β = 2.86, p = 0.004). As such, extensibility and connectivity both had positive impacts on the academic delay of gratification, while haste had a negative impact.

Table 4. 14 Model parameter estimation summary on the impact path of future time perspective on the academic delay of gratification among Chinese university students

	S.E.	C.R.	Standardized Regression Weights
Value→Academic Delay of Gratification	0.19	-1.25	-0.15
Extension→Academic Delay of Gratification	0.17	3.41***	0.44
Speed→Academic Delay of Gratification	0.09	-2.62**	-0.23
Connection→Academic Delay of Gratification	0.12	2.86**	2.86

p<.01.*p<.001

4.4.2 Structural equation model analysis of future time perspective and academic delay of gratification among Thai university students

Structural equation model analysis of future time perspective and academic delay of gratification among Thai university students

This study examined whether future time perspective and delay of gratification were correlated and established a structural equation model of the relationship between the two variables to analyze the adaptation degree between the potential variable path and empirical data among Thai university students. As shown in Figure 4.2, the chi-square value of the overall adaptation degree of the model was 615.70 ($p<.000$), while the degree of freedom was 367, and the chi-square degree of freedom was 1.68 (RMR=0.04, RMSEA=0.06, IFI=0.92, TLI=0.91, CFI=0.92, PGFI=0.70, PNFI=0.73, PCFI=0.83). As such, all factors met the adaptation standard; other adaptation degree indexes also meet or were close to the adaptation standard. Overall, the model was well-adapted to the sample data.

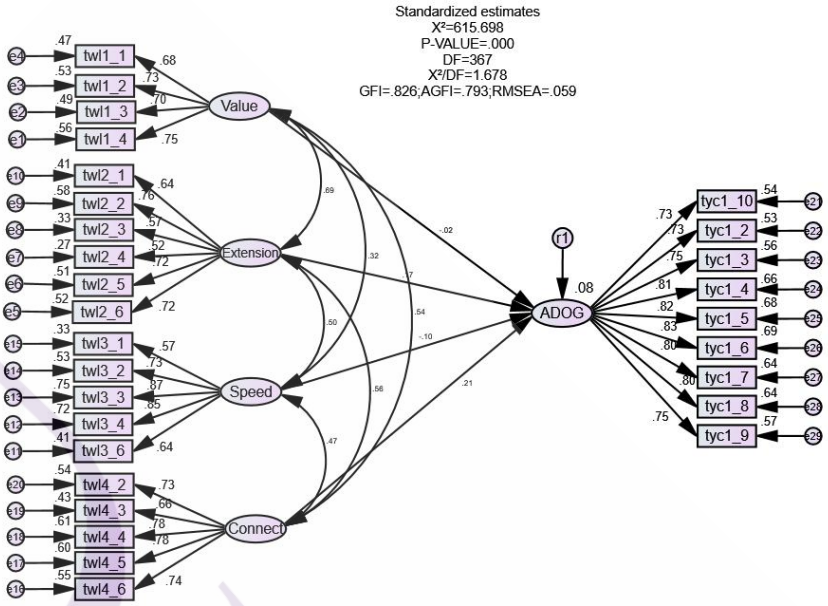

Figure 4. 2 Structural equation model of future time perspective and academic delay of gratification of Thai university students

Table 4. 15 Fit indexes for the future time perspectives and academic delay of gratification of Thai college students

Tested value	Fit standards	Test results	Model fit
df		367	
Absolute fit index			
$\chi 2$	P>0.05	615.698	Fit
RMR	<0.05	.042	Fit
RMSEA	<0.08	.059	Fit
SRMR	<0.05	.059	Not fit
GFI	>0.90	.826	Not fit
GFI	>0.90	.793	Not fit
CN	>200	136	Not fit
$\chi 2$/df	1-5	1.678	Fit
Incremental fit index			
NFI	>0.90	.815	Not fit
RFI	>0.90	.795	Not fit
IFI	>0.90	.916	Fit
TLI	>0.90	.906	Fit
CFI	>0.90	.915	Fit
Simple fit index			
PGFI	>0.50	.697	Fit
PNFI	>0.50	.737	Fit
PCFI	>0.50	.827	Fit

A model parameter estimation summary can be seen in Table 4.16. The estimated costs of variance were all positive, thus indicating that no absurd solution appeared in the model estimation. According to the observation of variable factors of load (standardized path coefficient), the composite reliability of every potential variable and value of the average variance of the amount taken could be estimated respectively (i.e., value (AVE=0.51, CR=0.81), extensibility (AVE=0.44, CR=0.82), haste (AVE=0.55, CR=0.86), connectivity (AVE=0.55, CR=0.86), and academic delay of gratification (AVE=0.61, CR=0.93)), thus indicating that the observed variables of the measurement model were well-explained by the structure variables. That is, the

observed variables converged with particular structural variables. The above data analysis shows that the causal relationship influenced by potential variables in the structure model conformed to the theoretical construct.

