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THE RELATIONSHIPS AMONG SELF-EFFICACY, ACHIEVEMENT MOTIVATION,
AND WORK VALUES FOR REGULAR FOUR-YEAR UNIVERSITY STUDENTS
AND COMMUNITY COLLEGE STUDENTS IN CHINA

BY

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DISSERTATION

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ABSTRACT

This study investigated the relationships among self-efficacy, achievement motivation, and work values for both regular four-year university students and community college students in China. Self-efficacy and achievement motivation were independent variables measured by Wang's (1999) Self-Efficacy Inventory (SEI) and Ye and Hagtvet's (1992) Achievement Motivation Scale (AMS), respectively. The dependent variable was work values measured by Jin and Li's (2005) Work Values Scale (WVS). A total of 384 students participated in this study, 186 from a regular four-year university and 198 from a community college in Beijing, China.

For the comparison between the two types of institutions, results showed that community college students had lower levels of self-efficacy, higher levels of motivation to avoid failure, and lower intentional work values than regular four-year university students. For the relationship among the three variables, results indicated that: (1) Students with higher levels of self-efficacy focused more on intentional work values including family, status, achievement, and social improvement; (2) Students with higher levels of motivation to achieve success focused more on intentional work values and students with higher levels of motivation to avoid failure focused more on instrumental work values; (3) Students with higher levels of self-efficacy had higher levels of overall achievement motivation and motivation to achieve success but lower levels of motivation

to avoid failure; and (4) Institution type had a mediation effect in the relationship between self-efficacy and the first factor of the instrumental work values, stability.

This study was an attempt to focus on community college students as well as regular four-year university students. Detailed results and implications to career development of college students, especially community college students, in the China's background of economic development were discussed.

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CHAPTER ONE

INTRODUCTION

According to the employment report on Chinese college graduates published by the

Chinese Academy of Social Sciences (CASS), 10.4% of the 6.3 million college graduates

from regular higher education institutions (HEIs) in 2010 are still unemployed six months

after graduation (MyCOS Institute, 2011). In the meantime, it was estimated that there

would be 6.6 million new college graduates in 2011. Although the Chinese labor market

generates millions of new job vacancies every year, most of them are in manufacturing

and require only low-level qualifications. That is to say, in 2011, more than 7 million

college graduates from regular HEIs are competing for limited job vacancies that are

available and acceptable for fresh college graduates. This serious situation has not only

posed severe challenges to the job market but also raised attention to graduate

unemployment in China. It might have been caused by three main reasons: The rapidly

increasing enrollments in regular HEIs, the mismatch between the training those

graduates have received and the requirements of the opening positions, and the recent

global financial crisis that has damaged China's export sectors.

There are two types of HEIs in China: The regular HEIs that admit senior high

school graduates who meet certain criteria on the annual National College Entrance

Examination (NCEE) and the adult HEIs that admit students who have a variety of educational backgrounds and pass the annual National Adult College Entrance Examination (NACEE). Since 1999, the Chinese government has started to expand the enrollment in the regular HEIs by 30% annually, which gives more and more high school graduates the opportunity to enter the regular HEIs. However, the job market for college graduates is not expanding as quickly as the enrollment. In other words, China has been having difficulty providing enough job vacancies by the time they graduate. Unfortunately, the serious situation in job market has influenced not only students attending regular HEIs but also those attending adult HEIs.

In the past, people usually attended adult HEIs in order to update their knowledge and, most importantly, obtain the diploma that may increase their competitive power in the job market. Specifically, those who have earned a diploma from secondary vocational/technical or senior high schools may pursue an associate's degree at adult HEIs whereas those who have obtained an associate's degree from regular or adult HEIs may pursue a bachelor's degree at adult HEIs. Although their professional experiences are diverse, i.e., they may be currently employed, self-employed, or unemployed, they all attend adult HEIs to well prepare themselves for a good move in their career, including getting a promotion on their current job or getting a new job. Unfortunately, their plan has been severely challenged by the enlarged enrollment in regular HEIs and the serious graduate unemployment in current job market. While more and more fresh college

graduates with the academic degrees from regular HEIs are struggling to find a job,

having a diploma or degree from adult HEIs may not increase their competitive power as

much as they expected. This has posed a severe challenge to the adult higher education in

China. Students need to think about what type of education and training would be most

helpful for them to achieve their career goals. Professional educators at adult HEIs need

to think about how they can better help their students compete with graduates from

regular HEIs. Policymakers need to re-consider the future direction of adult HEIs in

China (Du & Zeng, 2008; Qin, 2006; Shao, 2010; Sun, 2009).

Among all types of adult HEIs in China, community colleges play an increasingly

important role in China's adult higher education. Compared to the community colleges in

Western countries, the history of Chinese community colleges is shorter but unique. The

term "community college" is fairly new in China but some vocational and technical

colleges have been functioning as community colleges for decades. In 1980s, those

vocational and technical colleges provided continuing education programs to fill the

"gap" caused by the ten-year Cultural Revolution from 1966 to 1976 when almost all

schools, colleges, and universities were shut down. In 1994, the first formal community

college of China was founded in Shanghai (Chinese Community Education, 2007).

Thereafter, more and more local (cities and counties) governments started to build

community colleges to provide higher education, vocational and technical education, and

social and cultural education to community residents and other groups. Although the

Chinese government has increased the enrollment in regular HEIs since 1999, a variety of people still received higher education in community colleges. Some of them graduated from regular senior high schools and took the annual National College Entrance Examination (NCEE) but they failed and lost the opportunity to enter regular HEIs. Some of them received secondary education from secondary vocational and technical schools which did not entitle them to take the NCEE and enter regular HEIs. Others have to work and attend adult HEIs in their spare time due to their personal or family reasons.

Previous studies showed that community college students in China are facing a highly competitive labor market due to the Chinese booming economy and socioeconomic transition (Chen, 2008; Liu, 2001; Xu, et al., 2008) and they have negative mental state due to the serious situation in the job market (Liu, 2001; Xu, 2008; Xu, et al., 2008). Furthermore, these students have conflict between the traditional values from the old planned economy and the new values (more individualistic and capitalistic) from the socioeconomic transition (Chen, 2008; Shi, 2008; Xu, et al., 2008) and they do not have correct self-recognition or self-judgment (Mao, 2008; Rao, 2008). In addition, they do not realize or understand the importance of career planning and development (Mao, 2008; Mao & Teng, 2009; Rao, 2008; Shi, 2008) and there are not enough career services in community colleges that can provide career-related counseling to help students achieve their career goals (Lang, 2009; Mao & Teng, 2009; Qi & Pang, 2008).

Under this challenging and serious situation in China, we investigated the

relationships among self-efficacy, achievement motivation, and work values of the

students in both regular and adult HEIs in China. In particular, we focused our research

on the most common type of regular HEIs, the regular four-year universities, and the

most rapidly developing type of adult HEIs, the community colleges.

Problem Statement

Career development is one of the three areas of the human resource development

(HRD) practice (McLagan, 1989). However, in both research and practice, HRD has

increasingly focused on the other two areas, training and development and organization

development, as its primary areas and paid much less attention on career development

than on the other two areas (Swanson & Holton, 2009). This is because of the failure to

ask and answer questions on career development and make connections between HRD-

and career-development-related theories, research, and practice (Egan, Upton, & Lynham,

2006).

There are many theories regarding career development. The Social Cognitive Career

Theory (SCCT), proposed by Lent, Brown, and Hackett (1994), is a famous theory in

career development. The SCCT derived from the Bandura's (1986) social cognitive

theory which argues that people's behavior is based on their beliefs about their

capabilities (self-efficacy) and their beliefs about the possible effects of their actions

(outcome expectations) (Bandura, 1986). In the SCCT theory, career interests are

influenced by self-efficacy and outcome expectations (Lent, Brown, & Hackett, 1994).

Lent, Brown, and Hackett (1996) further indicated that career interests and outcomes

were also influenced by values which functioned through outcome expectations. Bonitz,

et al. (2010) also addressed that work values were regarded as being embedded in the

outcome expectations which affected career interests. Work values are highly related to

career interests and they are important but are often neglected in career assessments

(Bonitz, et al., 2010). Other research also showed that the career planning and

development of students in both four-year universities and community colleges in the

United States would be influenced by self-efficacy (Betz, 2004; Brown, 2002; Giles &

Rea, 1999; Gloria & Hird, 1999; Gushue, et al., 2006; O'Brien, et al., 2000; Quimby &

O'Brien, 2004), achievement motivation (Jenkins, 1987), and work values (Bonitz, et al.,

2010; Brown, 2002).

Self-efficacy is one's personal perceptions, expectations, beliefs, and/or judgments

that he or she could successfully perform a given behavior, which strongly influences

people's behavior and behavior change (Bandura, 1977). Therefore, self-efficacy highly

affects student's academic performance. Besides self-efficacy, achievement motivation is

the other best predictor for student's academic performance (Robbins, et al., 2004; Turner,

et al., 2009). Jenkins (1987) argued that achievement motivation predicted career

outcomes for women and there was a strong relationship between achievement

motivation and values. Other studies also indicated relationship between achievement

motivation and self-efficacy (e.g., Bartels, 2007; Nelson & DeBacker, 2008). Although

achievement motivation is not a construct in the SCCT theory proposed by Lent, Brown,

and Hackett (1994), it is important to investigate and further clarify the relationships

among achievement motivation, self-efficacy which is one main construct in the SCCT

theory, and work values which is considered to be embedded in outcome expectations.

Due to the economic development and the trend of globalization, the labor market in

China is becoming increasingly competitive, especially for college graduates both from

regular four-year universities and community colleges (MyCOS Institute, 2011). In

addition, China is under the economic transition from a planned economy to a market

economy and the employment pattern for college graduates has changed from the

guaranteed job assignments to the two-way selection. In the guaranteed job assignments

pattern which was used in the planned economy, college graduates would be assigned to

appropriate job positions according to their majors by the nation. However, in the

two-way selection pattern which is used in the market economy, the employer and the

prospective employee choose each other. Therefore, career planning and career

development is becoming more and more important for college graduates in China.

For Chinese college students in regular four-year universities, previous studies

showed that their career planning and development would be influenced by self-efficacy

(Kang & Wang, 2008; Lv, et al., 2008) and achievement motivation (Xue, et al., 2006). In

addition, some studies have indicated strong relationships between self-efficacy and

achievement motivation (Ji, et al., 2008; Li, et al., 2007; Ning & Qu, 2010; Qiu, 2008;

Tan, 2009; Wang & Xiao, 2010; Wang & Zhang, 2010; Xiao, 2003; Xue & Li, 2006;

Zhang, 2006; Zheng, Lian, & Huang, 2009), between self-efficacy and work values

(Zhuang & Lu, 2009), and between achievement motivation and work values (Meng,

2003; Zhang, 2010; Zhang & Lan, 2007; Zhang & Lan, 2007) for college students in the

Chinese context. Wang and Shi (2009) indicated that self-efficacy and achievement

motivation could be the predictors for career interests.

However, for the students in Chinese community colleges, very few empirical

studies have been conducted to investigate their career planning and career development.

Fu, Kuchinke, and Wan (2010) found that, in Chinese community colleges, students with

different levels of self-efficacy had different career goals and different career preparation

actions. They also pointed out that other factors might affect the career development of

community college students in China, such as achievement motivation and work values.

However, up to our knowledge, no studies have been done to examine the relationships

among self-efficacy, achievement motivation, and work values for community college

students in China. The findings of the research on the regular four-year universities

students may not be applicable to community college students, as these students may

have very different mental state (Xiang & Wang, 2005; Wang & Xiang, 2005; Zhang &

Ge, 2006). For instance, for those community college students who previously took the

NCEE but failed, they might feel unconfident about their learning abilities when they

compare themselves with the students who succeeded in the NCEE and entered regular

four-year universities. For another example, for those community college students who

have worked for years and then come back to school, they may also feel unconfident

about themselves as they have left school for many years and have to take care of their

study and work at the same time. All of these factors may influence community college

students' self-perception, emotions, achievement motivation, and work values but no

studies have compared them between Chinese students attending community colleges and

regular four-year universities.

Students in both regular and adult HEIs in China are facing the challenging and

serious situation that has been brought by the dramatic economic development and

transition. Meanwhile, they also are or will be the participants of the economic

development and transition. Their mental state, work values, and behaviors will affect

their performance in future and thus China's economic development and transition.

Therefore, the purpose of this study was to investigate the relationships among

self-efficacy, achievement motivation, and work values of students in both regular

four-year universities and community colleges in China.

Research Questions

This study focused on the relationships among self-efficacy, achievement motivation,

and work values of the students from both regular four-year universities and community

colleges in China. The research questions of this study are listed as follows.

Research Question 1: How is self-efficacy related to work values?

Research Question 2: How is achievement motivation related to work values?

Research Question 3: How is self-efficacy related to achievement motivation?

Research Question 4: What is the mediation effect of institution type in the

relationship between self-efficacy and work values?

Research Question 5: What is the mediation effect of institution type in the

relationship between achievement motivation and work values?

The hypotheses based on each research question are listed as follows.

Hypothesis 1 (H1)

Students with higher levels of self-efficacy also score higher on both intentional and

instrumental work values.

Hypothesis 2 (H2)

Students with different levels of achievement motivation have different work values.

Hypothesis 2a (H2a): Students with higher levels of motivation to achieve success

also score higher on intentional work values.

Hypothesis 2b (H2b): Students with higher levels of motivation to avoid failure also

score higher on instrumental work values.

Hypothesis 3 (H3)

Students with higher levels of self-efficacy have higher levels of achievement

motivation.

Hypothesis 3a (H3a): Students with higher levels of self-efficacy have higher levels of motivation to achieve success.

Hypothesis 3b (H3b): Students with higher levels of self-efficacy have lower levels of motivation to avoid failure.

Hypothesis 4 (H4)

Institution type has a strong mediation effect in the relationship between self-efficacy and work values.

Hypothesis 5 (H5)

Institution type has a strong mediation effect in the relationship between achievement motivation and work values.

Theoretical Framework

The theoretical framework of this study is described in Figure 1. This study investigated the relationships among self-efficacy, achievement motivation, and work values. Self-efficacy and work values (embedded in outcome expectations) function as two constructs in the SCCT theory.
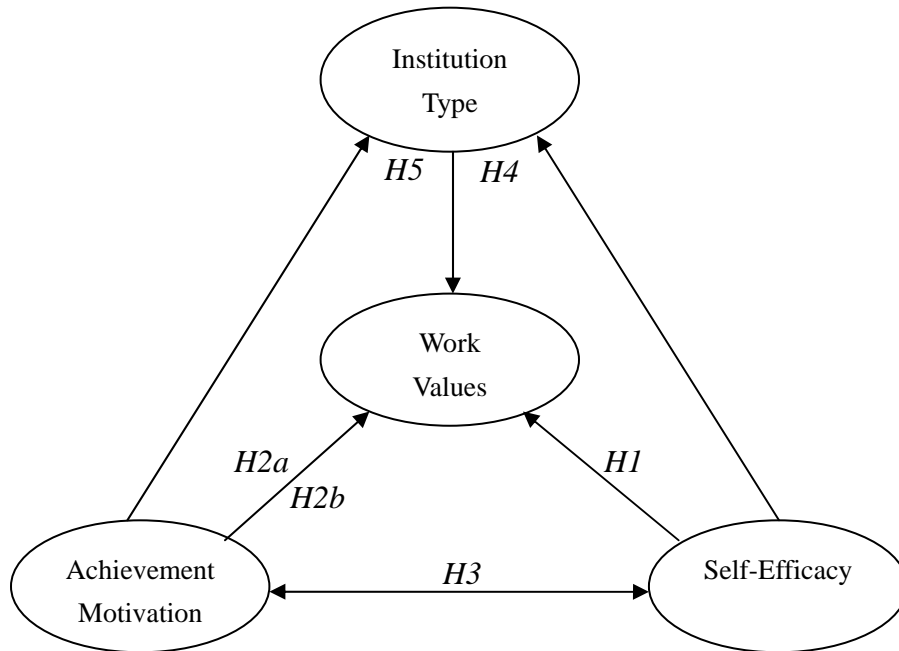
Figure 1. Theoretical Framework.

Significance of the Research

This study has both theoretical and practical significance. Theoretically, this study

can contribute to the career development theory and the HRD field. Practically, this study

may help policymakers and educators in Chinese HEIs better understand their students,

provide better career services for their students, and think of the future of the community

colleges in China.

First, this study can make valued contributions to the theory of career development,

one of the three areas of HRD practice. Lent, Brown, and Hackett's (1994) Social

Cognitive Career Theory (SCCT), which is based on Bandura's (1986) social cognitive

theory, is a famous theory in career development. Lent, Brown, and Hackett (1994, 1996)

indicated that one's career interests and career outcomes were affected by his/her

self-efficacy, outcome expectations, and work values which functioned through outcome

expectations. Work values are embedded in the outcome expectations and are highly

related to career interests and career outcomes (Bonitz, et al., 2010). Although

achievement motivation is not a construct in the SCCT model, some studies showed

strong relationship between achievement motivation and career outcomes (Jenkins, 1987;

Xue, et al., 2006), between achievement motivation and values (Jenkins, 1987; Meng,

2003; Zhang, 2010; Zhang & Lan, 2007; Zhang & Lan, 2007), and between achievement

motivation and self-efficacy (Bartels, 2007; Ji, et al., 2008; Li, et al., 2007; Nelson &

DeBacker, 2008; Ning & Qu, 2010; Qiu, 2008; Tan, 2009; Wang & Xiao, 2010; Wang &

Zhang, 2010; Xiao, 2003; Xue & Li, 2006; Zhang, 2006; Zheng, Lian, & Huang, 2009).

This study investigated the relationships among achievement motivation, self-efficacy

which is one main construct in the SCCT model, and work values which is considered to

be embedded in outcome expectations, another main construct in the SCCT model. The

findings of this study can clarify how self-efficacy and achievement motivation affect

work values and can contribute to the SCCT model.

Second, up to our knowledge, this study is the first one to systematically investigate

self-efficacy, achievement motivation, and work values for students in community

colleges in China. As many extant studies focused on the curriculum design or the higher

education policies (Wang, 2007) and little attention has been paid to the mental state and

career development of the community college students in China, this study can provide direct empirical evidence on self-efficacy, achievement motivation, and work values of Chinese community college students. Furthermore, this study may attract more attention on the students in community colleges and other adult HEIs in China and help educators and practitioners better understand the self-efficacy, achievement motivation, and work values of this student population to help them achieve their career goals.

Third, this study is the first one to compare the two types of HEIs in China in terms of the students' self-efficacy, achievement motivation, and work values. The findings of this study may attract more attention on the community college students in China, help educators and practitioners better understand their self-efficacy, achievement motivation, and work values, and better understand the similarities and differences of students between the two types of HEIs. Thus, policymakers and educators can establish and improve career services for students based on their mental state, characteristics, and needs. As the two types of HEIs act as different roles and provide different professionals for the economic development in China and students from both types of HEIs are facing more and more serious challenges in the job market, this study's focus on both HEIs have special meanings in today's China.

Last, this study may be of great value to policymakers and professional educators in considering the future of the community colleges and adult HEIs in China. In the past, the regular and the adult HEIs each played different roles in the higher education system of

China: Regular HEIs, as a representative of the elite education, provide diploma-oriented

education to a relatively small group of population whereas adult HEIs, as a

representative of the mass education, provide both diploma-oriented and

non-diploma-oriented education to a much broader range of population groups. Since the

Chinese government started to continuously expand the enrollment in regular HEIs in

1999 and the regular higher education is on its way to become the mass education, the

role of the adult HEIs has become unclear. Nowadays, one of the most important

questions that the policymakers of HEIs concern about is what type of higher education

should be provided in adult HEIs, diploma-oriented education only, non-diploma-oriented

education only, or a mixture of both (Du & Zeng, 2008; Liu, Li, & Xu, 2005; Qin, 2006;

Shao, 2010; Sun, 2009; Wu & Shi, 2006; Yang, 2000). This study can provide empirical

evidence about the mental state of community college students and inspire new thoughts

about the future function and direction of the community college in China.

Key Definitions

Chinese Regular Higher Education Institutions (Regular HEIs)

Chinese regular higher education institutions (regular HEIs) admit senior high

school graduates who meet certain criteria on the annual National College Entrance

Examination (NCEE). Most of the regular HEIs are regular four-year universities.

Chinese Regular Four-Year Universities

Chinese regular four-year universities provide four-year full-time regular higher education and confer bachelor's degrees in many disciplines. Graduates from these universities may find a job directly or attend graduate school for master's degrees.

Chinese Adult Higher Education Institutions (Adult HEIs)

Chinese adult higher education institutions (adult HEIs) provide both diploma-oriented and non-diploma oriented higher education to adults with various educational backgrounds, currently employed or unemployed. They need to pass the annual National Adult College Entrance Examination (NACEE) to get admission to the adult HEIs. The most rapidly developing type of the adult HEIs is the community college.

Chinese Community Colleges

Chinese community colleges are founded by local (cities and counties) governments and provide adult higher education, vocational and technical education, and social and cultural education to local community residents and other groups (Liu, 2008).

Self-Efficacy

Bandura (1977) indicated that "expectations of personal mastery affect both initiation and persistence of coping behavior" (Bandura, 1977, p. 193). Bandura (1977)

also argued that perceived self-efficacy can not only "have directive influence on choice of activities and settings" but also "affect coping efforts once they are initiated" (Bandura, 1977, p. 194). "Efficacy expectations determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences. The stronger the perceived self-efficacy, the more active the efforts" (Bandura, 1977, p. 194).

According to Bandura (1995), self-efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations. Efficacy beliefs influence how people think, feel, motivate themselves, and act" (Bandura, 1995, p. 2).

Achievement Motivation

Atkinson and Feather (1966) argued that one's perception of probability for achievement came from two types of motives: to achieve success (a need to achieve), and to avoid failure (a fear of failure). The motive to achieve success is based on (1) the need to succeed, (2) the individual's perception of the probability of success, and (3) the individual's perception of the value of the outcome (Atkinson & Feather, 1966; Atkinson & Raynor, 1978). The motive to avoid failure is based on (1) the need to avoid failure, (2) the individual's perception of the probability of failure, and (3) the individual's perception of the effect of the failure. Whether one approaches the task is determined by the balance between the two motives aroused: a need to achieve and a fear of failure.

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Work Values

"Values are determinants of virtually all kinds of behavior that could be called social behavior or social action, attitudes and ideology, evaluations, moral judgments and justifications of self and others, and attempts to influence others" (Rokeach, 1973, p. 5). Rokeach (1973) indicated that one's occupational decision-making process was determined by his or her values. There are two types of values: terminal and instructional (Rokeach, 1973). Terminal values refer to the beliefs about end-states of existence and instrumental values refer to the modes of behavior. One's values influence his or her behavior, lifestyles, motivation, occupational behavior and goals, and so on.

Jin and Li (2005) indicated that the work values of college students consisted of two types: intentional work values and instrumental work values. Intentional work values include family, status, achievement, and social improvement. Instrumental work values include stability, personality and interests, morality and norms, compensation and prestige, occupational perspective, and benefits.

CHAPTER TWO

LITERATURE REVIEW

As the purpose of this study was to investigate the relationships among self-efficacy, achievement motivation, and work values for regular four-year university students and community college students in China, this chapter reviews the literature in three areas that are relevant to this study, including an introduction to the higher education in China, a summary about self-efficacy, achievement motivation, and work values, and research on regular four-year university students and community college students in China.

Higher Education in China

This section gives a brief introduction about Chinese higher education in three sub-sections, including an introduction about Chinese education system with an emphasis on the higher education, an introduction to the recent rapid development of Chinese higher education institutions (HEIs), and a discussion of the challenges that Chinese HEIs are facing. To preview, this section provides the educational, social, and political backgrounds for this study.

Introduction to the Higher Education in China

To understand the higher education in China, one must understand the structure of

the whole education system in China. As can be seen in Figure 2, the education system in

China consists of four parts including the basic education, the regular higher education,

the secondary vocational and technical education, and the adult education (CERNET,

2001; NBSC, 2008).

Regular Higher Education	Graduate College/Research Institution		
	College/University	*Adult Education*	
		Vocational and Technical College	Adult Institution of Higher Education
	Associate College		
		Secondary vocational and technical education	
Basic Education	Senior High School	Secondary Professional School · Technical School · Vocational High School	
	Junior High School		
	Primary School		
	Pre-School		

Figure 2. Chinese Education System.

Note: Created based on CERNET (2001) and NBSC (2008).

The basic education includes optional pre-school education, six-year primary

education, three-year junior high school education, and three-year senior high school

education. In particular, the six-year primary education and the three-year junior high

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school education constitute the nine-year compulsory education for which Chinese citizens can attend public schools with tuition waived.

The regular higher education includes three-year associate college education, four-year university education, and postgraduate education provided by graduate colleges or research institutions. To enter those associate colleges or four-year universities, applicants usually have to own a diploma from a regular senior high school, take the annual National College Entrance Examination (NCEE), and meet certain criteria on this exam. To enter those graduate colleges or research institutions for postgraduate education, applicants usually have to own a bachelor's degree or equivalent education experience, take the annual National Graduate College Entrance Examination (NGCEE), and meet certain criteria on this exam.

The secondary vocational and technical education mainly includes three- or four-year secondary professional school education, technical school education, and vocational high school education. These schools usually admit junior high school graduates who do not enter regular senior high schools for various reasons.

The adult education includes two- to four-year vocational and technical college education and adult higher education, both of which admit students with various educational backgrounds. To enter these schools, applicants usually have to pass the annual National Adult College Entrance Examination (NACEE). The regular higher education and adult higher education constitute the Chinese higher education system and

both are administered by the Higher Education Department of the Ministry of Education

of the People's Republic of China.

Compared to the higher education in other countries in the world, Chinese higher

education has a very special history after the foundation of the People's Republic of

China in 1949. Its history can be divided into five important phases including the first

higher education reform, the "Great Leap Forward" movement, the Cultural Revolution,

the second reform, and the enrollment expansion (from 1999 to the present). First, from

1952 to 1955, the Ministry of Education directed a drastic reform of Chinese higher

education system, during which many HEIs were modified and reorganized to imitate the

Soviet model. Second, from 1957 to 1966, a continuing "Great Leap Forward" movement

led to the establishment of many work-study (work-integrated learning) HEIs which

admitted workers without any entrance examinations. Third, from 1966 to 1976, a

continuing Cultural Revolution caused a disastrous destruction to the Chinese higher

education system and many Chinese HEIs were shut down until 1977. Fourth, in the

1990s, the Ministry of Education directed a second reform of the Chinese higher

education system, during which many regular HEIs were modified and reorganized to

imitate the Western model and community colleges were officially established as a new

type of adult HEIs. Last, since 1999, the Chinese government has started to increase the

enrollment in the regular HEIs by 30% annually. This has led to a rapid expansion of

regular HEIs and a resultant influence on adult HEIs, both of which are discussed in the

next sub-section.

Recent Rapid Development of Chinese HEIs

The Chinese higher education has been developing rapidly since 1999 when the

Chinese government expanded the enrollment in regular HEIs. Figures 3 and 4 illustrate

the number of schools and undergraduate entrants for both regular and adult HEIs from

1998 to 2009 based on the data provided by the Chinese Statistical Yearbooks and the

Chinese Educational Statistical Yearbooks published from 1999 to 2010 (NBSC,

1999-2010).

As can be seen in Figure 3, the number of regular HEIs has doubled from 1022 in

1998 to 2305 in 2009 whereas the number of adult HEIs has shrunk 60% from 962 in

1998 to 384 in 2009. In the meantime, the numbers of undergraduate entrants have also

changed in different patterns for two types of HEIs. As is shown Figure 4, the number of

undergraduate entrants for regular HEIs has dramatically increased from 1.08 million in

1998 to 6.40 million in 2009 whereas the number of undergraduate entrants for the adult

HEIs has showed a much slower increase from 1 million in 1998 to 2.02 million in 2009.

In other words, although the numbers of undergraduate entrants for regular and adult

HEIs might be very close to each other in 1998 (1.08:1), the regular HEIs has ended up

with admitting more than three times that the adult HEIs admitted in 2009.
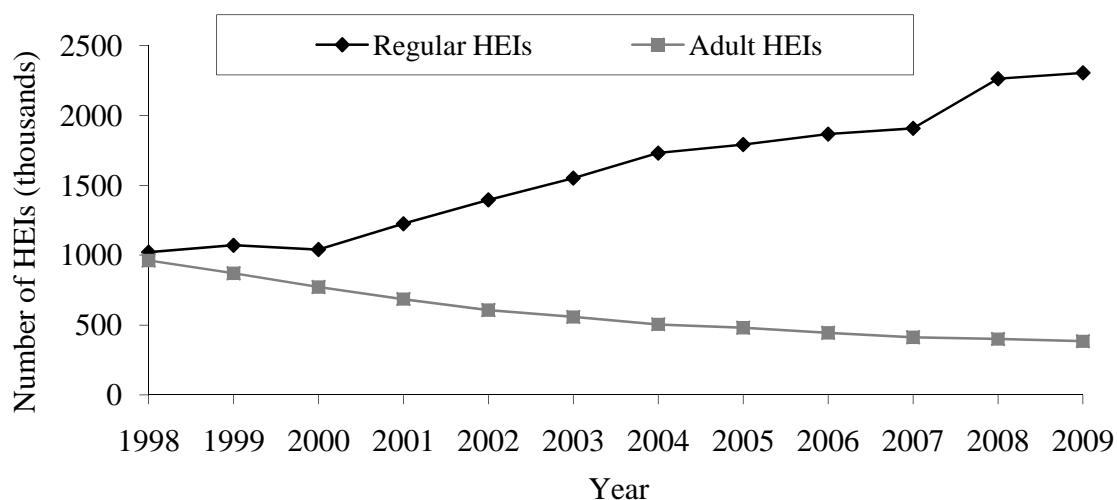
Figure 3. The Number of HEIs (1998-2009).
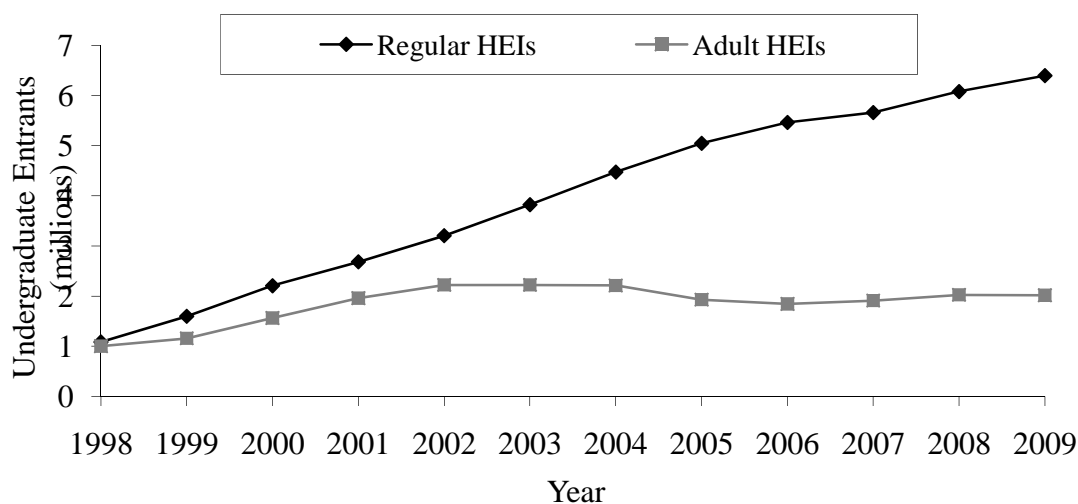
Figure 4. The Number of Undergraduate Entrants in HEIs (1998-2009).

Taken together, Figures 3 and 4 indicate that, as both types of HEIs showed a rapid

development from 1998 to 2009, the development of regular HEIs was much faster than

that of adult HEIs. In particular, during that decade, the adult HEIs doubled their

undergraduate entrants whereas the number of adult HEIs reduced more than half. This

means that those extant adult HEIs have accepted more students than ever, which might

also lead to some concerns about the education quality in those schools.

Furthermore, the rapid expansion of regular HEIs since 1999 has greatly impacted

the whole Chinese education system by fundamentally transforming Chinese higher

education from the elite education to the mass education. According to the statistics

provided by the Chinese Educational Statistical Yearbook 2010, the proportion of 18- to

22-year-old Chinese enrolled in regular HEIs increased from 3.4% in 1990 to 9.8% in

1998 and then to 24.2% in 2009. In short, nowadays, young Chinese have the greater

opportunity to receive higher education in regular HEIs than any time in the history.

However, it should also be noted that the rapid expansion of regular HEIs has also

brought China some serious challenges. This is discussed in the next sub-section.

Challenges Facing Chinese HEIs

Although the rapid expansion of Chinese regular HEIs has allowed more young

Chinese to receive higher education in regular HEIs, it has also brought some challenges

to students, higher education providers, Chinese government, and the whole nation, such

as the concerns about education quality and equal access to higher education across

different regions throughout the country. Yet, the most serious challenge is about the

serious situation in the job market.
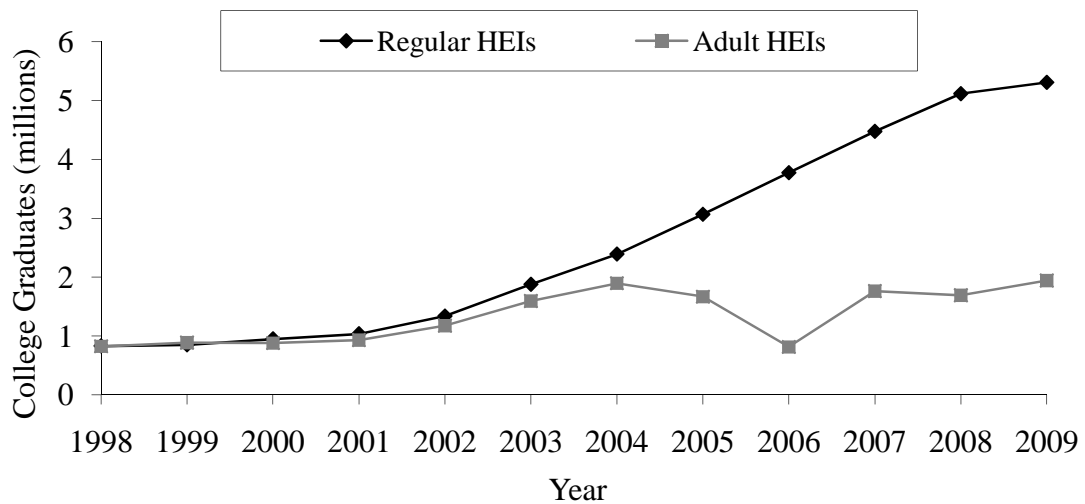
Figure 5. The Number of College Graduates in HEIs (1998-2009).

Figure 5 illustrates the number of college graduates for both regular and adult HEIs

from 1998 to 2009 based on the data provided by the Chinese Statistical Yearbooks and

the Chinese Educational Statistical Yearbooks published from 1999 to 2010 (NBSC,

1999-2010). It clearly shows that the number of college graduates for regular HEIs

increased from 0.83 million in 1998 to 5.31 million in 2009 and the number of college

graduates for adult HEIs also increased from 0.83 million in 1998 to 1.94 million in 2009.

It also shows that the number of college graduates for the two types of HEIs have

changed in different patterns. According to the employment report on Chinese graduates

published by the Chinese Academy of Social Sciences (CASS), the number of college

graduates from regular HEIs reached a new high of 6.3 million in 2010 and it is estimated

to become even higher in 2011 (estimated 6.6 million).

Unfortunately, the job openings for fresh college graduates were limited. The

Monitoring Center of Job Market of the Ministry of Human Resources and Social

Security of the People's Republic of China collected and analyzed the information from

the job market in 2009 from a total of 115 cities in China, including 7 cities in North

China, 18 cities in Northeast China, 26 cities in East China, 32 cities in South China, 15

cities in Southwest China, and 17 cities in Northwest China. Generally speaking, in these

115 cities in 2009, the ratio of job vacancies (20.93 million) and job seekers (22.93

million) was 0.91:1. Among the 6.7 million job seekers whose highest education levels

are a bachelor's degree or an associate diploma, 2.16 million of them were fresh college

graduates from regular HEIs. However, the job vacancies available for all of these college

graduates were 4.51 million, indicating a job vacancies / job seeker ratio of 0.67:1. In

short, Chinese job market in 2009 was highly competitive, especially for job seekers who

have previously or recently received a bachelor's degree or an associate diploma.

Consequently, it was reported that 12.6% of the 6.11 million 2009's fresh college

graduates from regular HEIs were still unemployed six months after graduation.

This serious situation in the job market has posed severe challenges to students and

higher education providers not only in regular HEIs but also in adult HEIs. Therefore,

career development is becoming more and more important in both regular and adult HEIs.

The following several sections review the literature on self-efficacy, achievement

motivation, and work values, the three factors related to career development, and the

relationship among these three factors, which previews the theoretical and conceptual framework for this study.

Self-Efficacy

Bandura (1977) proposed that self-efficacy refers to one's personal perceptions, expectations, beliefs, and/or judgments that he or she could successfully perform a given behavior. Self-efficacy may be influenced by performance accomplishments, vicarious experience, verbal persuasion, and physiological states or emotional arousal. On the one hand, one's self-efficacy may be enhanced by his or her previous success, other people's behavior and strategies to reach success, or verbal persuasion. On the other hand, one's self-efficacy may be lowered by his or her anxiety, tension, fatigue, or pain.

Bandura (1977) proposed that self-efficacy strongly influence people's behavior and behavior change. In particular, self-efficacy has been shown to influence many work-related behaviors such as job search activities (Eden & Aviram, 1993) and job satisfaction (Schwoerer & May, 1996). Tams (2008) indicated that forming self-efficacy in working settings was a proactive, self-organizing, and coherence-building process. Yet, Judge et al. (2007) argued the predictive validity of self-efficacy might be weakened by individual differences such as personality, intelligence or general mental ability, and job or task experience.

Although the original concept of self-efficacy and earlier studies were based on the

Western culture only, it has also been examined in the context of the Eastern culture. The cultural difference in self-efficacy has also raised some attention. Based on Hofstede's (1980) framework that that Western culture is more individualistic and Eastern culture is more collectivistic, Earley (1994) compared the effects of self-focused and group-focused training on self-efficacy in the United States, Hong Kong, and Mainland China. Their results suggested that self-focused training had a stronger effect on self-efficacy for individualists whereas group-focused training had a stronger effect on self-efficacy for collectivists. Walumbwa, et al. (2005) explored the moderating effects of collective and self-efficacy on transformational leadership and work-related attitudes across three cultures including China, India, and the United States. They found that efficacy beliefs and transformational leadership had joint effects on work-related attitudes and both collective and self-efficacy moderated the relationship between transformational leadership and work-related attitudes. Siu, et al. (2007) examined the direct and moderating effect of general self-efficacy on the relationship between stressors and well-being in Chinese collectivist context. Employees from Beijing and Hong Kong were surveyed and results indicated a positive relationship between general self-efficacy and physical well-being as well as mental well-being. Siu, et al. (2007) suggested that general self-efficacy played an important role in employees' well-being in Chinese culture.