The SEM analysis results indicated no significant relationship between the dimensions of value (β=-0.02,p=0.857), extensibility (β=0.17,p=0.238), haste (β=-0.10,p=0.301), connectivity (β=0.21,p=0.055), and academic delay of gratification. That is, none of the future time perspective dimensions had significant impacts on the academic delay of gratification among Thai university students. This may be due to the specific Buddhist values held by Thai university students (Root, 2016).

Table 4. 16 Model parameter estimation summary of the impact path of future time perspective on the academic delay of gratification among Thai university students

	S.E.	C.R.	Standardized Regression Weights
Value→Academic Delay of Gratification	0.17	-0.18	-0.02
Extension→Academic Delay of Gratification	0.19	1.18	0.17
Speed→Academic Delay of Gratification	0.15	-1.03	-0.10
Connection→Academic Delay of Gratification	0.15	1.92	0.21

Through the above construction of the structural equation model for the future time perspective and academic delay of gratification among Chinese and Thai students, it shows that the future time perspective has an impact on the academic delay gratification among Chinese university students, hypotheses H1 was verified. The future time perspective has no effect on academic delay gratification among Thai university students, hypotheses H2 was not been verified.

Chapter 5

DISCUSSIONS

5.1 Main research findings

The following findings can be identified through the statistical analysis as elaborated in Chapter 4. See Table 5.1:

Table 5. 1 Test results of research hypotheses

Research hypotheses	Test results
H1: Significant differences exist in the future time perspectives of Chinese and Thai students under all background variables	Partially true
H1a: Significant differences exist in the future time perspectives of Chinese students of different genders	Not true
H1b: Significant differences exist in the future time perspectives of Chinese students of different disciplines	Not true
H1c: Significant differences exist in the future time perspectives of Chinese students of different years of study	True
H1d: Significant differences exist in the future time perspectives of Thai students of different genders	Not true
H1e: Significant differences exist in the future time perspectives of Thai students of different disciplines	True
H1f: Significant differences exist in the future time perspectives of Thai students of different years of study	True
H2: Significant differences exist in the academic delay of gratification of Chinese and Thai students under all background variables	Partially true
H2a: Significant differences exist in the academic delay of gratification of Chinese students of different genders	Not true
H2b: Significant differences exist in the academic delay of gratification of Chinese students of different disciplines	True
H2c: Significant differences exist in the academic delay of gratification of Chinese students of different years of study	Not true
H2d: Significant differences exist in the academic delay of gratification of Thai students of different genders	Not true
H2e: Significant differences exist in the academic delay of gratification of Thai students of different disciplines	Not true
H2f: Significant differences exist in the academic delay of gratification of Thai students of different years of study	Not true
H3: Future time perspectives have a significant effect on the academic delay of gratification for both Chinese and Thai students	Partially true
H3a: Future time perspectives have a significant effect on the academic delay of gratification for both Chinese students	True
H3b: Future time perspectives have a significant effect on the academic delay of gratification for Thai students	Not true

5.2 Differences between Chinese and Thai students in terms of their future time perspectives under the background variables

It is found there is no significant gender differences in both Chinese and Thai college students in terms of their future time perspectives, which contradicts with the findings of Lens (1975) who believed females tend to be more positive than males about their past, present and future. But this is consistent with the findings of Peetsma (2000), who pointed out gender is not a differentiating factor in terms of future time perspectives among teenagers. It is found in this study the gender differences among Chinese and Thai students when it comes to future time perspectives is not evident. This may be because college students, with the specialist skills they acquire through college education, have more career opportunities and options when planning for their lives and careers, which in turn help them to think beyond gender stereotypes and transform the traditional gender roles through self-actualization. Thus, their views towards the future tend to be removed from gender effects.

There is significant differences among Chinese students from different fields of study on this front. But such disciplinary differences exist in Thai students, where arts & humanities students have stronger future time perspectives than STEM students, which is consistent with Zhang (2012). This may be attributed to the different knowlege structures. Arts and humanities subjects tend to require students to think abstractly, which may cause them to think of time in a non-linear fashion and result in

stronger future time perspectives. Whereas STEM students tend to think logically and coherently, which may lead to them being less perceptive as to the future time.

There is a seniority difference among Chinese students, where seniors generally have stronger future time perspectives than sophomores. There is a seniority difference among Thai students, where seniors generally have stronger future time perspectives than juniors. This diverges from the conclusions of Husman (2000), who believed sophomores generally have the strongest sense of the future and seniors have the weakest. But this in line with Huang (2012). That seniors generally have stronger future time perspectives than sophomores and juniors may be because seniors feels the constraints of time more strongly as their academic lives approach an end and they are about to enter the job market and start a new chapter in their lives. It is at this point of individuals' lives that they are more likely to review their past and think about the future. So naturally, seniors would be more likely perceive the future time stronger.