Some scholars and researchers also conducted studies on self-efficacy in the education context in China. Tong (2003) examined the relationship between general

self-efficacy and subjective well-being of Chinese college students from low-income families. Results showed that low-income college students had lower levels of general self-efficacy and lower subjective well-being than their peers. General self-efficacy of low-income college students had positive correlation with the index of well-being. Zhao and Zhang (2008) investigated the relationship between the general self-efficacy and the attributional style of Chinese college students and found significant differences on students' general self-efficacy in terms of their gender, homeplace, title, and major. They also found that those students, who tended to attribute positive events to internal, stable, and global causes, had higher levels of general self-efficacy.

Although scholars and researchers in China have been paying more and more attention to the concept of self-efficacy and its impact on people's behavior and performance in education, organizational settings, and their daily life, very few tools exist to measure the self-efficacy in the Chinese context. The General Self-Efficacy Scale (GSES), developed by Schwarzer and Jerusalem (1995), is a popular instrument to measure general self-efficacy. Wang, Hu, and Liu (2001) examined the reliability and validity of the Chinese version of GSES and indicated that it had a good reliability and a good predictive validity though the original scale was developed in the Western context. The Chinese version of the GSES was used in both Tong's (2003) and Zhao and Zhang's (2008) studies mentioned above.

To better measure the self-efficacy in the Chinese culture, Wang (1999) developed a

general self-efficacy inventory in the Chinese context. Wang (1999) created an original

list containing 27 items according to the definition of self-efficacy to compose the

measurement. One hundred and forty-nine college students from different Chinese

universities then were asked to rate to what extent each item could be used to describe

themselves. In the meantime, to ensure its validity, some other instruments were also

administered, such as the Rotter Internal-External Control Scale, the Self-Discrepancy,

the Chinese SCL 90 Depression Sub-Scale, and the Sherer's Self-Efficacy Scale. Two

weeks later, the same participants were asked to complete the questionnaire again. Finally,

19 items from the original 27 items were selected to form the Self-Efficacy Inventory

(SEI). No significant gender difference ($t = 0.14$, $p > .1$) was found. According to the

Factor Analysis, the Inventory contained one factor which accounted for 32.4% of the

total variance. Cronbach $\alpha = .88$ and the retest reliability $r = .82$, which demonstrated the

high reliability of the Inventory (Wang, 1999).

Shi and Wang (2005) further examined the reliability and validity of Wang's (1999)

19-item Self-Efficacy Inventory. More than three thousand participants from seven

different cities in China participated in that study. Results demonstrated the high

reliability with Cronbach $\alpha = .81$ and the split-half reliability $r = .81$. Results also showed

the good discriminant validity: Participants who had higher scores also had significantly

higher scores on each item than those who had lower scores. The one factor structure was

also demonstrated by the Factor Analysis. Therefore, Wang's (1999) Self-Efficacy

Inventory has sound psychometric properties and can be an effective tool used in future research in the Chinese context. This study used Wang's (1999) 19-item Self-Efficacy Inventory.

<center>Achievement Motivation</center>

Atkinson and Feather (1966) addressed that one's perception of probability for achievement came from two types of motives: to achieve success (a need to achieve), and to avoid failure (a fear of failure). The motive to achieve success is based on (1) the need to succeed, (2) the individual's perception of the probability of success, and (3) the individual's perception of the value of the outcome (Atkinson & Feather, 1966; Atkinson & Raynor, 1978). "The strength of motivation to perform some act is assumed to be a multiplicative function of the strength of the motive, the expectancy (subjective probability) that the act will have as a consequence the attainment of an incentive, and the value of the incentive: Motivation = f (Motive × Expectancy × Incentive)" (Atkinson & Feather, 1966, p. 13). The motive to avoid failure is based on (1) the need to avoid failure, (2) the individual's perception of the probability of failure, and (3) the individual's perception of the effect of the failure.

One's perception of probability for achievement arouses both a need to achieve and a fear of failure. The resultant effect of both decides his or her behavior: whether to try or not. If the need to achieve is stronger than the fear of failure, he or she will proceed to

attempt the task. On the contrary, if the fear of failure is stronger than the need to achieve, he or she will avoid the task (Atkinson & Feather, 1966). Therefore, whether one approaches the task is determined by the balance between the two motives aroused: a need to achieve and a fear of failure.

In Atkinson and Feather's (1966) study, a ring toss was used to measure the achievement motivation. Three pegs stood on the ground with different distances: five feet, ten feet, and fifteen feet. Each participant could throw a ring only once at any of the three pegs. Results showed that participants with high achievement motivation tossed the ring to the peg with ten-foot distance (Atkinson & Feather, 1966). Atkinson and Feather (1966) argued that individuals with a high need to achieve preferred tasks with moderate difficulty because they would succeed with efforts and the outcome of success would be valuable. In contrast, individuals with a high motive to avoid failure tended to choose either easy or difficult tasks because the probability of failure for easy tasks would be really low and they would not feel much shame when failing in difficult tasks (Atkinson & Feather, 1966).

Cassidy and Lynn (1989) conducted three studies with university students and developed a 49-item achievement motivation scale which included seven factors: work ethic, acquisitiveness for money and material wealth, dominance, pursuit of excellence, competitiveness, status aspiration, and mastery. They indicated that the instrument had good reliability and validity.

Ward (1997) further examined Cassidy and Lynn's (1989) achievement motivation scale on its factor structure and internal consistency with full-time employees. Findings indicated that the scale had good internal consistency but the researcher pointed out that further analysis should be done to examine its factor structure.

Many studies have been conducted on achievement motivation. Ibanez et al. (2004) found positive relationship between students' academic competence and their achievement motivation. Kuo (2006) found that subordinate's achievement motivation significantly affected their career strategy adoption in the information service industry in Taiwan. Compared to those with low achievement motivation, employees with high achievement motivation adopted career strategies more frequently. Miron and McClelland (1979) pointed out that achievement motivation training could significantly enhance the performance of small business corporations.

Stewart and Roth (2007) conducted a meta-analysis study to examine the differences of achievement motivation between entrepreneurs and managers. Results showed that entrepreneurs had higher levels of achievement motivation than managers. Tucker (1988) found that entrepreneurs tended to have higher levels of achievement motivation than public-sector employees.

Sagie et al. (1996) conducted a cross-cultural comparative study on achievement motivation and found that the individualism-collectivism cultural dimension influenced motive strength. Participants from individualistic societies (the U.S.) had the highest

achievement tendencies and those from collectivistic nations (Japan and Hungary) had

the lowest achievement tendencies.

<p style="text-align:center">Work Values</p>

Rokeach (1973) addressed that "Values are determinants of virtually all kinds of

behavior that could be called social behavior or social action, attitudes and ideology,

evaluations, moral judgments and justifications of self and others, and attempts to

influence others" (p.5). Rokeach (1973) argued that one's occupational decision-making

process was determined by his or her values. There are two types of values: terminal and

instructional (Rokeach, 1973). Terminal values refer to the beliefs about end-states of

existence and instrumental values refer to the modes of behavior. One's values influence

his or her behavior, lifestyles, motivation, occupational behavior and goals, and so on.

Klenke (2005) pointed out that work values had a strong influence on one's work

performance. Super (1990) proposed the Life-Career Rainbow which addressed that a

person would have different "roles," such as child, student, worker, and so on, throughout

his or her entire lifespan. Work values play an important role in the development of each

"role" (Super, 1990).

Super (1957) developed a scale, Super's Work Values Inventory (SWVI), to measure

work values. The SWVI included 15 statements and used a pair-comparison format. The

1970 version contained 15 scales: Altruism, Esthetics, Creativity, Intellectual Stimulation,

<p style="text-align:center">35</p>

Achievement, Independence, Prestige, Management, Economic Returns, Security,

Surroundings, Supervisory Relations, Associates, Way of Life, and Variety. The latest

version, Super's Work Values Inventory – Revised (SWVI-R), consists of 12 scales:

Achievement, Coworkers, Creativity, Income, Independence, Lifestyle, Mental Challenge,

Prestige, Security, Supervision, Work Environment, and Variety. Robinson and Betz

(2008) examined the SWVI-R and indicated that those 12 work values scales were

internally consistent. Additionally, a four-factor structure was revealed: Environment,

Esteem, Excitement, and Safety (Robinson & Betz, 2008).

Taylor and Thompson (1976) investigated the differences of work value systems

between younger and older workers. Results showed that both education and age had a

strong influence on work values.

Jin and Li (2005) developed a work values scale for college students in the Chinese

context. They argued that the work values of college students consisted of two types:

intentional work values and instrumental work values. A four-factor structure was

detected on intentional work values: family, status, achievement, and social improvement.

A six-factor structure was revealed on instrumental work values: stability, personality and

interests, morality and norms, compensation and prestige, occupational perspective, and

benefits.

Relationships among Self-Efficacy, Achievement Motivation, and Work Values

Self-Efficacy, Achievement Motivation, and Work Values

Recently, many studies have been conducted to probe the relationships among self-efficacy, achievement motivation, and work values for college students in the Chinese context. Chen (2007) investigated the relationship between emotional intelligence, achievement motivation, and academic achievements in college students. Findings indicated that students who had been student leaders had significantly higher levels of emotional intelligence than those who had never been student leaders. A significantly positive correlation was also detected between emotional intelligence and achievement motivation. Zhang and Lan (2007) examined the relationship between college students' work values and achievement motivation. Results revealed a significant relationship between work values and achievement motivation. Students with high and low levels of achieving-success had significant differences on intentional work values. Students with high and low levels of avoiding-failure had significant differences on instrumental work values. Specifically, they found significantly positive relationships between the level of achieving-success and intentional work values and between the level of avoiding-failure and instrumental work values. Zhang and Lan (2007) and Zhang (2010) also found that achievement motivation could predict work values for students in teachers colleges.

Some research investigated the relationship on different populations and revealed different results. Zhang (2006) explored the relationship between self-efficacy and achievement motivation of college students. Results showed that female students had significantly higher levels of achievement motivation than male students. Freshmen had significantly higher levels of achieving-success than other students. Students majoring in science and technology had significantly higher levels of avoiding-failure than those majoring in liberal arts. In addition, self-efficacy had a significantly positive correlation with the level of achieving-success but a significantly negative correlation with the level of avoiding-failure. Wang and Xiao (2010) and Xiao (2003) also found similar results. Li, et al. (2007), Ning and Qu (2010), and Wang and Zhang (2010) found a similar positive relationship between self-efficacy and motivation to achieve success but no significant correlation between self-efficacy and motivation to avoid failure.

Shi (2008) explored the relationship between self-efficacy and achievement motivation of graduate students. Results showed that, for graduate students, self-efficacy also had a significantly positive correlation with the level of achieving-success but a significantly negative correlation with the level of avoiding-failure. These findings are similar to Wang and Xiao's (2010), Xiao's (2003), and Zhang's (2006) studies on college students. However, in Shi's (2008) study, no gender or major differences were detected on achievement motivation for graduate students while Zhang (2006) obtained different results for college students.

Some studies focused on the relationship between self-efficacy and work values for

college students. Wen and Zhang (2009) and Zhuang and Lu (2009) found that

self-efficacy was significantly positively correlated with work values such as pursuing

status. However, Ding (2007) conducted a study on students in higher vocational and

technical colleges and found that self-efficacy was significantly negatively correlated

with work values such as pursuing status and prestige. Ding (2007), Wen and Zhang

(2009), and Zhuang and Lu (2009) also found that self-efficacy was significantly

positively correlated with some development factors of work values such as achievement,

occupational perspective, and self-development.

The Three Constructs and Career Development

Career development refers to "a continuous lifelong process of developmental

experiences that focuses on seeking, obtaining, and processing information about self,

occupational and educational alternatives, life styles and role options" (Hansen, 1976,

p.39). The word career in the term career development refers to "the individual sequence

of attitudes and behavior associated with work-related experiences and activities over the

span of the person's life" (Noe, 2008, p.410). Career development has been defined as

one of the three areas of the human resource development (HRD) practice (McLagan,

1989) and has attracted intensive interests from both researchers and practitioners.

In the literature, there have been several major theories of career development, each

of which with different emphasis. First, Holland (1973, 1985, 1997) proposed a theory of

career typology and emphasized the important influences of personality types in career

development. Holland argued that most people could be categorized according to their

resemblance to six personality types: Realistic, Investigative, Artistic, Social,

Enterprising, and Conventional (RIASEC) and most work environments could also be

categorized according to their resemblance to these six environment types (RIASEC).

Holland proposed that occupational achievements, stability, and satisfaction all depended

on the congruence between one's personality type and the work environment type.

Second, Super (1957) proposed a developmental self-concept theory of career

development. Super argued that career development is a lifelong process of developing

and implementing one's self-concept and divided it into five stages including growth,

exploration, establishment, maintenance, and disengagement (Super, Savicks, & Super,

1996). They indicated that one's occupational preferences may change with time and

experience and people choose occupations that permit them to express their self-concepts.

Third, Lent, Brown and Hackett (1994) employed Bandura's (1986) self-efficacy

theory to career development and proposed a Social Cognitive Career Theory (SCCT).

They emphasized the important influences of self-efficacy, outcome expectations, and

goal representations in career development. Lent, Brown, Grover, and Nijjer (1996)

further argued that self-efficacy and outcome expectations strongly influence one's career

interests and career-related choices.

Regarding the relationships between the three constructs and career development, Brown (2002) argued that work values and self-efficacy were important factors in occupational choice. Betz (2004) indicated that self-efficacy significantly influenced people's career development, career choices, performance, and persistence. Betz (2004) suggested that nearly all people had areas where they lack confidence and this kind of perception would limit their career options as well as their future success in those areas.

Some researchers also provided some empirical evidence on the effects of some of those factors on career-related variables. Giles and Rea (1999) found that people with different levels of self-efficacy had different career exploration behaviors, vocational identity, and career decision-making processes. Gloria and Hird (1999) focused on different races and ethnicities and found significant differences in career decision-making self-efficacy between White undergraduate students and racial and ethnic minorities, indicating that White students had higher levels of career decision-making self-efficacy than those minorities. O'Brien, et al. (2000) studied on a sample of Upward Bound students and indicated that the innovative career exploration program helped students enhance self-efficacy so as to effectively perform career-related tasks such as investigating, selecting, and implementing a career choice. Quimby and O'Brien (2004) conducted research on nontraditional college women and found that perceived career barriers and social support accounted for the variance in the student self-efficacy and career self-efficacy for those nontraditional college women. Gushue, et al. (2006)

addressed that higher levels of career decision-making self-efficacy were related to a more differentiated vocational identity and a greater engagement with career exploration tasks. Since self-efficacy is so related to career development and career-related variables, Betz (2004) suggested that self-efficacy theory based counseling interventions should be conducted to help students achieve their career goals.

Very few studies have been conducted on those factors and career development or career-related variables in the Chinese context. Long (2003) investigated the employees from different Chinese enterprises and found that organizational career management, achievement motivation, and general self-efficacy all had positive effects on individual career management. Xue et al. (2006) investigated the relationship between achievement motivation, achievement goal orientation, career belief, and career choice of college students. Findings revealed that achievement motivation had a significant influence on career belief and choice. Kang and Wang (2008) explored the relationship between Chinese college students' value orientation of career choice and job-seeking self-efficacy. Results showed that male students were individual-value oriented while female students were social-value oriented. They also indicated that male students had higher levels of self-efficacy than female students, and that students from cities had higher levels of self-efficacy than those from small towns or rural areas. Lv et al. (2008) examined the relationship between emotional intelligence and career maturity and found that emotional intelligence and general self-efficacy had direct effect on career maturity. Furthermore,

general self-efficacy acted as a mediator between career maturity and emotional intelligence. Fu, Kuchinke, and Wan (2010) investigated the self-efficacy and career development of Chinese community college students. Results indicated that students with different levels of self-efficacy had different career goals and that students with higher levels of self-efficacy used more effort when hunting for jobs.

<center>Research of Community College Students in China</center>

The concept of community college is very new in China and the Chinese community college system is very different from the ones in the United States and other Western countries and has a special history in the social and economic development in China. Very little research has been conducted on the population of the students in Chinese community colleges so it is very important to review related studies on this population and provide the background for this study.

This section reviews studies of Chinese community college students that are relevant to this study in four sub-sections. The first sub-section gives an introduction to the community colleges in China. The second sub-section reviews some studies of the mental state of Chinese community college students. The third sub-section reviews some studies of the career development of Chinese community college students. The last sub-section reviews studies on self-efficacy of Chinese community college students.

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Introduction to the Community Colleges in China

Although the term, community college, might have different meanings in different countries, it is generally agreed that the first community college in the world was the Joliet Junior College, founded in Joliet, Illinois, the United States in 1901. This community college, as well as other early community colleges in the U.S., provided two-year programs to high school graduates and prepared them for transferring to four-year institutions or becoming teachers. In the 1920s and 1930s, influenced by the wide spread underemployment in the Great Depression, American community colleges focused more on providing two-year terminal education to prepare students for workforce and spread rapidly throughout the whole nation.

Nowadays, community colleges in the U.S. often refer to the two-year public HEIs which prepare students either for transferring to four-year HEIs for a bachelor's degree or for directly entering the labor market. To enter these schools, applicants should have a high school diploma or a General Equivalency Diploma (GED) but they are not required to meet certain criteria on the college entrance exam. In other words, the American community colleges have an open admission policy, although certain courses may have restrictions. In addition, they have several characteristics that are very attractive to students. For example, their credit transferring system allows students to transfer the credits from community college to four-year HEIs as a partial fulfillment of their

bachelor's degrees; they offer different types of courses, full-time or part-time, credit or non-credit, degree or non-degree, and vocational/technical or general education, to serve different needs of the local community. In short, community colleges are a very important part of the higher education system in the U.S.

Indeed, Chinese community colleges are established on the basis of the U.S. model. In China, community colleges refer to the HEIs that are founded by local (cities and counties) governments to provide higher education, vocational and technical education, and social and cultural education to local community residents in those cities and counties (Liu, 2008). Although the earliest Chinese adult education, originally called "the workers' and peasants' education" and/or "the spare-time education," emerged immediately after the foundation of the People's Republic of China in 1949 (CHSI, 2005), the history of Chinese community colleges is relatively short. In the 1990s, government officials from Chinese central and local education departments visited community colleges in the U.S. and began to develop Chinese community colleges based on the U.S. model. The first community college in China was officially founded in Shanghai in 1994 (Chinese Community Education, 2007). Thereafter, more and more community colleges were established in cities and counties throughout the whole nation.

Some of these "new" Chinese community colleges were built from scratch. In 2001, the Ministry of Education of China selected a list of districts, cities, and counties as the National Community Education Experimental Zones to enhance the community

education (Chinese Adult Education Association, 2001; Li, 2004). New community colleges in those Experimental Zones have been established to provide varieties of programs to meet those education needs in the special context in China. Nowadays, new community colleges are allowed to be founded by different levels of local governments, ranging from the districts of municipalities, provincial capitals, prefecture-level cities, to county-level cities. Other Chinese community colleges were transformed from other types of adult HEIs which had previously functioned as community colleges. Some of vocational and technical colleges and adult HEIs which were established in the early 1990s were integrated with local resources to become community colleges. Also, some of continuing education departments and divisions in major universities, county-level vocational and technical education centers, and nongovernment-funded colleges were reorganized to form community colleges (Niu, 2000).

Since they were established on the basis of the U.S. model, Chinese community colleges copied several important characteristics of American community colleges as follows. First, both Chinese and American community colleges are generally public HEIs administered by local districts (with a few being private). Second, both Chinese and American community colleges provide long-term programs to secondary school graduates and adults (two-year in American community colleges and two- or three-year in Chinese community colleges). Third, both Chinese and American community colleges usually charge less tuition fees than four-year universities in the same areas.

However, Chinese community colleges also have some important characteristics different from American community colleges. First, although many Chinese community colleges have cooperative programs with regular HEIs, they do not have a credit transfer system. Thus, community college graduates are not allowed to transfer their credits from community college to four-year universities as a partial fulfillment of their bachelor's degrees. Second, most of current Chinese community colleges are located in large cities in eastern China so Chinese living in different areas of the nation may have unequal access to community college education. Third, whereas American community colleges offer both full-time and part-time courses, most of Chinese community colleges only often part-time courses. This may be due to the fact that many of them originated from other adult HEIs in which students usually have a job and can only take courses in their spare time. Last, Chinese community colleges admit applicants who pass the annual National Adult College Entrance Examination (NACEE) whereas American community colleges have an open admission policy.

Among all types of adult HEIs in China, community colleges play an increasingly important role in China's adult higher education. Compared to traditional adult HEIs in China, Chinese community colleges are administrated by local government, which makes them more flexible and adaptive to serve the various needs of local community and build connections with local businesses. Community colleges can accept local young people who do not pass the annual National College Entrance Examination (NCEE) to enter

regular HEIs to prevent the outflow of local talented young people to other communities. Also, community colleges can provide higher education to a broader range of population than traditional Chinese adult HEIs, including floating population, local employees who are seeking more knowledge and skills, and local unemployed residents. Community college students usually have various backgrounds, different characteristics, and mental state from students in four-year regular universities. This is discussed in the next sub-section.

Mental State of Chinese Community College Students

Insights from both Chinese adult higher education practitioners and empirical studies conducted by researchers have shed some light on the mental state of community college students in China.

Several Chinese adult higher education practitioners have expressed concerns that community college students might have more negative mental state than students in regular HEIs. Most importantly, some of them argued that both suggested that Chinese community college students may be more likely to show anxiety, self-diffidence, passivity, and conformity than students in regular HEIs (Chen, 2009; Gao, 2008; Lin, 2009). For example, Gao (2008) observed that community college students paid more attention to their weaknesses and were interdependent on their parents or schools. Xu (2008) suggested that these community college students might be more self-diffident due

to the fact that many of them entered community colleges after they were rejected by regular HEIs. Liu (2001) also raised attention to the fact that many community college students may face more conflicts and pressure than students in regular HEIs, especially those conflicts between study and work or study and family life.

Some of these concerns have been confirmed by empirical studies. First, Zhou (2008) conducted a survey on the mental state of 872 community college students in Zhejiang Province of China. Results showed that 64.9% of the participants felt stressed and anxious about career choice; 53.1% of them were self-diffident; over 30% of them were not optimistic about their future. These findings implied that many community college graduates might be unable to accurately assess themselves and become anxious about or even afraid of job hunting. Second, Luan (2008) conducted a survey study on the self-confidence of 3,000 community college students in Liaoning Province of China and found that 52.5% of the participants were not self-confident. In addition, 50.78% of the participants entered the community college because they did not obtain good academic performance, 27.12% of whom obtained surprisingly low scores on the National College Entrance Examination (NCEE) and had no other choices but to enter the community college. Only 13.74% of them considered that they could learn knowledge and skills in community colleges rather than in regular HEIs. Also, many participants (64.13%) hesitated to talk about their college in social gatherings, implying that they were not confident about not only themselves but also their colleges. Luan (2008) suggested that

this might be due to their previous failure experience and their expectations about career.

Taken together, both insights from adult higher education practitioners and empirical studies conducted by researchers have suggested that community college students in China might have more negative mental state than students in regular HEIs. They might be more likely to be anxious and self-diffident, which might influence their achievement motivation and work values as well as their career development.

Career Development of Chinese Community College Students

Insights from Chinese adult higher education practitioners and studies conducted by researchers have provided a general picture about the current situation of the career development of Chinese community college students.

Several adult higher education practitioners summarized the characteristics of career development of Chinese community college students. First, many students do not understand themselves well (Rao, 2008). They do not have a clear idea about their own strengths and interests and make unthoughtful decisions when choosing their majors or specializations in community colleges (Xu, 2008). Unfortunately, in Chinese community colleges, there are usually no scientific or systematic occupational assessments or career aptitude tests that are available for students (Shi, 2008). Second, many students may underestimate the importance of career planning. This might be due to the fact that China has been under the transition from the planned economy, featured by the

guaranteed-job-assignments for which no career planning is needed, to the market

economy featured by the market-oriented two-way selection between the employers and

job seekers for which career planning is necessary (Shi, 2008). Third, these students also

lack career planning stills. Unfortunately, many Chinese community colleges do not

provide enough career planning programs or curricula and lack career service advisors

(Rao, 2008; Shi, 2008; Xu, 2008).

Some empirical studies are well in on line with most of these arguments. First, Mao

and Teng (2009) conducted a survey on the community college students in Guangxi

Province of China. Results showed that 53.8% of the participants did not have a big

picture about their majors, specializations, and careers; 42.28% of the participants had no

idea about career planning; and 52.55% of the participants had no career goals.

Second, Mao (2008) conducted a survey study on the self-recognition, career

planning, and career choice of 320 community college students in Jiangsu Province of

China. For the self-recognition, 48.5% of the participants were not sure about their

strengths; 42.2% of the participants could not tell what types of jobs they like or hate

most; more than 50% of the participants did not have clear pictures about their careers in

the coming three to five years; 50% of the participants were not sure about their career

choices and directions. For the career planning, although 83.7% of the participants

realized its importance, only 20% of them did it. Most students did not know how to do

career planning; 48% of them considered that they did not need career planning until they

graduated. Most (78%) students thought it was important to use career planning services

provided by the college or other agencies but only 8% of the participants actually used

those services. For career choice, 42% of the participants focused on the future

development and opportunities; 38% of the participants focused on their capabilities and

interests; 20% of the participants thought that income was most important. Most students

depended on the college or their parents when they had problems in career choice and

only 5% of the participants sought for help from professional career services.

Third, Zhou (2008) conducted a survey on 872 community college students in

Zhejiang Province of China. Results showed that, for the future job, 79.1% of the

participants focused on incomes and 74.8% of the participants preferred to work in cities.

For the factors that might affect employment, 48% of the participants chose the education

level; 24.7% of the participants chose interpersonal relationships, networks, and family

background; 37.8% of the participants chose major and specialization; 22.5% of the

participants chose academic achievements. For the career support services, 65.1% of the

participants preferred more detailed recruitment information from corporations; 64.7% of

the participants needed detailed analysis on the current situation and policies on

employment; 67.8% of the participants wanted some training programs on career skills;

70.2% of the participants preferred to participate in some practical training and activities

to improve themselves. Zhou (2008) implied that community college graduates might

remain too passive in job-hunting activities and focused too much on incomes and

benefits rather than future development and opportunities.

In summary, both insights from higher education practitioners and empirical research have suggested that Chinese community college students may have inaccurate self-recognition, underestimate the importance of career planning, and lack career planning skills. This has raised increasing attention to provide appropriate career services to these students. Practitioners and researchers have proposed that Chinese community colleges should provide career aptitude tests and more career development curricula, activities, and counseling services to their students (Chen, 2008; Fu, 2008; Gao, 2008; Lang, 2009; Lin, 2009; Luan, 2008; Mao & Teng; 2009; Qi & Pang, 2008; Shi, 2008; Xu et al, 2008; Zhou, 2008) . However, different practitioners and researchers proposed different ranges of career counseling services that Chinese community colleges should provide: conducting self-assessment (Gao, 2008; Lin, 2009; Luan, 2008) or occupational assessment (Shi, 2008), enhancing self-confidence and self-efficacy (Luan, 2008), assistance with coping with difficulties and challenges (Fu, 2008; Gao, 2008; Luan, 2008), and group counseling and crisis intervention system (Fu, 2008; Zhou, 2008).

Self-Efficacy of Chinese Community College Students

Some studies have been conducted on self-efficacy of Chinese community college students. First, Zhang (2007) conducted a study on the gender difference of career decision-making self-efficacy among 850 students from six vocational and technical

colleges in Anhui Province of China. Results showed that male students had significantly higher levels of career decision-making self-efficacy than females, which implied that male students were more self-confident and self-independent in their career decision-making processes. Zhang (2007) pointed out that both external and internal factors could cause this phenomenon. External factors included traditional values and the highly competitive labor market. Internal factors included the physiological difference, personality, and mental status.

Second, Ding (2007) investigated the relationship between work values, occupational choice self-efficacy, and self-consistency and congruence (SCC) of 349 students from four vocational and technical colleges in Guangdong Province of China. Results indicated that the sample students had good self-consistency and congruence, higher than college students before. Work values and occupational choice self-efficacy had a significant effect on self-consistency and congruence, respectively.

Third, Long (2006) examined the relationship between self-efficacy, interest level, and learning strategy of students specialized in English in vocational and technical colleges in Jiangxi Province of China. Results indicated that, for those students who hated to study, significant positive correlations were found between self-efficacy and learning strategy, self-efficacy and motivational behavior, self-efficacy and interest level, interest level and anxiety level, and interest level and school environment; a significant negative correlation was found between interest level and attribution. For those students who loved

to study, a significant positive correlation was found between self-efficacy and

motivational behavior. For the rest of the students, significant positive correlations were

found between self-efficacy and learning strategy, and self-efficacy and motivational

behavior. This study provided empirical evidence about the mental status of community

college students and related counseling services could be provided to help those students

reach their goals.

Last, Fu, Kuchinke, and Wan (2010) conducted a research on the relationship

between self-efficacy and career development behaviors of community college students

in Beijing, China. Results indicated that community college students with high

self-efficacy considered five career goals most important, including utilizing previous

work experience, job security and performance, work that seems important/interesting,

freedom to make own decisions, and education or training benefits. These community

college students also expressed that they were more likely to attend career related lectures

than those with low self-efficacy. These findings suggested the importance of

self-efficacy on the career development of Chinese community college students.

Taken together, although very few empirical studies have been conducted to explore

the self-efficacy of Chinese community college students, the extant studies have

suggested the importance of self-efficacy on the career development behaviors of Chinese

community college students.

Summary

Chinese regular higher education and adult higher education are the two types of

higher education in the economic development in China. Scholars and researchers

showed great interests on various issues in Chinese higher education, mainly in the

regular higher education. Many studies examined self-efficacy, achievement motivation,

work values, and the relationship among them as well as other variables. Although some

studies revealed strong relationships among those variables, they obtained different

results. The relationship among those variables needs to be further clarified. Furthermore,

many researchers explored those variables with college students in the Chinese context

but few studies focused on those "young" Chinese community colleges. Even less

research focused on the comparison between regular four-year universities and

community colleges.

This study is an attempt to investigate the relationships among self-efficacy,

achievement motivation, and work values for students in both regular four-year

universities and community colleges in China. The results of this study can clarify the

relationships among those variables in the Chinese context. Furthermore, the results of

this study can cast light on this field and provide theoretical foundation and empirical

evidence for practitioners and policymakers when they plan to create career development

programs and career counseling services in both regular four-year universities and

community colleges in China someday to help students achieve their career goals in

China's economic development and transition.

　　More importantly, this study was conducted in the special background of the

economic reform and development in China which have brought many challenges to both

expanding regular HEIs and changing adult HEIs. The results of this study may provide

some insights on the relationship between these two types of HEIs in China and the future

directions of the Chinese community colleges.

CHAPTER THREE

METHODS

This chapter presents the methods used in this study. This chapter includes five

sections. The first section describes the design of this study. The second section provides

information about the population and sample. The third section introduces the measures

and the instruments used as well as the reliability and validity of the instruments. The

fourth section summarizes all variables and items from the instruments for data analysis.

The last section addresses the data analysis methods used in this study.

Research Design

This study adopted a quantitative approach to examine the relationships among

self-efficacy, achievement motivation, and work values for regular four-year university

students and community college students in China. A written survey was administered.

Data were collected from a regular four-year university and a community college located

in Beijing, the capital city of China.

Population and Sample

Population

The target population for this study consisted of Chinese students who were enrolled

in regular four-year universities and those who were enrolled in community colleges. To compare the students from these two types of HEIs, a regular four-year university and a community college were selected. In this study, the regular four-year university was represented by Tsinghua University and the community college was represented by Beijing Xuanwu Hongqi Spare-Time University. These two institutions were selected for the following reasons. First, both institutions are one of the oldest HEIs in their own category. Tsinghua University was first established in 1911 as a preparatory school for students later sent by the Chinese government to study in the United States and it was transformed to a regular four-year university in 1925. Beijing Xuanwu Hongqi Spare-Time University was first established in 1958 as one of the earliest adult HEIs in China and it has been in the progress of transforming to a community college since 2007. Second, both institutions are one of the best HEIs in their own category. Tsinghua University is one of the top universities in China. Beijing Xuanwu Hongqi Spare-Time University won the "A-Level Adult HEI" in 1990s. Third, both institutions are located in Beijing, the capital of China, which provided the same economic development level and background. Fourth, both institutions provided access for data collection for this study.

However, it should be noted that remarkable difference exists between these two HEIs. Although Beijing Xuanwu Hongqi Spare-Time University is one of the largest and most influential community colleges in the nation, it has a much smaller enrollment (about 4,000 students in 2009) and a shorter history than Tsinghua University (about

14,000 undergraduate students in 2009). This might be due to the relatively short history of the adult HEIs in China and the imbalance between the development of regular and adult HEIs in China.

Sample

To compare the Chinese students in regular four-year universities and community colleges, a convenience sample method was used. A sample of 384 students participated in this study, 198 from a community college, Beijing Xuanwu Hongqi Spare-Time University, and 186 from a regular four-year university, Tsinghua University. Participants from both HEIs were students who registered for an elective or required course on psychology or philosophy in the Fall 2010 semester in their own institution. The psychology course, *Psychology and Life*, is an elective course in Tsinghua University. Every student in any major can take this course if he or she wants to and there is no prerequisite to this course. The philosophy course is a required course in Beijing Xuanwu Hongqi Spare-Time University. Every student in any major must take this course during his or her study to graduate.

All participants received the consent form and completed the demographic information sheet, the Self-Efficacy Inventory (SEI), the Achievement Motivation Scale (AMS), and the Work Values Scale (WVS). In the consent form, participants were informed that their participation was voluntary and anonymous and the data would be

used for research purpose only. All the participants received course credits for their participation.

It should be noted that these two samples differed in ages and/or majors. First, the mean age of the community college students sample was older than that of the regular four-year university students. That is, undergraduate students from the selected four-year university are usually 18 to 22 years old, whereas students from the selected community college are older as some of them have been working for years before attending the community college. Second, students in the two samples differed in their majors, as the programs and courses offered by these two types of HEIs are very different. The community colleges in China only provide vocational oriented programs and courses, whereas the regular four-year universities provide general education as well as vocational and technical education. Admittedly, it might be possible to match the age and major of the two samples by only selecting 18- to 22-year-old community college students and regular four-year university students who are enrolled in receiving vocational and technical education. However, doing so may bias each sample and useful information about each population may be lost. Alternatively, the effects of age and major were analyzed and discussed.

<div align="center">Measures and Instruments</div>

The independent variables in this study included self-efficacy and achievement

motivation measured by Wang's (1999) Self-Efficacy Inventory (SEI) and Ye and

Hagtvet's (1992) Achievement Motivation Scale (AMS), respectively. The dependent

variable was work values measured by Jin and Li's (2005) Work Values Scale (WVS).

Institution type acted as a mediating variable in the relationship between self-efficacy and

work values and the relationship between achievement motivation and work values. It

had two levels: regular four-year university and community college.

The participants in this study were students from four-year universities and

community colleges in China. Therefore, the language of the instruments and cultural

difference were considered when selecting appropriate instruments. First, this study used

instruments written in Mandarin Chinese which is the native language of the participants.

Second, this study used instruments originally developed or translated, revised, and

validated in the Chinese context in consideration of the cultural difference between

Eastern and Western societies. Among those instruments, the Self-Efficacy Inventory

(SEI) and the Work Values Scale (WVS) were originally developed and validated in the

Chinese context and in the Mandarin Chinese language. The Achievement Motivation

Scale (AMS) was translated from a previous English version by previous researchers but

was revised and validated in the Chinese context.

Self-Efficacy Inventory (SEI)

Self-efficacy was measured by the Self-Efficacy Inventory (SEI) which was

originally developed by Wang (1999) and validated by Shi and Wang (2005) in the

Chinese context.

Theoretically, self-efficacy is very important for personality, social, and clinical

psychology; practically, self-efficacy is also very important for individuals' development,

healthy adaptation, and successes (Wang, 1999). Some scholars and researchers tried to

create a measurement of self-efficacy (Bandura, et al., 1980; Sherer & Maddux, 1982;

Sherer & Adams, 1983; Sherer, 1990; Shelton, 1990; Woodruff & Cashman, 1993).

Among those researchers, Sherer (1990), Shelton (1990), and Woodruff and Cashman

(1993) focused on the concept of general self-efficacy and the development of general

self-efficacy scale and revealed good validity of the scale.

There is a debate on how to understand and measure self-efficacy. Some scholars,

including Bandura, did not think there could be a general efficacy but others, including

Schwarzer, thought the concept of general self-efficacy could be understood and

measured (Wang, 1999; Shi & Wang, 2005). Schwarzer and Aristi (1997) believed that

there could be a concept of general self-efficacy and they defined it as the individual

general self-beliefs when facing various challenges and new environments.

When Wang (1999) and Shi and Wang (2005) developed the general Self-Efficacy

Inventory in the Chinese context, their attempt was also to test the probability of adopting

the concept of general self-efficacy. They believed that if a self-efficacy questionnaire

could get good reliability and validity, it would be reasonable to believe that the

questionnaire could reveal the reasonability of accepting the construct of general

self-efficacy (Wang, 1999).

Wang (1999) obtained the Cronbach α = .88 and the retest reliability r = .82 when he

originally developed the 19-item general Self-Efficacy Inventory, which demonstrated the

high reliability of the Inventory. Factor Analysis showed that the Inventory contained one

factor which accounted for 32.4% of the total variance. Shi and Wang (2005) further

examined the reliability and validity of the Inventory by recruiting 3,094 participants

nationwide in China and obtained a high reliability with Cronbach α = .81 and the

split-half reliability r = .81. In addition, results indicated the good discriminant validity:

Participants who had higher scores also had significantly higher scores on each item than

those who had lower scores. The one factor structure was also demonstrated by the Factor

Analysis. Therefore, Wang's (1999) general Self-Efficacy Inventory can be a good tool in

this study as an attempt to explore the relationship between self-efficacy and career

development.