5.3 Differences between Chinese and Thai students in terms of academic delay of gratification under the background variables

There is no significant gender-based difference among both Chinese and Thai students in terms of academic delay of gratification, which is not in line with Bjorklund & Kipp (1996) who claimed females are more in control of their emotions and more able to resist temptations and delay their gratification. But Silverman (2003),

through literature review and meta-analysis, concluded gender difference is relatively small in terms of delay of gratification, if not at all non-existent. This is in line with the findings there. Maybe gender roles are the impacting factors here. Both boys and girls are taught to be independent, responsible, motivated and tough growing up. These expectations towards both genders could help develop equally strong capacity of gratification delay.

There is a significant disciplinary difference among Chinese students, where STEM students have more capacity to delay their gratification. A possible explanation is STEM disciplines tend to be more practical with more tangible subjects of study, which could cause students to focus on the future temporal field and have more capacity to delay their gratification. There is no disciplinary difference among Thai students from arts & humanities students and STEM subjects in terms of their academic delay of gratification, which is consistent with the findings of Chen Wen (2014). It is possibly caused by the fact that there is not a clear division between arts & humanities subjects and STEM subjects in college, compounded by the fact that academic delay of gratification is a general measurement of the students capacity to delay gratification academically, rather than the measurement of such capacities on a single subject. The questionnaire used is not particularly oriented towards STEM subjects nor arts & humanities subjects either.

There is no seniority difference among Chinese and Thai students. This is not consistent with the findings of Liu (2010). According to Liu, the progression of the

academic delay of gratification among college students show a reversed u-shape tendency, where freshmen tend to show higher delay, and the capacity tends to go down during sophomore and junior years and go up again in senior years. Ward (1989) pointed out, the capacity of delay of gratification is field bound, meaning such capacity may vary with different scenarios. College students have highly flexible schedules, where different kind of activities fit in according to the year of study and the subject of study. Thus, the academic delay of gratification among college students tend to be dependent on the scenarios. At the beginning of the year, when the coursework load is relatively light and the classes are progressing relatively slowly, the academic demand is low and the free time is abundant for the students, which may make them more susceptible to the temptations such as entertainment and more prone to choose instant gratification. Whereas at the end of the year, all students need to take either final examinations or, in the case of seniors, need to face the pressure of preparing for further studies or job hunts. At this time, students would gradually learn to prioritize their academic needs and resist temptations and impulsive needs and therefore delay their gratification. This may be the reason why no significant differences exist in the academic gratification among students of different disciplines and years of study.

5.4 The impact of future time perspective of Chinese and Thai university students on academic delay of gratification

The above theoretical discussion and research concepts were used to create structural equation models establishing a relationship between future time perspective and academic delay of gratification among university students. A path analysis was also conducted to explore the internal relations between the two variables. There were several other significant findings.

First, the value dimensions of future time perspective and academic delay of gratification among Chinese university students were not significantly correlated. This may be because these students felt increasingly good about the status quo, the higher they valued their scheduled time. As such, they did not pay substantial amounts of attention to delay of gratification (Zimbardo & Boyd 2015). However, the factors of extensibility and connectivity were positively correlated with a delay of gratification. That is, students who were extensibility- and connectivity-oriented usually felt that future time was limited and thus had a clearer understanding of long-term learning goals, paid more attention to a future time, and restrained the impulse to receive immediate enjoyment to achieve long-term learning aims (Mello & Worrell 2015). On the other hand, the dimension of haste was negatively correlated with a delay of gratification. In other words, the slower the perceptual period, the time of the student, the higher their confidence in future achievement. As such, they approach the future with full expectations and understand both the value and significance of their goals.

This helps them postpone enjoyment to realize more valuable long-term learning aims (Eccles & Wigfield 2002).

There were no significant correlations between all dimensions of future time perspective and delay of gratification among Thai university students, thereby distinguishing them from Chinese university students in this regard. This may be because Thai university students are more influenced by Buddhist values (Wen, 2012). Thai Buddhism believes that the status and destiny of human beings in this life are determined by the accumulation of karma in the previous experience. What human beings do in this life cannot change the current fate and status, only affect the next life. People who have wealth or power in this life are all caused by the extremely high "karma accumulation" in the previous experience, so the public can only identify with what these people have, and do good deeds to accumulate virtue to strive for the next life. This has resulted in the Thai people's thinking mode of being aloof from the rest of the world, being happy to know what they want, and even not seeking progress. Reflected in the learning culture of Thai college students, it has formed a view of time that attaches great importance to the future, but the study lacks hard work. At the same time, under this way of thinking, the sense of honor brought by competition and winning is not of high value. Meanwhile, the Thai educational system is relatively comprehensive and rich; vocational education is specially developed, thus providing more choices for future development while reducing the pressure to find employment (Root, 2016). As such, Thai students tend to focus on developing survival skills and

personal interests rather than work or more advanced education. At the same time, the decrease mentioned above in the pressure to find employment results in less study pressure, thus leading to a lack of hard work and practice as well as undisciplined study attitudes (Pongsuwan, Boddy, Woods, & Balthip, 2016). Therefore, although Thai college students attach importance to the future time perspective, due to the lack of employment pressure, learning pressure, and competitive awareness, the future time perspective of Thai college students have no significant impact on the academic delay of gratification.