Achievement Motivation Scale (AMS)

Achievement motivation was measured by Ye and Hagtvet's (1992) Achievement

Motivation Scale (AMS) which was translated from Gjesme and Nygard's (1970) original

scale but revised and validated by Ye and Hagtvet (1992) in the Chinese context.

Based on Atkinson and Feather (1966), the overall 30 items in the AMS can be

categorized into two subscales which measure the motivation to achieve success (MS) and the motivation to avoid failure (MF), respectively. Each subscale includes 15 items. The AMS has the Cronbach α's of the subscales ranged from the low .60s to high .70s (Fan & Zhang, 2009).

Work Values Scale (WVS)

Work values were measured by Jin and Li's (2005) Work Values Scale (WVS) which was originally developed and validated in the Chinese context.

Jin and Li (2005) conducted 25 in-depth interviews, 60 open-ended questionnaire surveys, and 813 close-ended questionnaire surveys among college students from different universities and cities across China. They argued that the work values of college students consisted of two types: intentional work values and instrumental work values. Using the Exploratory and Confirmatory Factor Analyses, they established a four-factor structure of intentional work values (family, status, achievement, and social improvement) which contains 16 items and a six-factor structure of instrumental work values (stability, personality and interests, morality and norms, compensation and prestige, occupational perspective, and benefits) which contains 18 items. Thus, a 34-item work values scale for college students in the Chinese context was developed.

For the intentional work values, $\chi^2/df = 2.670$, GFI (Goodness-of-Fit Index) = .961, NNFI (Non-Normed Fit Index) = .921, CFI (Comparative Fit Index) = .935, RMSEA

(Root Mean Square Error of Approximation) = .045, which indicated that the structure of intentional work values was a good model with high goodness of fit and could be used as a tool to analyze the intentional work values of college students (Jin & Li, 2005). For the instrumental work values, χ^2/df = 2.259, GFI = .964, NNFI = .929, CFI = .945, RMSEA = .039, which indicated that the structure of instrumental work values was also a good model with high goodness of fit and could be used as a tool to analyze the instrumental work values of college students (Jin & Li, 2005).

Demographic Information

Based on the literature, self-efficacy, achievement motivation, and work values may be influenced by some demographic variables such as age, gender, education level, and major. Demographic information was collected via a demographic information sheet.

Variables for Data Analysis

The instrument package included a total of 92 items in five sections: demographic information (9 items), self-efficacy (19 items), achievement motivation (30 items), and work values (34 items). The contents of the instruments are summarized in Table 1. The English version of the instruments is attached as Appendices A, B, C, and D. The Chinese version, which was actually used for data collection, is attached as Appendices E, F, G, and H.

Table 1

Contents of the Instruments

Section	Contents	Level of measurement	Number of items
Section I Demographic Information (9 items)	Age (Item 1)	Interval	1
	Gender (Item 2)	Nominal	1
	Ethnicity (Item 3)	Nominal	1
	Marital status (Item 4)	Nominal	1
	Highest education level (Item 5)	Nominal	1
	Major (Item 6)	Nominal	1
	Semester (Item 7)	Nominal	1
	Full-time or part-time student (Item 8)	Nominal	1
	Whether currently employed (Item 9)	Nominal	1
Section II Self-Efficacy (19 items)	Self-efficacy (Items 10-28)	Interval	19
Section III Achievement Motivation (30 items)	Achievement motivation (Items 29-58)	Interval	30
Section IV Work Values (34 items)	Work values (Items 59-92)	Interval	34
Total			92

Data Analysis

The purpose of the study was to investigate the relationships among self-efficacy, achievement motivation, and work values for regular four-year university students and community college students in China. The research questions were: (1) How is self-efficacy related to work values? (2) How is achievement motivation related to work values? (3) How is self-efficacy related to achievement motivation? (4) What is the mediation effect of institution type in the relationship between self-efficacy and work values? (5) What is the mediation effect of institution type in the relationship between achievement motivation and work values?

To discuss these questions, a quantitative research method was used. Correlations, independent-samples t tests, Analyses of Variance (ANOVAs), regression analyses, and mediation analyses were performed to explore the relationships among those variables. Differences on demographic variables were also examined and analyzed.

CHAPTER FOUR

RESULTS

The purpose of this study was to investigate the relationships among self-efficacy, achievement motivation, and work values for regular four-year university and community college students in China. This study explored the relationship between independent and dependent variables by testing five hypotheses.

Various statistical methods were used to test the hypotheses and answer the research questions. Independent-samples t test and χ^2 test were conducted to explore the descriptive characteristics and the differences between the two groups on demographic characteristics. Regression analysis was performed to investigate the relationships between self-efficacy and work values (Hypothesis 1), between achievement motivation and work values (Hypothesis 2), and between self-efficacy and achievement motivation (Hypothesis 3). Baron and Kenny's (1986) approach was used to examine the mediation effect of institution type on the relationships between self-efficacy and work values (Hypothesis 4) and between achievement motivation and work values (Hypothesis 5). In addition, Exploratory Factor Analysis (EFA) was utilized to explore the structures of the three instruments, Wang's (1999) Self-Efficacy Inventory (SEI), Ye and Hagtvet's (1992) Achievement Motivation Scale (AMS), and Jin and Li's (2005) Work Values Scale

(WVS), based on the specific sample in this study. SPSS 16.0 was used to perform all the statistical analyses.

This chapter includes three sections. The first section contains demographic characteristics and descriptive results for all independent and dependent variables. The second section utilizes various statistical methods to explore each of the five hypotheses. The last section summarizes all the results and indicates the main findings of this study.

Descriptive Results

A total of 398 students were asked and agreed to participate in this study, 204 from a community college, Beijing Xuanwu Hongqi Spare-Time University, and 194 from a regular four-year university, Tsinghua University. For the community college group, 6 responses were invalid and eliminated and 198 valid responses were included and analyzed in this study. The response rate was 97.1%. For the regular four-year university group, 8 responses were invalid and eliminated and 186 valid responses were included and analyzed in this study. The response rate was 95.9%. Therefore, 384 valid responses were included and analyzed, and the overall response rate was 96.5%.

Demographic Characteristics

The demographic characteristics of all participants are summarized in Table 2. Among the 384 participants, 176 (45.8%) were male and 204 (53.1%) were female. The

mean age was 22.7 years. For ethnicity, most (91.1%) of the participants were Han Chinese, followed by Manchu (2.9%) and Hui (2.3%). Others (2.9%) were from ethnicities including Tujia, Korean, Zhuang, Kazak, Mulao, She, and Miao. Around 87.2% of the participants were unmarried and 11.7% were married or remarried. Around 43.8% of the participants were first year students; 23.4% were second year students; 24.2% were third year students; 7.3% were fourth year students. Around 51.3% were full-time students and 47.4% were part-time students. Around 50.0% were employed and 49.2% were unemployed.

Table 2 also shows the two groups separately. The 198 participants from the community college group were from three majors: human resources (39.9%), logistics (33.3%), and business administration (25.3%). The 186 participants from the regular four-year university group were from various majors and the largest four majors were: industrial engineering (25.8%), psychology (10.8%), electronic engineering (8.1%), and biology (7.0%). Others (47.3%) were from other 27 majors with less than 10 people on each major.

Table 2

Demographic Characteristics of Participants

Variables	All Participants	Community College Students (Group 1)	Regular Four-Year University Students (Group 2)	Difference between the Two Groups
N	384	198	186	-
Age				$t = 21.10**$
Mean	22.7	25.3	20.2	
Median	22.0	25.0	20.0	
Mode	20	23[a]	20	
SD	3.42	3.07	1.00	
Valid N / Missing	359 / 25	180 / 18	179 / 7	
Gender				$\chi^2 = 53.07**$
Male	176 (45.8%)	66 (33.3%)	110 (59.1%)	
Female	204 (53.1%)	129 (65.2%)	75 (40.3%)	
Valid N / Missing	380 / 4	195 / 3	185 / 1	
Ethnicity				$\chi^2 = 20.24**$
Han	350 (91.1%)	181 (91.4%)	169 (90.9%)	
Manchu	11 (2.9%)	6 (3.0%)	5 (2.7%)	
Hui	9 (2.3%)	7 (3.5%)	2 (1.1%)	
Others	11 (2.9%)	1 (0.5%)	10 (5.4%)	
Valid N / Missing	381 / 3	195 / 3	186 / 0	

(table continues)

Table 2 *(table continued)*

Variables	All Participants	Community College Students (Group 1)	Regular Four-Year University Students (Group 2)	Difference between the Two Groups
Marital status				$\chi^2 = 19320000.00$**
Unmarried	335 (87.2%)	149 (75.3%)	186 (100%)	
Married or remarried	45 (11.7%)	45 (22.7%)	0	
Valid N / Missing	381 / 3	195 / 3	186 / 0	
Major				-[b]
Human resources	79 (20.6%)	79 (39.9%)	0	
Logistics	66 (17.2%)	66 (33.3%)	0	
Business administration	50 (13.0%)	50 (25.3%)	0	
Industrial engineering	48 (12.5%)	0	48 (25.8%)	
Psychology	20 (5.2%)	0	20 (10.8%)	
Electronic engineering	15 (3.9%)	0	15 (8.1%)	
Biology	13 (3.4%)	0	13 (7.0%)	
Others[c]	88 (22.9%)	0	88 (47.3%)	
Valid N / Missing	379 / 5	195 / 3	184 / 2	

(table continues)

Table 2 *(table continued)*

Variables	All Participants	Community College Students (Group 1)	Regular Four-Year University Students (Group 2)	Difference between the Two Groups
Year				$t = -26.08**$
First	168 (43.8%)	162 (81.8%)	6 (3.2%)	
Second	90 (23.4%)	31 (15.7%)	59 (31.7%)	
Third	93 (24.2%)	1 (0.5%)	92 (49.5%)	
Fourth	28 (7.3%)	0	28 (15.1%)	
Mean	2.0	1.2	2.8	
Median	2.0	1.0	3.0	
Mode	1	1	3	
SD	0.99	0.39	0.74	
Valid N / Missing	379 / 5	194 / 4	185 / 1	
Full-time or part-time				$\chi^2 = 315900000.00**$
Full-time	197 (51.3%)	12 (6.1%)	185 (99.5%)	
Part-time	182 (47.4%)	182 (91.9%)	0	
Valid N / Missing	379 / 5	194 / 4	185 / 1	
Employed				$\chi^2 = 33519.54**$
Yes	192 (50.0%)	191 (96.5%)	1 (0.5%)	
No	189 (49.2%)	7 (3.5%)	182 (97.8%)	
Valid N / Missing	381 / 3	198 / 0	183 / 3	

a. Multiple modes exist. The smallest value is shown.

b. The two groups do not have overlapped majors so the χ^2 test was not performed.

c. Including other 27 majors with less than 10 people on each major. Those majors include engineering physics, materials science, architecture, and so on.

* $p < .05$, ** $p < .01$.

Descriptive Statistics of Self-Efficacy, Achievement Motivation, and Work Values

Self-efficacy is a one-factor (unidimensional) structure (Wang, 1999; Shi & Wang, 2005). Achievement motivation includes the motivation to achieve success and the motivation to avoid failure (Ye & Hagtvet, 1992). Work values consist of two types: intentional work values and instrumental work values (Jin & Li, 2005). Intentional work values include family, status, achievement, and social improvement. Instrumental work values include stability, personality and interests, morality and norms, compensation and prestige, occupational perspective, and benefits.

Exploratory Factor Analyses (EFAs) were performed to explore the structure of each of the three instruments based on this specific sample. Results are included in Appendix I. For the Self-Efficacy Inventory, results revealed a three-factor structure: self-confidence, failure-anxiety, and challenge-seeking. The three factors accounted for 51.73% of the total variance. For the Achievement Motivation Scale, results indicated a three-factor structure: motivation to avoid failure, motivation to achieve success, and motivation to take challenges. The three factors accounted for 44.44% of the total variance. For the Work Values Scale, results showed an eight-factor structure: achievement, morality and development, status, stability and compensation, family, social improvement, benefits, and personality and interests. The eight factors accounted for 66.04% of the total variance. The original structures of the three instruments were used in the data analyses because the results of the EFAs of the three instruments were very similar to the original structures

and, more importantly, the original structures had high validity and reliability according to processes of development and re-examination of the three instruments.

The descriptive statistics of self-efficacy, achievement motivation, and work values for all participants and for each of the two groups, the community college group and the regular four-year university group, are shown in Table 3. The t tests were applied to explore the differences between the two groups in terms of the three variables. Results are also summarized in Table 3. According to Cohen's (1988) conventions of the effect size for t test for means, Cohen's d of 0.20, 0.50, and 0.80 are considered to show small, medium, and large effect size, respectively. Results indicated a significant difference on self-efficacy between the two groups. Regular four-year university students had significantly higher levels of self-efficacy than community college students ($t = -2.08$, $p < .05$). Although there was no significant difference on the overall achievement motivation or the motivation to achieve success between the two groups, the difference on the motivation to avoid failure was significant. Community college students had significantly higher levels of motivation to avoid failure than regular four-year university students ($t = 2.86$, $p < .01$).

The t test results also indicated a significant difference on intentional work values between the two groups. Regular four-year university students had significantly higher scores on intentional work values than community college students ($t = -2.47$, $p < .05$). Specifically, regular four-year university students had significantly higher scores on the family dimension ($t = -2.68$, $p < .01$) and the achievement dimension ($t = -4.57$, $p < .01$)

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of the intentional work values than community college students. Although there was no

significant difference on the instrumental work values between the two groups, the

differences on the stability dimension, the personality and interests dimension, the

morality and norms dimension, and the compensation and prestige dimension of the

instrumental work values were significant. Regular four-year university students had

significantly higher scores on the personality and interests dimension ($t = -5.52$, $p < .01$)

and the morality and norms dimension ($t = -2.47$, $p < .05$) than community college

students while community college students had significantly higher scores on the stability

dimension ($t = 8.02$, $p < .01$) and the compensation and prestige dimension ($t = 3.94$, p

$< .01$) than regular four-year university students. There was no significant difference on

the occupational perspective dimension or the benefits dimension between the two groups

(Table 3).

Table 4 shows the rankings of work values for both community college students and

regular four-year university students. Figure 6 is the radar chart of work values for both

groups, which indicates the differences of each work value between the two groups.

Table 3

Descriptive Statistics of Self-Efficacy, Achievement Motivation, and Work Values and Differences between the Two Groups

Variables	All Participants			Type of HEI	Each Group			Mean Difference	t	Cohen's d
	N	Mean	SD		N	Mean	SD			
Self-efficacy	384	4.07	.66	CC	198	4.00	.70	-.14	-2.08*	.21
				U	186	4.14	.61			
Overall achievement motivation	384	.34	1.16	CC	198	.29	1.19	-.10	-.84	.09
				U	186	.39	1.12			
Motivation to achieve success	384	3.88	.73	CC	198	3.95	.82	.14	1.93	.20
				U	186	3.81	.61			
Motivation to avoid failure	384	3.55	.84	CC	198	3.66	.92	.24	2.86**	.29
				U	186	3.42	.72			
Intentional work values	384	4.63	.81	CC	198	4.53	.92	-.20	-2.47*	.25
				U	186	4.73	.67			
Family	384	4.69	1.05	CC	198	4.56	1.14	-.28	-2.68**	.27
				U	186	4.84	.93			
Status	384	4.55	1.01	CC	198	4.57	1.06	.03	.33	.03
				U	186	4.53	.97			
Achievement	384	4.86	.99	CC	198	4.64	1.11	-.45	-4.57**	.47
				U	186	5.09	.78			
Social improvement	384	4.31	1.11	CC	198	4.26	1.14	-.11	-.94	.10
				U	186	4.37	1.08			

(table continues)

Table 3 *(table continued)*

Variables	All Participants			Type of HEI	Each Group			Mean Difference	*t*	Cohen's *d*
	N	Mean	SD		N	Mean	SD			
Instrumental work values	384	4.22	.74	CC	198	4.27	.79	.10	1.38	.14
				U	186	4.17	.68			
Stability	384	3.62	1.18	CC	198	4.05	1.11	.90	8.02**	.82
				U	186	3.16	1.08			
Personality and interests	383	4.74	1.06	CC	198	4.46	1.19	-.57	-5.52**	.56
				U	185	5.03	.81			
Morality and norms	383	4.58	1.04	CC	198	4.46	1.12	-.26	-2.47*	.25
				U	185	4.72	.93			
Compensation and prestige	383	3.71	1.17	CC	198	3.93	1.14	.46	3.94**	.40
				U	185	3.46	1.16			
Occupational perspective	383	4.79	.92	CC	198	4.72	1.03	-.15	-1.67	.17
				U	185	4.87	.78			
Benefits	383	3.96	1.18	CC	198	4.02	1.12	.12	1.04	.11
				U	185	3.89	1.24			

CC = Community college.

U = Regular four-year university.

* $p < .05$, ** $p < .01$.

Table 4

Rankings of Work Values for Community College Students and Regular Four-Year

University Students

Ranking of Work Values	Community College Students	Regular Four-Year University Students
1	Occupational perspective	Achievement
2	Achievement	Personality and interests
3	Status	Occupational perspective
4	Family	Family
5	Personality and interests	Morality and norms
6	Morality and norms	Status
7	Social improvement	Social improvement
8	Stability	Benefits
9	Benefits	Compensation and prestige
10	Compensation and prestige	Stability
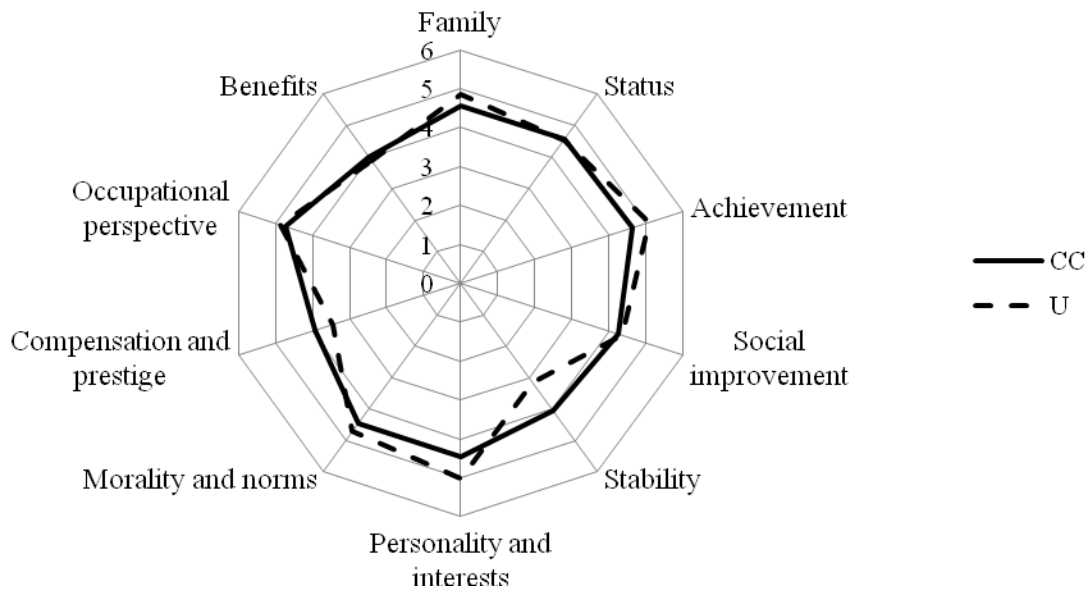
Figure 6. Radar Chart of Work Values for Both Groups.

Correlations among Demographics, Self-Efficacy, Achievement Motivation, and Work

Values

The correlations among self-efficacy, achievement motivation, and work values are summarized in Table 5. According to Cohen's (1988, 1992) conventions of the size of correlations, a correlation coefficient between .10 and .23 is considered as a weak or small correlation; a correlation coefficient between .24 and .36 represents a medium correlation; and a correlation coefficient of .37 or larger is indicates a strong or large correlation.

For the relationship between self-efficacy and work values, self-efficacy was positively correlated to intentional work values at a medium size ($r = .34$, $p < .01$). Specifically, self-efficacy was positively correlated to each of the four dimensions of intentional work values and had a strong correlation with one dimension, achievement ($r = .42$, $p < .01$). The correlation between self-efficacy and instrumental work values was not significant ($r = -.05$, $p > .05$). However, self-efficacy was negatively correlated to one dimension of instrumental work values, stability, at a medium size ($r = -.27$, $p < .01$).

For the relationship between achievement motivation and work values, motivation to achieve success was positively correlated to intentional work values at a large size ($r = .42$, $p < .01$) and instrumental work values at a small size ($r = .22$, $p < .01$). Specifically, motivation to achieve success was positively correlated to each of the four dimensions of intentional work values and had a strong correlation with two dimensions, achievement (r

= .44, $p < .01$) and social improvement ($r = .40$, $p < .01$), respectively. Motivation to achieve success had small to medium positive correlations with four dimensions of instrumental work values. The other dimension of achievement motivation, motivation to avoid failure, was positively correlated to instrumental work values at a medium size ($r = .32$, $p < .01$). Specifically, motivation to avoid failure was positively correlated to five dimensions of instrumental work values and had a strong correlation with one dimension, stability ($r = .42$, $p < .01$). The correlation between motivation to avoid failure and intentional work values was not significant ($r = .08$, $p > .05$).

For the relationship between self-efficacy and achievement motivation, self-efficacy had a strong positive correlation with motivation to achieve success ($r = .54$, $p < .01$) and had a strong negative correlation with motivation to avoid failure ($r = -.51$, $p < .01$). Self-efficacy also had a strong positive correlation with overall achievement motivation ($r = .71$, $p < .01$).

Table 5

Correlations among Demographics, Self-Efficacy, Achievement Motivation, and Work Values (N = 384)

	Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1.	Group	1.48	.50	-																								
2.	Age	22.72	3.42	-.74**	-																							
3.	Gender	1.54	.50	-.26**	.09	-																						
4.	Ethnicity	1.23	.99	.12*	-.10	.06	-																					
5.	Marital	1.12	.34	-.36**	.67**	.01	-.05	-																				
6.	Major	7.70	7.73	.77**	-.57**	-.21**	.07	-.27**	-																			
7.	Year	1.95	.99	.81**	-.51**	-.22**	.14**	-.26**	.57**	-																		
8.	Full-part	1.48	.50	-.94**	.74**	.27**	-.11*	.38**	-.72**	-.75**	-																	
9.	Employed	1.50	.50	.96**	-.71**	-.23**	.11*	-.31**	.74**	.77**	-.89**	-																
10.	SE	4.07	.66	.11*	.01	-.14**	.06	.05	.07	.14**	-.10*	.09	(.75)															
11.	AM overall	.34	1.16	.04	.04	-.11*	.05	.05	.02	.10*	-.04	.02	.71**	(.83)														
12.	MS	3.88	.73	-.10	.08	-.02	.07	.04	-.09	-.05	.09	-.08	.54**	.69**	(.86)													
13.	MF	3.55	.84	-.14**	.02	.14**	.00	-.03	-.11*	-.19**	.14**	-.10*	-.51**	-.78**	-.09	(.90)												
14.	WVINT	4.63	.81	.12*	-.08	.01	.03	-.02	.16**	.12*	-.12*	.12*	.34**	.21**	.42**	.08	(.90)											
15.	$WVINT_1$	4.69	1.05	.14**	-.12*	.07	.03	-.06	.15**	.120*	-.14**	.13*	.14**	.04	.18**	.10*	.66**	(.77)										
16.	$WVINT_2$	4.55	1.01	-.02	.05	.03	-.02	.05	.06	.00	.03	-.02	.20**	.07	.27**	.15**	.85**	.45**	(.85)									
17.	$WVINT_3$	4.86	.99	.23**	-.14**	-.05	.05	-.05	.21**	.21**	-.21**	.24**	.42**	.31**	.44**	-.04	.85**	.43**	.59**	(.88)								
18.	$WVINT_4$	4.31	1.11	.05	-.07	.00	.03	-.01	.07	.04	-.06	.05	.25**	.21**	.40**	.06	.73**	.33**	.49**	.53**	(.79)							

(table continues)

Table 5 *(table continued)*

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
19. WVINS	4.22	.74	-.07	-.01	.12*	.00	-.01	-.06	-.04	.04	-.05	-.05	-.09	.22**	.32**	.52**	.42**	.47**	.34**	.40**	(.85)						
20. WVINS$_1$	3.62	1.18	-.38**	.24**	.16**	-.07	.12*	-.32**	-.36**	.32**	-.35**	-.27**	-.32**	-.03	.42**	.19**	.30**	.22**	-.01	.13**	.58**	(.71)					
21. WVINS$_2$	4.74	1.06	.27**	-.25**	.06	.03	-.11*	.24**	.21**	-.26**	.27**	.14**	.06	.21**	.10*	.58**	.45**	.41**	.59**	.35**	.60**	.17**	(.80)				
22. WVINS$_3$	4.58	1.04	.13*	-.15**	.07	.03	-.11*	.13*	.15**	-.10	.14**	.02	.04	.25**	.17**	.44**	.41**	.31**	.38**	.30**	.71**	.23**	.52**	(.73)			
23. WVINS$_4$	3.71	1.17	-.20**	.07	.06	-.04	.08	-.13*	-.15**	.15**	-.18**	-.05	-.06	.15**	.22**	.24**	.12*	.32**	.07	.23**	.70**	.40**	.19**	.30**	(.82)		
24. WVINS$_5$	4.79	.92	.08	-.09	.03	-.02	-.04	.11*	.10*	-.08	.09	.12*	.09	.24**	.09	.54**	.40**	.48**	.43**	.37**	.71**	.19**	.51**	.58**	.33**	(.73)	
25. WVINS$_6$	3.96	1.18	-.05	.03	.06	.05	-.02	-.04	-.03	.01	-.04	-.12*	-.10*	.10	.23**	.18**	.12*	.22**	.02	.22**	.64**	.30**	.09	.26**	.47**	.32**	(.66)

SE = self-efficacy

AM overall = overall achievement motivation; MS = motivation to achieve success; MF = motivation to avoid failure

WVINT = intentional work values; WVINT$_1$ = family; WVINT$_2$ = status; WVINT$_3$ = achievement; WVINT$_4$ = social improvement

WVINS = instrumental work values; WVINS$_1$ = stability; WVINS$_2$ = personality and interests; WVINS$_3$ = morality and norms; WVINS$_4$ = compensation and prestige; WVINS$_5$ = occupational perspective; WVINS$_6$ = benefits.

( ) Cronbach's α.

* $p < .05$, ** $p < .01$.

The Relationships among Self-Efficacy, Achievement Motivation, and Work Values

In this section, the five research questions were focused on and the hypotheses under each corresponding research question were tested. Hypotheses 1, 2, and 3 were tested by the regression analyses. Hypotheses 4 and 5 were tested by Baron and Kenny's (1986) classic mediation test approach.

Research Question 1: How is self-efficacy related to work values?

Hypothesis 1 (H1): Students with higher levels of self-efficacy also score higher on both intentional and instrumental work values.

Multiple linear regressions for institution type, demographic variables, and self-efficacy on work values including the two dimensions and each factor under each dimension were conducted to explore the relationship between self-efficacy and work values. To control the effect of demographic variables on the dependent variable, the institution type and demographic variables were entered in Block 1 and self-efficacy was entered in Block 2 in the regression analysis. Results are summarized in Table 6. According to Cohen's (1988) conventions of the effect size for hierarchical multiple regression, Cohen's f^2 of 0.02, 0.15, and 0.35 are considered to show small, medium, and large effect size, respectively.

Results indicated that, for the intentional work values (WVINT), the regression model was not significant when including only the institution type and the demographic variables: year in college, gender, and age ($F = 2.30$, $p > .05$). However, when self-efficacy was entered, the regression model became significant ($F = 45.93$, $p < .01$). Furthermore, when self-efficacy was entered, the regression model was significant on

each of the four factors under the dimension of intentional work values: Family (WVINT$_1$) ($F = 7.73$, $p < .01$), Status (WVINT$_2$) ($F = 14.83$, $p < .01$), Achievement (WVINT$_3$) ($F = 71.51$, $p < .01$), and Social improvement (WVINT$_4$) ($F = 28.63$, $p < .01$) (Table 6). Table 7 shows that the coefficient of self-efficacy was positive and significant in the regression equation on the intentional work values (WVINT) ($t = 6.78$, $p < .01$) as well as on each of its four factors: Family (WVINT$_1$) ($t = 2.78$, $p < .01$), Status (WVINT$_2$) ($t = 3.85$, $p < .01$), Achievement (WVINT$_3$) ($t = 8.46$, $p < .01$), and Social improvement (WVINT$_4$) ($t = 5.35$, $p < .01$). These results implied that students with higher levels of self-efficacy also scored higher on the overall intentional work values as well as on each of its four factors.

Table 6

Multiple Regression for Institution Type (Group), Demographic Variables, and

Self-Efficacy on Work Values (N = 384)

						Change Statistics				
					Std. Error	R				
			R	Adjusted	of the	Square	F			Cohen's
Work Values	Model[a]	R	Square	R Square	Estimate	Change	Change	df1	df2	f^2
Intentional work values (WVINT)	1	0.16	0.03	0.02	12.91	0.03	2.30	4	346	0.03
	2	0.38	0.14	0.13	12.15	0.11	45.93**	1	345	0.13
Family (WVINT$_1$)	1	0.17	0.03	0.02	3.12	0.03	2.47*	4	346	0.03
	2	0.22	0.05	0.04	3.09	0.02	7.73**	1	345	0.02
Status (WVINT$_2$)	1	0.09	0.01	0.00	5.10	0.01	0.72	4	346	0.01
	2	0.22	0.05	0.04	5.00	0.04	14.83**	1	345	0.04
Achievement (WVINT$_3$)	1	0.25	0.06	0.05	4.81	0.06	5.93**	4	346	0.06
	2	0.47	0.23	0.21	4.39	0.16	71.51**	1	345	0.21
Social improvement (WVINT$_4$)	1	0.09	0.01	0.00	3.37	0.01	0.64	4	346	0.01
	2	0.29	0.08	0.07	3.25	0.08	28.63**	1	345	0.09

(table continues)

Table 6 *(table continued)*

Work Values	Model[a]	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Cohen's f^2
						Change Statistics				
Instrumental work values (WVINS)	1	0.17	0.03	0.02	13.37	0.03	2.51*	4	346	0.03
	2	0.17	0.03	0.01	13.39	0.00	0.03	1	345	0.00
Stability (WVINS$_1$)	1	0.39	0.16	0.15	3.31	0.16	15.92**	4	346	0.19
	2	0.45	0.20	0.19	3.23	0.04	19.01**	1	345	0.05
Personality and interests (WVINS$_2$)	1	0.31	0.10	0.09	3.05	0.10	9.43**	4	345	0.11
	2	0.35	0.12	0.11	3.02	0.02	9.05**	1	344	0.02
Morality and norms (WVINS$_3$)	1	0.21	0.04	0.03	3.10	0.04	3.83**	4	345	0.04
	2	0.21	0.04	0.03	3.10	0.00	0.04	1	344	0.00
Compensation and prestige (WVINS$_4$)	1	0.21	0.05	0.03	3.46	0.05	4.07**	4	345	0.05
	2	0.21	0.05	0.03	3.46	0.00	0.04	1	344	0.00
Occupational perspective (WVINS$_5$)	1	0.12	0.02	0.00	2.73	0.02	1.33	4	345	0.02
	2	0.19	0.04	0.02	2.71	0.02	7.11**	1	344	0.02
Benefits (WVINS$_6$)	1	0.11	0.01	0.00	3.55	0.01	1.11	4	345	0.01
	2	0.14	0.02	0.01	3.55	0.01	2.45	1	344	0.01

a. Model 1. Predictors: (Constant), Year, Gender, Age, Group
   Model 2. Predictors: (Constant), Year, Gender, Age, Group, SE
* $p < .05$, ** $p < .01$.

For the instrumental work values (WVINS), the regression model with self-efficacy

entered was not significant ($F = 0.03$, $p > .05$). However, the regression model with

self-efficacy entered was significant on three of the six factors under the dimension of

instrumental work values, respectively: Stability (WVINS$_1$) ($F = 19.01$, $p < .01$),

Personality and interests (WVINS$_2$) ($F = 9.05$, $p < .01$), and Occupational perspective

(WVINS$_5$) ($F = 7.11$, $p < .01$) (Table 6). Table 7 shows that the coefficient of

self-efficacy was negative and significant in the regression equation on Stability

(WVINS$_1$) ($t = -4.36$, $p < .01$) but positive and significant in the regression equation on

Personality and interests (WVINS$_2$) ($t = 3.01$, $p < .01$) and Occupational perspective

(WVINS$_5$) ($t = 2.67$, $p < .01$). These results implied that students with higher levels of

self-efficacy also scored higher on Personality and interests (WVINS$_2$) and Occupational

perspective (WVINS$_5$) but scored lower on Stability (WVINS$_1$). The regression model

with self-efficacy entered was not significant on other three factors under the dimension

of instrumental work values, respectively (Table 6).

Table 7

Multiple Regression Coefficients for Institution Type (Group), Demographic Variables,

and Self-Efficacy on Work Values (N = 384)

| Dependent Variable | Model 2[a] | Unstandardized Coefficients | | Standardized Coefficients | | |
		B	Std. Error	Beta	t	Sig.
Intentional work values (WVINT)	(Constant)	34.80	10.54		3.30**	0.00
	Group	4.18	2.91	0.16	1.44	0.15
	Age	0.07	0.30	0.02	0.23	0.82
	Gender	2.74	1.36	0.11	2.01*	0.05
	Year	-0.16	1.11	-0.01	-0.14	0.89
	SE	0.36	0.05	0.35	6.78**	0.00
Family (WVINT$_1$)	(Constant)	10.57	2.69		3.94**	0.00
	Group	0.38	0.74	0.06	0.51	0.61
	Age	-0.06	0.08	-0.06	-0.78	0.43
	Gender	0.81	0.35	0.13	2.33*	0.02
	Year	0.12	0.28	0.04	0.42	0.67
	SE	0.04	0.01	0.15	2.78**	0.01
Status (WVINT$_2$)	(Constant)	10.52	4.34		2.42*	0.02
	Group	1.03	1.20	0.10	0.86	0.39
	Age	0.15	0.12	0.10	1.22	0.22
	Gender	0.75	0.56	0.07	1.34	0.18
	Year	-0.15	0.46	-0.03	-0.33	0.74
	SE	0.08	0.02	0.21	3.85**	0.00

(table continues)

Table 7 *(table continued)*

Dependent Variable	Model 2[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Achievement (WVINT$_3$)	(Constant)	5.95	3.81		1.56	0.12
	Group	2.52	1.05	0.26	2.39*	0.02
	Age	0.04	0.11	0.03	0.41	0.69
	Gender	0.79	0.49	0.08	1.61	0.11
	Year	-0.04	0.40	-0.01	-0.11	0.91
	SE	0.16	0.02	0.41	8.46**	0.00
Social improvement (WVINT$_4$)	(Constant)	7.77	2.82		2.76**	0.01
	Group	0.26	0.78	0.04	0.34	0.74
	Age	-0.07	0.08	-0.07	-0.82	0.41
	Gender	0.38	0.37	0.06	1.04	0.30
	Year	-0.08	0.30	-0.02	-0.28	0.78
	SE	0.08	0.01	0.28	5.35**	0.00
Instrumental work values (WVINS)	(Constant)	88.91	11.62		7.65**	0.00
	Group	-5.58	3.21	-0.21	-1.74	0.08
	Age	-0.49	0.33	-0.13	-1.51	0.13
	Gender	3.18	1.50	0.12	2.11*	0.04
	Year	1.35	1.22	0.10	1.10	0.27
	SE	-0.01	0.06	-0.01	-0.17	0.86
Stability (WVINS$_1$)	(Constant)	20.28	2.80		7.24**	0.00
	Group	-2.28	0.77	-0.32	-2.95**	0.00
	Age	-0.05	0.08	-0.04	-0.58	0.56
	Gender	0.22	0.36	0.03	0.60	0.55
	Year	-0.29	0.29	-0.08	-1.00	0.32
	SE	-0.06	0.01	-0.22	-4.36**	0.00
Personality and interests (WVINS$_2$)	(Constant)	8.91	2.62		3.40**	0.00
	Group	1.69	0.72	0.27	2.33*	0.02
	Age	-0.07	0.07	-0.08	-0.99	0.32
	Gender	1.03	0.34	0.16	3.03**	0.00
	Year	-0.09	0.28	-0.03	-0.31	0.76
	SE	0.04	0.01	0.16	3.01**	0.00

(table continues)

Table 7 *(table continued)*

Dependent Variable	Model 2[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Morality and norms (WVINS$_3$)	(Constant)	14.84	2.69		5.51**	0.00
	Group	-0.48	0.75	-0.08	-0.65	0.52
	Age	-0.12	0.08	-0.13	-1.54	0.13
	Gender	0.65	0.35	0.10	1.86	0.06
	Year	0.54	0.28	0.17	1.91	0.06
	SE	0.00	0.01	0.01	0.20	0.84
Compensation and prestige (WVINS$_4$)	(Constant)	17.79	3.01		5.92**	0.00
	Group	-2.55	0.83	-0.36	-3.07**	0.00
	Age	-0.16	0.09	-0.16	-1.91	0.06
	Gender	0.03	0.39	0.00	0.07	0.95
	Year	0.27	0.32	0.08	0.86	0.39
	SE	0.00	0.02	0.01	0.20	0.84
Occupational perspective (WVINS$_5$)	(Constant)	12.17	2.35		5.18**	0.00
	Group	-0.05	0.65	-0.01	-0.08	0.94
	Age	-0.05	0.07	-0.07	-0.80	0.43
	Gender	0.45	0.30	0.08	1.49	0.14
	Year	0.20	0.25	0.07	0.79	0.43
	SE	0.03	0.01	0.15	2.67**	0.01
Benefits (WVINS$_6$)	(Constant)	14.69	3.08		4.77**	0.00
	Group	-0.96	0.85	-0.14	-1.12	0.26
	Age	-0.04	0.09	-0.04	-0.43	0.67
	Gender	0.48	0.40	0.07	1.20	0.23
	Year	0.32	0.32	0.09	0.98	0.33
	SE	-0.02	0.02	-0.09	-1.57	0.12

a. Model 2. Predictors: (Constant), Year, Gender, Age, Group, SE

* $p < .05$, ** $p < .01$.