The above analyses and discussions on the internal relationships between the two variables have further deepened the literature on both future time perspectives (Kauffman & Husman 2004) and academic delay of gratification (Bembenutty & Karabenick 1998). These results can be used by government sources to design relevant macroscopic educational guidance policies to help university students establish better future time perspectives and improve their abilities to delay gratification in the academic context. The same findings should also be relevant to those working in student affairs while providing practical guidance for universities in training international students in both areas.

Chapter 6

CONCLUSION

6.1 Conclusion

The present study uses the future time perspective scale to evaluate the current situation of the future time perspective of Chinese and Thai university students. The results show that the future time perspective of Chinese and Thai university students show a positive performance and the scale can predict and help the students plan the future. The average score of items in the four subscales of future time perspective of all the Chinese and Thai university students is 3.064-4.085. Object students range from "normal" to "basically congruent". It can be seen that Chinese and Thai university students often think of the content and the distance of long-term goals, attach great importance to their goals, and think their future goals are very important. As Gjesme (1983) put it, future time perspective is the searchlight of one's life. Imagining the process of realizing one's dream makes one feel meaningful and satisfied. Therefore, attaching importance to the value of future goals can make one hold a positive attitude towards the future. The relationship between future time perspective and academic work has always been the focus of researchers. A clear learning plan enables university students to set learning goals in the stage of

university and develop relevant abilities and knowledge step by step. At the same time, university students who have a better future time perspective have a higher willingness to participate in the current courses and will also actively participate in the learning tasks (Peetsma, 2000). When learners have a strong future time perspective, individuals are more likely to find or value success in current tasks as beneficial to future goals（Miller & Brickman, 2004）. This study shows that the concept of future time plays an important role in the learning stage of university students, which can guide them to find the direction and delay the gratification of current hedonistic behaviors for sake of the realization of their future goals. Entering the workplace after graduation from university is a key milestone in life stage. If students can plan their career blueprint in this stage, and grasp every minute of the current stage to enrich themselves, they will have great chance to realize their goals.

The study of delay of gratification is a new perspective in the field of delay of gratification. This study is conducive to understand and explain students' behaviors in learning situations. This study shows that Chinese university students' future time perspective has a significant impact on academic delay of gratification. The higher one's future time perspective is, the later the one can delay the gratification at the present stage. This is in order to seek the gratification of the final goal, which has an important influence on personal self-realization. The future time perspective doesn't have significant impact on academic delay of gratification. There is significant difference in future time perspective and academic delay of gratification of Chinese

and Thai university students. Zhao (2008) points out that the concept of future time perspective is the result of a variety of social factors. One of the important influencing factors is the individual's social and cultural background. Therefore, future time perspective and delay of gratification of Chinese and Thai university students are influenced by cultural differences.

To sum up, this study enriched the concept of future time perspective and academic delay of gratification of Chinese and Thai university students under the cross-cultural background. The present study enriches consolidate the theoretical foundation of future time perspective and academic delay of gratification. The results have significance to Chinese and Thai university students' psychological health education, and provides a reference for the teaching work in the future.

6.2 Suggestions

Future time perspective reflects an individual's cognition, experience and behavior about the future. Its forming shapes provides individuals with the chance to shape his own fate (Gielnik, Zacher, & Wang, 2018). Therefore, it can help the individual to adapt to the society and the development. It helps them to set up goals according to expectations and reality to enhance the capacity of academic delay of gratification. Eventually, they develop their self-control ability in their academic work, improve the academic level of delay of gratification, and strive for better development

chance. Specific suggestions are presented as follows:

1. Enhance student awareness of the future time perspective to facilitate the establishment of positive academic aims.

On the one hand, universities should help students reorient their future visions, guide them toward future orientations, clarify appropriate academic directions, and enhance their confidence and courage in achieving goals. On the other hand, the concept of definite academic aim not only refers to positive tropism but more importantly, involves how proper academic purposes can be used to achieve future goals through current actions. Academic purposes should be established to help university students conform to the status quo while motivating their desire for achievement to effectively improve their ability to delay gratification in the academic context.

2. Provide a clear image of the future time perspective and encourage university students to establish appropriate development plans

Detailed future development plans help university students obtain brighter visions of the future, understand the necessary steps needed to reach their goals, and decide what specific tasks they must accomplish at each level. Such plans can also be used as reference points for effectively monitoring progress. Some universities have already begun to offer development planning courses to help students establish plans. However, professional development planning guidance centers staffed by full-time teachers can provide even better-planning consultation services to students. This will improve the overall quality of the university planning process, which will then help

students delay gratification.