Ding (2007) investigated self-efficacy and work values among students in higher

vocational and technical colleges and found that students with lower levels of

self-efficacy had higher scores on work values such as pursuing status and prestige. Ding

(2007) indicated that those students pursuing high status and prestige would have

unrealistic high expectations when looking for jobs which would cause disappointment

and negative emotions and lower their levels of self-efficacy. However, Zhuang and Lu (2009) examined self-efficacy and work values among university juniors majoring in science and found that self-efficacy was significantly positively correlated with pursuing status. Wen and Zhang (2009) found that self-efficacy was significantly positively correlated with pursuing status and prestige for college students majoring in engineering. The results of this study showed that students with higher levels of self-efficacy scored higher on the status of work values ($F = 14.83$, $p < .01$). This was different from Ding's (2007) findings but was consistent with Zhuang and Lu's (2009) and Wen and Zhang's (2009) and implied that students pursuing high status would have higher levels of self-efficacy to reach their goals. The results of this study showed no significant correlation between self-efficacy and pursuing prestige ($F = 0.04$, $p > .05$).

Zhuang and Lu (2009) also found that self-efficacy was significantly positively correlated with achievement, which was consistent with the results of this study. Ding (2007) and Wen and Zhang (2009) also found that students with higher levels of self-efficacy had higher scores on work values such as occupational perspective, self-development, and self-actualization, which was consistent with the results of this study. For these results, Ding (2007) indicated that those students focusing on perspective and development would tend to like more challenging and competitive work and strive hard to actualize their goals and dreams.

In sum, Hypothesis 1 (H1) was partially supported. Students with higher levels of self-efficacy also scored higher on intentional work values. Students with higher levels of self-efficacy scored higher on some instrumental work values, scored lower on some instrumental work values, and scored the same on other instrumental work values.

Research Question 2: How is achievement motivation related to work values?

Hypothesis 2 (H2): Students with different levels of achievement motivation have different work values.

Hypothesis 2a (H2a): Students with higher levels of motivation to achieve success also score higher on intentional work values.

Hypothesis 2b (H2b): Students with higher levels of motivation to avoid failure also score higher on instrumental work values.

Multiple linear regressions for institution type, demographic variables, and achievement motivation on work values including the two dimensions and each factor under each dimension were conducted to explore the relationship between achievement motivation and work values. To control the effect of demographic variables on the dependent variable, the institution type and demographic variables were entered in Block 1; the first dimension of achievement motivation, the motivation to achieve success (MS), was entered in Block 2; and the second dimension, the motivation to avoid failure (MF), was entered in Block 3 in the regression analysis. Results are summarized in Table 8.

Results indicated that, for the relationship between MS and intentional work values (WVINT), the regression model was significant when MS was entered in Model 2 ($F = 87.63$, $p < .01$). Model 2 with MS entered on each of the four factors under the dimension of intentional work values was also significant respectively: Family ($WVINT_1$) ($F = 16.10$, $p < .01$), Status ($WVINT_2$) ($F = 27.01$, $p < .01$), Achievement ($WVINT_3$) ($F = 106.42$, $p < .01$), and Social improvement ($WVINT_4$) ($F = 76.94$, $p < .01$) (Table 8). Table 9 shows that the coefficient of MS was positive and significant in the regression equation on the intentional work values (WVINT) ($t = 9.66$, $p < .01$) as well as on each of

its four factors: Family ($WVINT_1$) ($t = 4.26$, $p < .01$), Status ($WVINT_2$) ($t = 5.55$, $p < .01$), Achievement ($WVINT_3$) ($t = 10.33$, $p < .01$), and Social improvement ($WVINT_4$) ($t = 8.88$, $p < .01$). These results implied that students with higher levels of motivation to achieve success also scored higher on the overall intentional work values as well as on each of its four factors. Therefore, Hypothesis 2a (H2a) was supported.

Table 8

Multiple Regression for Institution Type (Group), Demographic Variables, and Achievement Motivation on Work Values (N = 384)

Work Values	Model[a]	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Cohen's f^2
						Change Statistics				
Intentional work values (WVINT)	1	0.16	0.03	0.02	12.91	0.03	2.30	4	346	0.03
	2	0.47	0.22	0.21	11.55	0.20	87.63**	1	345	0.26
	3	0.49	0.24	0.23	11.43	0.02	8.19**	1	344	0.03
Family ($WVINT_1$)	1	0.17	0.03	0.02	3.12	0.03	2.47*	4	346	0.03
	2	0.27	0.07	0.06	3.06	0.04	16.10**	1	345	0.04
	3	0.30	0.09	0.08	3.03	0.02	7.71**	1	344	0.02
Status ($WVINT_2$)	1	0.09	0.01	0.00	5.10	0.01	0.72	4	346	0.01
	2	0.28	0.08	0.07	4.92	0.07	27.01**	1	345	0.08
	3	0.34	0.11	0.10	4.84	0.03	12.35**	1	344	0.03
Achievement ($WVINT_3$)	1	0.25	0.06	0.05	4.81	0.06	5.93**	4	346	0.06
	2	0.53	0.29	0.27	4.22	0.22	106.42**	1	345	0.31
	3	0.53	0.29	0.27	4.22	0.00	0.42	1	344	0.00
Social improvement ($WVINT_4$)	1	0.09	0.01	0.00	3.37	0.01	0.64	4	346	0.01
	2	0.43	0.19	0.18	3.06	0.18	76.94**	1	345	0.22
	3	0.44	0.19	0.18	3.05	0.01	2.23	1	344	0.01

(table continues)

Table 8 *(table continued)*

Work Values	Model[a]	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Cohen's f^2
Instrumental work values (WVINS)	1	0.17	0.03	0.02	13.37	0.03	2.51*	4	346	0.03
	2	0.28	0.08	0.06	13.05	0.05	17.95**	1	345	0.05
	3	0.41	0.17	0.15	12.42	0.09	36.85**	1	344	0.11
Stability (WVINS$_1$)	1	0.39	0.16	0.15	3.31	0.16	15.92**	4	346	0.19
	2	0.40	0.16	0.15	3.31	0.00	1.15	1	345	0.00
	3	0.53	0.28	0.27	3.07	0.12	56.95**	1	344	0.17
Personality and interests (WVINS$_2$)	1	0.31	0.10	0.09	3.05	0.10	9.43**	4	345	0.11
	2	0.40	0.16	0.15	2.95	0.06	24.55**	1	344	0.07
	3	0.42	0.18	0.16	2.93	0.02	7.48**	1	343	0.02
Morality and norms (WVINS$_3$)	1	0.21	0.04	0.03	3.10	0.04	3.83**	4	345	0.04
	2	0.32	0.11	0.09	3.00	0.06	24.14**	1	344	0.07
	3	0.38	0.15	0.13	2.94	0.04	15.79**	1	343	0.05
Compensation and prestige (WVINS$_4$)	1	0.21	0.05	0.03	3.46	0.05	4.07**	4	345	0.05
	2	0.26	0.07	0.06	3.42	0.02	8.64**	1	344	0.02
	3	0.32	0.10	0.08	3.37	0.03	11.87**	1	343	0.03
Occupational perspective (WVINS$_5$)	1	0.12	0.02	0.00	2.73	0.02	1.33	4	345	0.02
	2	0.29	0.08	0.07	2.64	0.07	25.16**	1	344	0.08
	3	0.31	0.10	0.08	2.62	0.01	5.05*	1	343	0.01
Benefits (WVINS$_6$)	1	0.11	0.01	0.00	3.55	0.01	1.11	4	345	0.01
	2	0.15	0.02	0.01	3.54	0.01	3.73	1	344	0.01
	3	0.27	0.07	0.05	3.46	0.05	17.45**	1	343	0.05

a. Model 1. Predictors: (Constant), Year, Gender, Age, Group
   Model 2. Predictors: (Constant), Year, Gender, Age, Group, MS
   Model 3. Predictors: (Constant), Year, Gender, Age, Group, MS, MF
* $p < .05$, ** $p < .01$.

For the relationship between MF and instrumental work values (WVINS), the

regression model was significant when MF was entered in Model 3 ($F = 36.85$, $p < .01$).

Model 3 with MF entered on each of the six factors under the dimension of instrumental

work values was also significant respectively: Stability (WVINS$_1$) ($F = 56.95$, $p < .01$),

Personality and interests (WVINS$_2$) ($F = 7.48$, $p < .01$), Morality and norms (WVINS$_3$)

($F = 15.79$, $p < .01$), Compensation and prestige (WVINS$_4$) ($F = 11.87$, $p < .01$),

Occupational perspective (WVINS$_5$) ($F = 5.05$, $p < .05$), and Benefits (WVINS$_6$) ($F =$

17.45, $p < .01$) (Table 8). Table 9 shows that the coefficient of MF was positive and

significant in the regression equation on the instrumental work values (WVINS) ($t = 6.07$,

$p < .01$) as well as on each of its six factors: Stability (WVINS$_1$) ($t = 7.55$, $p < .01$),

Personality and interests (WVINS$_2$) ($t = 2.74$, $p < .01$), Morality and norms (WVINS$_3$) (t

$= 3.97$, $p < .01$), Compensation and prestige (WVINS$_4$) ($t = 3.45$, $p < .01$), Occupational

perspective (WVINS$_5$) ($t = 2.25$, $p < .05$), and Benefits (WVINS$_6$) ($t = 4.18$, $p < .01$).

These results implied that students with higher levels of motivation to avoid failure also

scored higher on the overall instrumental work values as well as on each of its six factors.

Therefore, Hypothesis 2b (H2b) was supported.

Table 9

Multiple Regression Coefficients for Institution Type (Group), Demographic Variables,

and Achievement Motivation on Work Values (N = 384)

Dependent Variable	Model 3[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Intentional work values (WVINT)	(Constant)	11.37	10.78		1.06	0.29
	Group	7.78	2.75	0.30	2.83**	0.01
	Age	0.38	0.28	0.10	1.37	0.17
	Gender	1.68	1.28	0.07	1.31	0.19
	Year	0.10	1.04	0.01	0.10	0.93
	MS	0.55	0.06	0.46	9.66**	0.00
	MF	0.14	0.05	0.14	2.86**	0.00

(table continues)

Table 9 *(table continued)*

Dependent Variable	Model 3[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Family ($WVINT_1$)	(Constant)	6.19	2.85		2.17*	0.03
	Group	0.84	0.73	0.13	1.16	0.25
	Age	-0.01	0.07	-0.02	-0.20	0.85
	Gender	0.64	0.34	0.10	1.87	0.06
	Year	0.17	0.28	0.06	0.63	0.53
	MS	0.06	0.02	0.22	4.26**	0.00
	MF	0.04	0.01	0.15	2.78**	0.01
Status ($WVINT_2$)	(Constant)	1.95	4.56		0.43	0.67
	Group	2.01	1.16	0.20	1.72	0.09
	Age	0.24	0.12	0.16	2.07*	0.04
	Gender	0.38	0.54	0.04	0.69	0.49
	Year	-0.04	0.44	-0.01	-0.08	0.94
	MS	0.13	0.02	0.29	5.55**	0.00
	MF	0.08	0.02	0.18	3.51**	0.00
Achievement ($WVINT_3$)	(Constant)	0.97	3.98		0.25	0.81
	Group	3.86	1.02	0.39	3.80**	0.00
	Age	0.16	0.10	0.11	1.52	0.13
	Gender	0.46	0.47	0.05	0.97	0.33
	Year	0.02	0.39	0.00	0.05	0.96
	MS	0.22	0.02	0.48	10.33**	0.00
	MF	0.01	0.02	0.03	0.65	0.52
Social improvement ($WVINT_4$)	(Constant)	2.25	2.88		0.78	0.43
	Group	1.07	0.73	0.16	1.46	0.15
	Age	0.00	0.07	0.00	-0.03	0.98
	Gender	0.21	0.34	0.03	0.62	0.53
	Year	-0.06	0.28	-0.02	-0.20	0.84
	MS	0.13	0.02	0.44	8.88**	0.00
	MF	0.02	0.01	0.08	1.49	0.14

(table continues)

Table 9 *(table continued)*

Dependent Variable	Model 3[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Instrumental work values (WVINS)	(Constant)	45.67	11.71		3.90**	0.00
	Group	-3.37	2.99	-0.13	-1.13	0.26
	Age	-0.30	0.30	-0.08	-1.00	0.32
	Gender	2.46	1.40	0.09	1.76	0.08
	Year	1.60	1.13	0.12	1.41	0.16
	MS	0.30	0.06	0.25	4.93**	0.00
	MF	0.33	0.06	0.31	6.07**	0.00
Stability (WVINS$_1$)	(Constant)	10.09	2.90		3.49**	0.00
	Group	-2.17	0.74	-0.30	-2.94**	0.00
	Age	-0.03	0.08	-0.03	-0.37	0.71
	Gender	0.08	0.35	0.01	0.22	0.83
	Year	-0.21	0.28	-0.06	-0.77	0.45
	MS	-0.01	0.02	-0.03	-0.54	0.59
	MF	0.10	0.01	0.36	7.55**	0.00
Personality and interests (WVINS$_2$)	(Constant)	4.02	2.76		1.46	0.15
	Group	2.21	0.71	0.35	3.13**	0.00
	Age	-0.03	0.07	-0.03	-0.38	0.70
	Gender	0.87	0.33	0.14	2.63**	0.01
	Year	-0.04	0.27	-0.01	-0.15	0.88
	MS	0.08	0.02	0.26	5.21**	0.00
	MF	0.04	0.01	0.14	2.74**	0.01
Morality and norms (WVINS$_3$)	(Constant)	6.37	2.77		2.30*	0.02
	Group	0.00	0.71	0.00	0.00	1.00
	Age	-0.08	0.07	-0.09	-1.14	0.26
	Gender	0.56	0.33	0.09	1.69	0.09
	Year	0.57	0.27	0.18	2.10*	0.04
	MS	0.08	0.02	0.27	5.32**	0.00
	MF	0.05	0.01	0.21	3.97**	0.00

(table continues)

Table 9 *(table continued)*

Dependent Variable	Model 3[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Compensation and prestige ($WVINS_4$)	(Constant)	10.92	3.18		3.44**	0.00
	Group	-2.17	0.81	-0.31	-2.67**	0.01
	Age	-0.13	0.08	-0.13	-1.56	0.12
	Gender	-0.09	0.38	-0.01	-0.24	0.81
	Year	0.31	0.31	0.09	1.01	0.31
	MS	0.05	0.02	0.17	3.26**	0.00
	MF	0.05	0.02	0.18	3.45**	0.00
Occupational perspective ($WVINS_5$)	(Constant)	7.89	2.47		3.19**	0.00
	Group	0.39	0.63	0.07	0.61	0.54
	Age	-0.02	0.06	-0.02	-0.26	0.80
	Gender	0.34	0.30	0.06	1.16	0.25
	Year	0.22	0.24	0.08	0.93	0.35
	MS	0.07	0.01	0.27	5.21**	0.00
	MF	0.03	0.01	0.12	2.25*	0.03
Benefits ($WVINS_6$)	(Constant)	6.23	3.26		1.91	0.06
	Group	-0.67	0.83	-0.09	-0.80	0.43
	Age	-0.01	0.08	-0.01	-0.17	0.87
	Gender	0.39	0.39	0.06	1.01	0.31
	Year	0.35	0.32	0.10	1.12	0.27
	MS	0.04	0.02	0.12	2.31*	0.02
	MF	0.06	0.02	0.22	4.18**	0.00

a. Model 3. Predictors: (Constant), Year, Gender, Age, Group, MS, MF
* $p < .05$, ** $p < .01$.

The results of this study were similar to Zhang and Lan's (2007) study in which they found significantly positive correlations between motivation to achieve success and intentional work values and between motivation to avoid failure and instrumental work values for college students. In another study on achievement motivation and work values for students in teachers colleges, Zhang and Lan (2007) found that achievement motivation could predict intentional work values. Zhang (2010) also found that achievement motivation could predict work values for students in teachers colleges.

Zhang (2010) found significantly positive correlations between motivation to achieve success and pursuing status and prestige and between motivation to achieve success and perspective and development. Zhang (2010) also found significantly positive correlations between motivation to avoid failure and hygiene factors of work values such as stability, compensation, and benefits. These results were consistent with the results of this study.

Research Question 3: How is self-efficacy related to achievement motivation?

Hypothesis 3 (H3): Students with higher levels of self-efficacy have higher levels of achievement motivation.

Hypothesis 3a (H3a): Students with higher levels of self-efficacy have higher levels of motivation to achieve success.

Hypothesis 3b (H3b): Students with higher levels of self-efficacy have lower levels of motivation to avoid failure.

Multiple linear regressions for institution type, demographic variables, and self-efficacy on achievement motivation (AM) and its two dimensions, the motivation to achieve success (MS) and the motivation to avoid failure (MF), were conducted to explore the relationship between self-efficacy and achievement motivation. To control the effect of demographic variables on the dependent variable, the institution type and demographic variables were entered in Block 1 and self-efficacy was entered in Block 2 in the regression analysis. Results are summarized in Table 10.

Table 10

Multiple Regression for Institution Type (Group), Demographic Variables, and

Self-Efficacy on Achievement Motivation (N = 384)

Achievement Motivation	Model[a]	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Cohen's f^2
Achievement Motivation (AM)	1	0.17	0.03	0.02	17.04	0.03	2.70*	4	346	0.03
	2	0.71	0.50	0.49	12.29	0.47	319.45**	1	345	0.94
Motivation to Achieve Success (MS)	1	0.13	0.02	0.01	10.86	0.02	1.46	4	346	0.02
	2	0.56	0.32	0.31	9.06	0.30	152.35**	1	345	0.44
Motivation to Avoid Failure (MF)	1	0.23	0.06	0.04	12.27	0.06	5.01**	4	346	0.06
	2	0.52	0.27	0.26	10.83	0.21	99.32**	1	345	0.29

a. Model 1. Predictors: (Constant), Year, Gender, Age, Group
  Model 2. Predictors: (Constant), Year, Gender, Age, Group, SE
* $p < .05$, ** $p < .01$.

Results indicated that, for the relationship between self-efficacy (SE) and the overall

achievement motivation (AM), the regression model was significant when SE was

entered in Model 2 ($F = 319.45$, $p < .01$). Model 2 with SE entered on each of the two

dimensions of achievement motivation was also significant respectively: Motivation to

Achieve Success (MS) ($F = 152.35$, $p < .01$) and Motivation to Avoid Failure (MF) ($F =$

99.32, $p < .01$) (Table 10). Table 11 shows that the coefficient of SE was positive and

significant in the regression equation on the overall achievement motivation (AM) ($t =$

17.87, $p < .01$) as well as on its first dimension: Motivation to Achieve Success (MS) ($t =$

12.34, $p < .01$). However, the coefficient of SE was negative and significant in the

regression equation on the second dimension: Motivation to Avoid Failure (MF) ($t =$

-9.97, $p < .01$). These results implied that students with higher levels of self-efficacy had

higher levels of overall achievement motivation and motivation to achieve success but

lower levels of motivation to avoid failure. Therefore, Hypothesis 3 (H3) as well as

Hypotheses 3a (H3a) and 3b (H3b) was supported.