3. Improve student behavioral commitments to future time perspectives and guide them in developing time-management strategies and skills.

One of the most common problems encountered when enacting academic aims and plans is finding a way to give appropriate consideration to all parties while making sufficient use of limited time resources. As such, university students must be guided in obtaining efficient time-management strategies and skills (e.g., keeping task-time logs, classifying and sorting tasks, establishing completion deadlines, and implementing tasks according to strict plans). These elements will help students make scientific time decisions while improving their ability to delay gratification when conflicts arise that threaten their long-term academic aims.

4. Attach importance to the future time perspetive of Thai university students and strengthen the connection between future time perspetive and academic delay of gratification.

The research results show that Thai university students can often think and value future goals and values, but the future time perspective does not have a significant impact on academic delay of gratification. Therefore, Thai students should be encouraged to think more about possible future events and plans, and encourage students to think about the current stage. Application and benefits of learning content and future goals. Once students agree that the current learning task is helpful for the future value, in addition to promoting the current willingness to participate in the

learning task, in the learning process, the impulse to instant satisfaction is also delayed in order to achieve longer-term future goals, or good results are obtained from it. Positive circulation, which in turn improves the ability to academic delay of gratification.

6.3 Research limitations and prospects

1. This study's investigation into Chinese and Thai university students employed a convenient sampling process. However, this process could not cover all regions of China and Thailand due to limited financial and material resources. As such, there is limited representativeness. Future studies should thus consider more scientific and rigorous sampling methods to improve both representativeness and external validity.

2. This research was mostly quantitative and used the questionnaire survey as a primary way to collect data. Further, all reviews were self-reported. This process is vulnerable to bias and, or misinformation because respondents may choose their answers based on self-expectations or social pressures. Future studies should thus implement scientific interviews or experiments to obtain qualitative data and improve internal validity.

3. This study only considered the background variables of gender, university major, grade level, and nationality. Additional demographic variables should be considered in future studies (e.g., family origins and homelife practices).

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APPENDICES

A Questionnaire on the Relationship between Chinese and Thai College Students' Outlook on Future Time and Academic Delay in Gratification

Dear classmate,

Hello! I am currently investigating "the Situation of Future Time Perspective and Academic Delay of Gratification between Chinese and Thai college students", and I would like to know your perspective through this questionnaire. The content of the questionnaire is for academic research only, and your personal information will be treated confidentially. Thank you for your support and cooperation, and wish you happy every day!

Part I: Personal Information (Please tick "√" where applicable)

Gender: 1. ☐Male 2. ☐Female

Discipline: 1. ☐Liberal Arts 2. ☐Science and Engineering

Nationality: 1. ☐Chinese 2. ☐Thai

Grade: 1. ☐freshman 2. ☐Sophomore 3. ☐Junior 4. ☐Senior

Part II: Questionnaire for Future Time Perspective (Please tick "√" before the number that matches your situation)

This section is to understand the actual situation of your future time perspective. The questionnaire is based on A Measurement of Future Time Perspective compiled by Jenefer Husman and Duane F.Shell in 2008. "1" indicates definitely disagree; "2" indicates slightly disagree; "3" indicates neither agree nor disagree; "4" indicates slightly agree; and "5" indicates definitely agree.

Table of Future Time Perspective					
Question	1	2	3	4	5
1. I think my future goals are valuable.	1	2	3	4	5
2. My life will be more meaningful if I can achieve my future goals.	1	2	3	4	5
3. I value my future goals.	1	2	3	4	5
4. I am willing to sacrifice the present to achieve my future goals.	1	2	3	4	5
5. I think future success is more important than happiness now.	1	2	3	4	5
6. If hard work at present can get me my future success, I think it is worthy.	1	2	3	4	5
7. I plan for long-term future goals.	1	2	3	4	5

8. I started thinking about my future career goals a long time ago.	1	2	3	4	5
9. Half a year looks like a short period of time.	1	2	3	4	5
10. It feels like a long semester.	1	2	3	4	5
11. I often envision things in the distant future.	1	2	3	4	5
12. I will think forward.	1	2	3	4	5
13. I have trouble getting things done without deadlines. (Reverse question)	1	2	3	4	5
14. I will not start to do something unless I feel it is urgent. (Reverse question)	1	2	3	4	5
15. I often start doing things at the last minute. (Reverse question)	1	2	3	4	5
16. When I start thinking about doing things, it's usually too late. (Reverse question)	1	2	3	4	5
17. I will finish what I should do ahead of time. (Reverse question)	1	2	3	4	5
18. I'll do my job step by step. (Reverse question)	1	2	3	4	5

19. I know that it is difficult to achieve my future goals without hard working.	1	2	3	4	5
20. I think what I learn now will help in the future.	1	2	3	4	5
21. I know my efforts will not be wasted.	1	2	3	4	5
22. I hope that my future work is related to what I have learned.	1	2	3	4	5
23. I know how to work now to achieve my future goals.	1	2	3	4	5
24. Before making a decision, I will think about its impact on my future.	1	2	3	4	5

Part III: Questionnaire for Academic Delay of Gratification (Each question provides two scenarios, namely A and B. Please tick "√" before the number that matches your situation)

This section is to understand the actual situation of your academic delay of gratification. This questionnaire is based on the Academic Delayed Gratification Scale complied by Hefer Bembenutty and Karabenick in 1998. "1" indicates affirmative to choose A; "2" indicates possible to choose A; "3" indicates possible to choose B; and "4" indicates affirmative to choose B.

Question	1	2	3	4
1. A. Even if it will affect the exam tomorrow, you will still surf the Internet or watch your favorite TV show the night before the exam. B. Stay in the classroom to increase your chances of getting a good grade.	1	2	3	4
2. A. Your Classmate invite you to travel, you will skip class and travel you’re your classmate. B. Postpone the travel until the exam ends.	1	2	3	4
3. A. The exam is approaching, you still go to classmate party and only study when you have time. B. Study first and go to the party if you have time.	1	2	3	4

4. A. Play with your friends whenever you have time, and study only before the exam. B. In order to take the exam, you insist on studying every day. Only after completing the learning tasks, do you have time to play with friends.	1	2	3	4
5. A. In subject learning, you mostly focus on what you are interested, even if it is not advantageous for the exam. B. You will learn all the material related to every subject, whether you are interested or not, so as to increase the chance of getting good grades.	1	2	3	4
6. A. You will skip class and go out to play in good weather, and ask your classmates' help to take notes later. B. You will not be affected by good	1	2	3	4

weather, and will attend all classes, so as not to miss the anything taught by the teacher.				
7. A. You will play with friends first, and then spend some time in the evening to complete your homework that need to be submitted tomorrow. B. You will stay in the library for a whole day to ensure that you can submit the homework tomorrow.	1	2	3	4
8. A. You prefer to study in some busy places, even if you are easy to get distracted. B. You prefer to study in some quiet and less distracting places, so that you can study better.	1	2	3	4
9. A. You will do what you like to do after class, even if you don't fully	1	2	3	4

understand what the teacher said. B. You will stay after class or after school to ask the teacher questions that you don't understand.				
10. A. You tend to like funny teachers more, even if he or she is not very good in teaching or research. B. You tend to like teachers who are excellent in teaching or research, even if he or she is not so funny.	1	2	3	4

แบบสอบถามความสัมพันธ์ระหว่างแนวคิดในเรื่องเวลาในอนาคต และความพอใจที่เป็นเหตุทำให้การเรียนล่าช้าของนักศึกษาจีน-ไทย

สวัสดีเพื่อนๆทุกคน : ข้าพเจ้า ได้ทำการวิจัยครั้งนี้มีวัตถุประสงค์เพื่อสอบถามความสัมพันธ์ระหว่างแนวคิดในเรื่องเวลาในอนาคตและความพอใจที่เป็นเหตุทำให้การเรียนล่าช้าของนักศึกษาจีน-ไทย โดยผ่านแบบสอบถามฉบับนี้เพื่อที่จะเข้าใจในความคิดเห็นของแต่บุคคลที่มีต่อหัวข้อในการทำการวิจัยในครั้งนี้ ข้อมูลทั้งหมดในแบบสอบถามใช้เพื่อการวิจัยเท่านั้น ข้อมูลทั้งหมดที่ว่ามานี้ จะไม่มีการเผยแพร่ใดๆทั้งสิ้น ขอขอบคุณสำหรับความร่วมมือในครั้งนี้ ขอให้โชคดี ขอบคุณค่ะ

ส่วนที่1: ข้อมูลส่วนบุคคล (อิงตามสถานะปัจจุบัน เขียนเครื่องหมาย√ลงใน☐)

เพศ: ☐ชาย ☐หญิง

สาขาวิชา : _____(เขียนสาขาวิชาเป็นภาษาอังกฤษ)

สัญชาติ: ☐จีน ☐ไทย

ชั้นปี: ☐ ปี1 ☐ปี2 ☐ปี3 ☐ปี4

ส่วนที่2 : แบบสอบถามในหัวข้อวิจัย(อิงตามสถานะการณ์ปัจจุบัน เขียนเครื่องหมาย√ลงใน☐)

แบบสอบถามในหัวข้อนี้ทำขึ้นเพื่อที่จะเข้าใจความคิดของแต่ละบุคคลที่มีต่อเรื่อง"เวลาในอนาคต"แบบสอบถามนี้อิงตามหลักฐานของJenefer Husman&Duane F.Shell ที่ได้พิมพ์ใน ค.ศ.2008

1 คะแนน = ไม่สอดคล้องอย่างมาก

2 คะแนน= ไม่ค่อยสอดคล้อง

3 คะแนน = ไม่ค่อยแน่ใจ

4 คะแนน = ค่อนข้างสอดคล้อง

5 คะแนน = สอดคล้องอย่างมาก

未来时间观量表 ตารางเวลาอนาคต					
题目หัวข้อ	ไม่สอดคล้องอย่างมาก	ไม่ค่อยสอดคล้อง	ไม่ค่อยแน่ใจ	ค่อนข้างสอดคล้อง	สอดคล้องอย่างมาก
1.ฉันคิดว่าเป้าหมายในอนาคตของฉันมีคุณค่า	1	2	3	4	5
2.ชีวิตจะมีความหมายมากยิ่งขึ้นถ้าสามารถบรรลุเป้าหมายในอนาคตได้	1	2	3	4	5
3.ฉันให้ความสำคัญกับเป้าหมายในอนาคตของฉัน	1	2	3	4	5
4.ฉันยินยอมที่จะเสียสละปัจจุบันเพื่อเป้าหมายในอนาคต	1	2	3	4	5
5.ฉันคิดว่าความสำเร็จในอนาคตสำคัญกว่าความสุขปัจจุบัน	1	2	3	4	5
6.ถ้าความลำบากในปัจจุบันแลกได้ซึ่งความสำเร็จในอนาคต ฉันคิดว่ามันคุ้มค่า	1	2	3	4	5
7.ฉันวางแผนระยะไกลเพื่อเป้าหมายในอนาคต	1	2	3	4	5
8.ก่อนหน้านี้ ฉันเริ่มไตร่ตรองเกี่ยวกับเป้าหมายชีวิตในอนาคต ข้างหน้า	1	2	3	4	5
9.ดูเหมือนว่าระยะเวลาเพียงครึ่งปีเป็นช่วงเวลาที่สั้น	1	2	3	4	5
10.ระยะเวลา1ภาคเรียนการศึกษาเป็นระยะเวลาที่ยาวนาน	1	2	3	4	5
11.ฉันมักจะตั้งสมมติฐานเกี่ยวเรื่องที่จะเกิดขึ้นภายในอนาคตข้างหน้า	1	2	3	4	5
12.ฉันมักจะมีความคิดที่ยาวไกล	1	2	3	4	5
13.เรื่องที่ไร้ซึ่งขอบเขตฉันมักจะทำไม่สำเร็จ	1	2	3	4	5

(ปัญหาสะท้อน)					
14.ฉันคิดว่าบางเรื่องที่เร่งรีบ ฉันถึงจะเริ่มที่จะลงมือทำอย่างจริงจัง (ปัญหาสะท้อน)	1	2	3	4	5
15.ฉันมักจะเริ่มทำงานในนาทีสุดท้าย (ปัญหาสะท้อน)	1	2	3	4	5
16.ฉันมักจะลงมือทำงานที่ควรจะทำให้เสร็จก่อน เสมอ (ปัญหาสะท้อน)	1	2	3	4	5
17.ฉันมักจะลงมือทำงานที่ควรจะทำให้เสร็จก่อน เสมอ (ปัญหาสะท้อน)	1	2	3	4	5
18.ฉันมักจะทำงานตามลำดับขั้นตอน (ปัญหาสะท้อน)	1	2	3	4	5
19.ฉันเพิ่งรู้ว่าความไม่พยายามเป็นเรื่องยากที่จะสบความ สำเร็จในอนาคต	1	2	3	4	5
20.ฉันคิดว่าสิ่งที่ฉันได้เรียนรู้ในปัจจุบันประโยชน์ต่ออนาคต	1	2	3	4	5
21.ฉันรู้ว่าความพยายามของฉันจะไม่สูญเปล่า	1	2	3	4	5
22. ฉันหวังว่างานในอนาคตข้างหน้าเกี่ยวข้องกับสิ่งที่ฉัน เรียนมา	1	2	3	4	5
23.ฉันรู้ว่าจะต้องทำอย่างไรถึงประสบความสำเร็จในอนาคต	1	2	3	4	5
24.ก่อนที่จะตัดสินใจ ฉันจะคำนึงถึงผลกระทบที่มีผลต่อใน อนาคตเสมอ	1	2	3	4	5

ส่วนที่3： แบบสอบถามในหัวข้อ เหตุทำให้การเรียนล่าช้าของนักศึกษาจีน-ไทย ในแต่ละข้อจะมี การยกตัวอย่างเหตุการณ์ พร้อมกับตัวเลือก A และB (อิงตามสถานะการณ์ปัจจุบัน และเขียนเครื่องหมาย √ ในช่อง 1,2,3หรือ4) แบบสอบถามในหัวข้อนี้ทำขึ้นเพื่อที่จะเข้าใจความคิดของแต่ละบุคคล ที่มีต่อเรื่อง" เหตุทำให้การเรียนล่าช้าของนักศึกษาจีน-ไทย" แบบสอบถามนี้อิงตามหลักฐานของ Hefer Bembenutty & Karabenickที่ได้พิมพ์ใน ค.ศ.1998

1 คะแนน = เลือกข้อA แน่นอน

2 คะแนน= เลือกข้อA อาจจะ

3 คะแนน = เลือกข้อB อาจจะ

4 คะแนน = เลือกข้อB แน่นอน

学业延迟满足量表ตารางเหตุที่ทำให้การเรียนล่าช้า

题 目หัวข้อ	เลือกข้อA แน่นอน	เลือกข้อ Aอาจจะ	เลือกข้อB อาจจะ	เลือกข้อB แน่นอน
1Aถึงแม้รู้ว่ามีผลกระทบต่อการสอบในวันพรุ่งนี้ แต่คืนก่อนวันสอบคุณก็ยังคงดูหนังและเล่นอินเตอร์เน็ตอยู่ หรือ B อยู่ทบทวนบทเรียนในห้องเรียน เพื่อที่จะได้ผลคะแนนสอบที่ดีขึ้น	1	2	3	4
2Aเพื่อนชวนคุณไปเที่ยว คุณจะโดดเรียนไปเที่ยวกับเพื่อนหรือ B เลื่อนนัดเป็นหลังสอบเสร็จ	1	2	3	4

3Aวันสอบใกล้เข้ามาแล้ว คุณก็ยังไปพบปะสังสรรค์กับเพื่อน นอกจากจะมีเวลาเท่านั้นคุณถึงจะทบทวนบทเรียนหรือ B เลือกที่จะทบทวนบทเรียนก่อน ถ้ามีเวลาก็จะค่อยไปพบปะสังสรรค์กับเพื่อน	1	2	3	4
4Aเมื่อมีเวลาก็มักจะไปเที่ยวกับเพื่อนๆ เมื่อถึงเวลาใกล้สอบก็จะทบทวนบทเรียนในนาทีสุดท้ายหรือ B ยืนหยัดที่จะทบทวนบทเรียนทุกวันเพื่อการสอบ มีเพียงแค่ทบทวนบทเรียนเสร็จเรียบร้อยแล้วถึงจะไปเที่ยวกับเพื่อนได้	1	2	3	4
5Aในการทบทวนบทเรียน ฉันจะทบทวนแต่เฉพาะส่วนที่ตัวเองสนใจถึงแม้ว่าการทำแบบนี้เป็นสิ่งที่ไม่ดีต่อการสอบหรือ B ทบทวนข้อมูลทั้งหมด เพื่อโอกาสในการทำคะแนนสอบที่ดี ถึงแม้ว่าจะเป็นเนื้อหาที่ไม่น่าสนใจก็ตาม	1	2	3	4
6Aวันนี้อากาศสดใส รู้สึกอยากโดดเรียนไปเที่ยว แล้วค่อยกลับมาขอสมุดเลคเชอร์จากเพื่อนหรือ B อาการแจ่มใสไม่มีผลกระทบต่อการเข้าเรียนเพื่อที่จะไม่พลาดในเนื้อหาการสอนของอาจารย์	1	2	3	4
7Aออกไปเที่ยวกับเพื่อนๆก่อน หลังจากนั้นค่อยกลับมาทำการบ้านที่จะส่งในวันพรุ่งนี้ในช่วงตอนเย็นหรือ B จะอยู่ที่หอสมุดทั้งวันเพื่อให้แน่ใจว่ามีการบ้านส่งใน	1	2	3	4

วันพรุ่งนี้				
8Aชอบที่จะทบทวนบทเรียนในสถานที่ครึกครื้นถึงแม้ว่าจะเป็นการง่ายต่อการเบี่ยงเบนความสนใจแต่ฉันก็ไม่เป็นไรหรือ B ชอบที่จะทบทวนบทเรียนใน สถานที่เงียบ ไม่ครึกครื้น ทำให้มีสมาธิในการทบทวน บทเรียนมากขึ้น	1	2	3	4
9A พอเลิกเรียนก็ไปทำในสิ่งที่ตนเองชอบ ถึงแม้ว่าจะไม่เข้าในบทเรียนที่อาจารย์สอนก็ตามหรือB เมื่อเลิกเรียนก็อยู่รออาจารย์เพื่อที่จะถามเกี่ยวเนื้อหาในการสอบที่ไม่เข้าใจ	1	2	3	4
10Aมีแนวโน้มที่จะพึงพอใจในอาจารย์ถึงแม้ว่าอาจารย์จะไม่มีความโดดเด่นในวิชาการสอนนั้นๆ หรือB มีแนวโน้มความพึงพอใจในอาจารย์ที่โดดเด่นในวิชานั้นๆ ถึงแม้ว่าอาจารย์จะไม่มีความโดดเด่นเฉพาะตัว	1	2	3	4