Table 11

Multiple Regression Coefficients for Institution Type (Group), Demographic Variables, and Self-Efficacy on Achievement Motivation (N = 384)

Dependent Variable	Model 2[a]	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Achievement Motivation (AM)	(Constant)	-60.96	10.67		-5.71**	0.00
	Group	-3.74	2.95	-0.11	-1.27	0.21
	Age	-0.10	0.30	-0.02	-0.32	0.75
	Gender	-1.29	1.38	-0.04	-0.93	0.35
	Year	1.00	1.12	0.06	0.89	0.37
	SE	0.95	0.05	0.70	17.87**	0.00
Motivation to Achieve Success (MS)	(Constant)	35.98	7.87		4.57**	0.00
	Group	-5.44	2.17	-0.25	-2.51*	0.01
	Age	-0.35	0.22	-0.11	-1.60	0.11
	Gender	0.47	1.02	0.02	0.46	0.64
	Year	0.11	0.83	0.01	0.14	0.89
	SE	0.49	0.04	0.56	12.34**	0.00
Motivation to Avoid Failure (MF)	(Constant)	96.94	9.40		10.31**	0.00
	Group	-1.70	2.59	-0.07	-0.66	0.51
	Age	-0.26	0.26	-0.07	-0.97	0.33
	Gender	1.76	1.22	0.07	1.45	0.15
	Year	-0.89	0.99	-0.07	-0.90	0.37
	SE	-0.47	0.05	-0.47	-9.97**	0.00

a. Model 2. Predictors: (Constant), Year, Gender, Age, Group, SE
* $p < .05$, ** $p < .01$.

These results were consistent with previous studies. Xiao (2003), Zhang (2006), and

Wang and Xiao (2010) found that, for college students, self-efficacy had a significantly

positive correlation with motivation to achieve success but a significantly negative

correlation with motivation to avoid failure. Shi (2008) also found similar results for

graduate students. Li, et al. (2007), Ning and Qu (2010), and Wang and Zhang (2010)

found that, for college students, self-efficacy had a significantly positive correlation with motivation to achieve success but no significant correlation with motivation to avoid failure.

Research Question 4: What is the mediation effect of institution type in the relationship between self-efficacy and work values?

Hypothesis 4 (H4): Institution type has a strong mediation effect in the relationship between self-efficacy and work values.

Mediation analyses were conducted to explore the possible mediation effect of the institution type in the relationship between self-efficacy and work values. Intentional work values, instrumental work values, and each specific factor in each of the two dimensions were examined separately. The classic mediation test approach (Baron & Kenny, 1986) was used to examine the mediation effect of institution type. For each factor in each of the two dimensions, the following three regression models were tested.

$$Y = cX + e_1$$

$$M = aX + e_2$$

$$Y = c'X + bM + e_3$$

In the above three equations, Y is the dependent variable (each factor of the work values); X is the independent variable (self-efficacy); and M is the mediator (institution type). The mediation effect is likely to exist if the coefficients, a, b, and c, are all significant and $(c - c')$ is significant as well (Iacobucci, 2008).

The mediation analysis results are summarized in Table 12. Results indicated that the institution type had mediation effect in the relationship between self-efficacy and the first factor of the instrumental work values: stability (WVINS$_1$) ($z = -1.99$, $p < .05$). No

other mediation effect of institution type was detected in the relationship between

self-efficacy and any other factor of work values. Therefore, Hypothesis 4 (H4) was not

completely supported.

Table 12

Mediation Effect of the Institution Type in the Relationship between Self-Efficacy and

Work Values

Work		Direct and Total Effects				Indirect Effect			
Values	Model	B	SE	t	p	Value	SE	z	p
WVINT	b (YX)	0.35	0.05	7.04**	0.00				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	2.32	1.25	1.85	0.07				
	b (YX.M)	0.34	0.05	6.83**	0.00	0.01	0.01	1.30	0.19
WVINT$_1$	b (YX)	0.04	0.01	2.81**	0.01				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	0.76	0.32	2.40*	0.02				
	b (YX.M)	0.03	0.01	2.56*	0.01	0.00	0.00	1.50	0.13
WVINT$_2$	b (YX)	0.08	0.02	4.06**	0.00				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	-0.39	0.51	-0.77	0.44				
	b (YX.M)	0.08	0.02	4.12**	0.00	0.00	0.00	-0.66	0.51
WVINT$_3$	b (YX)	0.17	0.02	9.09**	0.00				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	1.81	0.45	3.99**	0.00				
	b (YX.M)	0.16	0.02	8.79**	0.00	0.01	0.00	1.80	0.07
WVINT$_4$	b (YX)	0.07	0.01	5.12**	0.00				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	0.14	0.33	0.43	0.67				
	b (YX.M)	0.07	0.01	5.04**	0.00	0.00	0.00	0.38	0.70
WVINS	b (YX)	-0.06	0.05	-1.05	0.30				
	b (MX)	0.00	0.00	2.08	0.04				
	b (YM.X)	-1.73	1.36	-1.27	0.21				
	b (YX.M)	-0.05	0.05	-0.91	0.36	-0.01	0.01	-1.00	0.32
WVINS$_1$	b (YX)	-0.07	0.01	-5.36**	0.00				
	b (MX)	0.00	0.00	2.08*	0.04				
	b (YM.X)	-2.52	0.33	-7.69**	0.00				
	b (YX.M)	-0.06	0.01	-4.91**	0.00	-0.01	0.01	-1.99*	0.05

(table continues)

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Table 12 *(table continued)*

Work Values		Direct and Total Effects				Indirect Effect			
	Model	B	SE	t	p	Value	SE	z	p
WVINS$_2$	b (YX)	0.04	0.01	2.74**	0.01				
	b (MX)	0.00	0.00	2.07*	0.04				
	b (YM.X)	1.64	0.31	5.21**	0.00				
	b (YX.M)	0.03	0.01	2.27*	0.02	0.01	0.00	1.89	0.06
WVINS$_3$	b (YX)	0.00	0.01	0.39	0.70				
	b (MX)	0.00	0.00	2.07*	0.04				
	b (YM.X)	0.77	0.32	2.43*	0.02				
	b (YX.M)	0.00	0.01	0.13	0.89	0.00	0.00	1.50	0.13
WVINS$_4$	b (YX)	-0.01	0.01	-0.90	0.37				
	b (MX)	0.00	0.00	2.07*	0.04				
	b (YM.X)	-1.37	0.36	-3.86**	0.00				
	b (YX.M)	-0.01	0.01	-0.50	0.62	-0.01	0.00	-1.78	0.08
WVINS$_5$	b (YX)	0.03	0.01	2.35*	0.02				
	b (MX)	0.00	0.00	2.07*	0.04				
	b (YM.X)	0.40	0.28	1.42	0.16				
	b (YX.M)	0.02	0.01	2.19*	0.03	0.00	0.00	1.09	0.28
WVINS$_6$	b (YX)	-0.03	0.01	-2.28*	0.02				
	b (MX)	0.00	0.00	2.07*	0.04				
	b (YM.X)	-0.29	0.36	-0.81	0.42				
	b (YX.M)	-0.03	0.01	-2.18*	0.03	0.00	0.00	-0.68	0.49

WVINT = intentional work values; WVINT$_1$ = family; WVINT$_2$ = status; WVINT$_3$ = achievement; WVINT$_4$ = social improvement; WVINS = instrumental work values; WVINS$_1$ = stability; WVINS$_2$ = personality and interests; WVINS$_3$ = morality and norms; WVINS$_4$ = compensation and prestige; WVINS$_5$ = occupational perspective; WVINS$_6$ = benefits.
* $p < .05$, ** $p < .01$.

Research Question 5: What is the mediation effect of institution type in the relationship between achievement motivation and work values?

Hypothesis 5 (H5): Institution type has a strong mediation effect in the relationship between achievement motivation and work values.

Mediation analyses were also conducted to explore the mediation effect of institution type in the relationship between achievement motivation and work values. Intentional work values, instrumental work values, and each specific factor in each of the two dimensions were examined separately. The classic mediation test approach (Baron &

Kenny, 1986) was also used to examine the mediation effect of institution type.

Results indicated that no mediation effect of the institution type was detected in the relationship between achievement motivation and any intentional or instrumental work values (Table 13). Therefore, Hypothesis 5 (H5) was not supported.

Table 13

Mediation Effect of the Institution Type in the Relationship between Achievement Motivation and Work Values

Work Values		Direct and Total Effects				Indirect Effect			
	Model	B	SE	t	p	Value	SE	z	p
WVINT	b (YX)	0.15	0.04	4.11**	0.00				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	3.00	1.30	2.32*	0.02				
	b (YX.M)	0.15	0.04	4.03**	0.00	0.00	0.01	0.73	0.47
$WVINT_1$	b (YX)	0.01	0.01	0.80	0.42				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	0.84	0.32	2.63**	0.01				
	b (YX.M)	0.01	0.01	0.70	0.49	0.00	0.00	0.75	0.45
$WVINT_2$	b (YX)	0.02	0.01	1.27	0.20				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	-0.20	0.52	-0.39	0.70				
	b (YX.M)	0.02	0.01	1.29	0.20	0.00	0.00	-0.24	0.81
$WVINT_3$	b (YX)	0.09	0.01	6.27**	0.00				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	2.10	0.47	4.46**	0.00				
	b (YX.M)	0.08	0.01	6.23**	0.00	0.00	0.00	0.80	0.42
$WVINT_4$	b (YX)	0.04	0.01	4.22**	0.00				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	0.26	0.33	0.78	0.44				
	b (YX.M)	0.04	0.01	4.18**	0.00	0.00	0.00	0.43	0.67
WVINS	b (YX)	-0.07	0.04	-1.80	0.07				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	-1.76	1.35	-1.30	0.19				
	b (YX.M)	-0.07	0.04	-1.74	0.08	0.00	0.00	-0.59	0.55

(table continues)

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Table 13 *(table continued)*

Work Values	Model	Direct and Total Effects				Indirect Effect			
		B	SE	*t*	*p*	Value	SE	*z*	*p*
WVINS$_1$	b (YX)	-0.06	0.01	-6.54**	0.00				
	b (MX)	0.00	0.00	0.84	0.40				
	b (YM.X)	-2.60	0.32	-8.18**	0.00				
	b (YX.M)	-0.06	0.01	-6.73**	0.00	0.00	0.00	-0.83	0.41
WVINS$_2$	b (YX)	0.01	0.01	1.17	0.24				
	b (MX)	0.00	0.00	0.82	0.41				
	b (YM.X)	1.70	0.31	5.40**	0.00				
	b (YX.M)	0.01	0.01	0.98	0.33	0.00	0.00	0.80	0.42
WVINS$_3$	b (YX)	0.01	0.01	0.75	0.46				
	b (MX)	0.00	0.00	0.82	0.41				
	b (YM.X)	0.77	0.32	2.43*	0.02				
	b (YX.M)	0.01	0.01	0.65	0.52	0.00	0.00	0.73	0.47
WVINS$_4$	b (YX)	-0.01	0.01	-1.25	0.21				
	b (MX)	0.00	0.00	0.82	0.41				
	b (YM.X)	-1.38	0.35	-3.89**	0.00				
	b (YX.M)	-0.01	0.01	-1.11	0.27	0.00	0.00	-0.78	0.44
WVINS$_5$	b (YX)	0.01	0.01	1.67	0.10				
	b (MX)	0.00	0.00	0.82	0.41				
	b (YM.X)	0.45	0.28	1.58	0.11				
	b (YX.M)	0.01	0.01	1.60	0.11	0.00	0.00	0.64	0.52
WVINS$_6$	b (YX)	-0.02	0.01	-2.01*	0.05				
	b (MX)	0.00	0.00	0.82	0.41				
	b (YM.X)	-0.34	0.36	-0.96	0.34				
	b (YX.M)	-0.02	0.01	-1.97*	0.05	0.00	0.00	-0.49	0.63

WVINT = intentional work values; WVINT$_1$ = family; WVINT$_2$ = status; WVINT$_3$ = achievement; WVINT$_4$ = social improvement; WVINS = instrumental work values; WVINS$_1$ = stability; WVINS$_2$ = personality and interests; WVINS$_3$ = morality and norms; WVINS$_4$ = compensation and prestige; WVINS$_5$ = occupational perspective; WVINS$_6$ = benefits.
* $p < .05$, ** $p < .01$.

Results Summary

The main findings regarding the five hypotheses of this study are as follows.

Hypothesis 1 (H1) was partially supported. Students with higher levels of self-efficacy

also scored higher on intentional work values. Students with higher levels of self-efficacy

scored higher on some instrumental work values, scored lower on some instrumental

work values, and scored the same on other instrumental work values. Hypotheses 2a (H2a)

and 2b (H2b) were supported. Students with higher levels of motivation to achieve success also scored higher on intentional work values. Students with higher levels of motivation to avoid failure also scored higher on instrumental work values. Hypotheses 3a (H3a) and 3b (H3b) were supported. Students with higher levels of self-efficacy had higher levels of overall achievement motivation and levels of motivation to achieve success but lower levels of motivation to avoid failure.

As for the mediation analysis results, Hypothesis 4 (H4) was not completely supported. The institution type had the mediation effect in the relationship between self-efficacy and the first factor of the instrumental work values: stability (WVINS$_1$). However, no other mediation effect of the institution type was detected in the relationship between self-efficacy and any other factor of work values. Hypothesis 5 (H5) was not supported. No mediation effect of the institution type was found in the relationship between achievement motivation and any intentional or instrumental work values.

CHAPTER FIVE

SUMMARY, DISCUSSION, AND IMPLICATIONS

This chapter includes three sections. The first section summarizes the main findings of this study and discusses these findings in comparison with previous research. The second section presents the limitations of this study. The last section discusses the implications of this study and provides recommendations for future research.

Summary and Discussion of the Results

Demographic Characteristics

Among the 384 participants, 198 were community college students and 186 were regular four-year university students, which implied that the numbers of participants from both types of institutions were almost equal. Therefore, the comparison of the demographic characteristics of participants between the two types of institutions was conducted. Results indicated that the average age of community college participants was five years older than that of regular four-year university participants. This result is consistent with the situation in China. Most community college students are employed and attend school in a part-time manner but most university students are full-time students. Most community college students have been working for several years but most university students were admitted right after their graduation from high school. This was also reflected by their marital status. All university students were unmarried but almost a quarter of community college students were married.

The comparison for self-efficacy between students from each of the two groups, the

community college group and the regular four-year university group, showed that community college students had significantly lower levels of self-efficacy than university students. This provided further support for previous studies. Chen (2009), Gao (2008), Lin (2009), Luan (2008), Xu (2008), and Zhou (2008) indicated that, compared to university students, community college students were more likely to be anxious, stressed, unconfident, pessimistic, and passive. On the one hand, some of them entered community colleges because they were not qualified to be admitted to regular four-year universities. On the other hand, many of them may face conflicts between study and work or between study and family life, which do not exist for university students. Therefore, community college students may have lower levels of self-efficacy.

The comparison for achievement motivation between students from each of the two groups showed that community college students had significantly higher levels of motivation to avoid failure than university students. This implies that community college students tend to be conservative in accomplishing achievements. On the one hand, community college students are older and many of them are married and employed so they are more conservative and do not like taking risks. On the other hand, as discussed above, they have lower levels of self-efficacy, which makes them less confident with enduring the risk of failure.

The comparison for work values between students from each of the two groups showed that community college students had significantly lower scores on overall intentional work values, which also reflect their low expectations related to their future jobs due to their low self-efficacy. Specifically, they had significantly lower scores on the family factor and the achievement factor than university students. For instrumental work

values, community college students had significantly lower scores on the personality and interests factor and the morality and norms factor. This implies that community college students have low concerns about the match between their personality and interests and their future jobs. They also have low concerns on social morality and norms. These reflect their low self-efficacy to some extent. However, they had significantly higher scores on the stability factor and the compensation and prestige factor than university students. This implies that community college students pursue stability and compensation and prestige when looking for jobs, which also reflects their low self-efficacy and conservativeness.

Generally speaking, the differences of self-efficacy, achievement motivation, and work values between regular four-year university students and community college students in China were caused by the following factors. First, the two types of higher education institutions target different student populations. Students in regular four-year universities are younger than those in community colleges. This age difference determines that the two populations have different focuses in their current life. All university students are unmarried but many community college students are married. In addition, all university students are full-time students but most community college students are employed and pursuing higher education in a part-time manner. Therefore, community college students consider more about their family and current jobs. They tend to be more conservative, risk-averse, and prefer a stable state. On the contrary, university students tend to be more ambitious and risk-seeking because they are not married or employed thus do not need to worry about their family or their current jobs and can devote themselves to their goals and dreams.

Second, the two groups of students have different mental state. Community college students have more negative mental state than university students and they are more anxious, self-diffident, and passive (Chen, 2009; Gao, 2008; Lin, 2009). On the one hand, community college students are facing conflicts between study and family and between study and work so they feel more pressure than university students. On the other hand, some community college students attend community colleges because they did not obtain satisfactory scores on the National College Entrance Examination (NCEE) thus did not meet the admission standards of regular four-year universities. Some of them may have low self-efficacy and low self-confidence.

Last, community college students are facing more pressure on the job market. China is on its way of rapid economic development. Fierce competition on the job market brings challenges and pressure to students from both universities and community colleges. However, community college students are facing more challenges and pressure than university students.

Key Finding One: The Higher the Level of Self-Efficacy, the Higher the Score of Work Values on Family, Status, Achievement, and Social Improvement

The key findings of this study include: (1) Students with higher levels of self-efficacy scored higher on overall intentional work values as well as on each of its four factors: Family, Status, Achievement, and Social improvement; (2) Students with higher levels of motivation to achieve success scored higher on intentional work values and students with higher levels of motivation to avoid failure scored higher on instrumental work values; (3) Students with higher levels of self-efficacy had higher levels of motivation to achieve success and lower levels of motivation to avoid failure;

and (4) Institution type had a mediation effect in the relationship between self-efficacy and the first factor of instrumental work values: Stability.

Bandura (1977) indicated that those who had higher levels of self-efficacy would be more active and expend more efforts to reach their goals. Intentional work values are those internal values and criteria that an individual has to assess and choose his or her jobs (Rokeach, 1973; Jin & Li, 2005). The results of this study indicated that students with higher levels of self-efficacy also scored higher on the overall intentional work values and on each of its four factors, which supported Bandura's (1977) self-efficacy theory. Students who have higher levels of self-efficacy have higher internal values, criteria, and expectations when they are looking for jobs. They have higher criteria and expectations to maintain their family, pursue higher status, accomplish more achievements, and improve social development.

Zhuang and Lu (2009) found that, for university juniors majoring in science, those with higher levels of self-efficacy focused more on accomplish achievements. For pursuing status, they found that those with higher levels of self-efficacy focused more on pursuing higher status. Wen and Zhang (2009) found that, for college students majoring in engineering, those with higher levels of self-efficacy focused more on pursuing higher status and prestige. Although different instruments of work values were used in those studies, the results of this study is similar to Zhuang and Lu's (2009) and Wen and Zhang's (2009) in terms of the relationship between self-efficacy and the status factor of work values, which implies that students who pursue higher status may have higher levels of self-efficacy which helps them reach their goals.

However, Ding (2007) found that, for students in vocational and technical colleges,

those with lower levels of self-efficacy focused more on work values such as pursuing higher status and prestige. Ding (2007) explained that those pursuing high status and prestige might have unrealistic high expectations for future jobs which might cause disappointment and negative emotions and thus lower their levels of self-efficacy. This is different from the results of this study. Ding (2007) explained the relationship between self-efficacy and work values from a different angle. This implies that further research on self-efficacy and intentional work values are needed to more clarify their relationship or find other possible factors that may be related to these constructs.

Rokeach (1973) argued that an individual's goals and intentional values were realized by his or her behavior and instrumental values that he or she chose. Jin and Li (2005) further indicated that intentional values affected what instrumental values one would choose to reach his or her goals. One could realize his or her different intentional values by choosing different or the same instrumental values. The results of this study implied that, for instrumental work values, students with higher levels of self-efficacy also scored higher on Personality and interests and Occupational perspective. According to Jin and Li (2005), Personality and interests and Occupational perspective are the most important two instrumental work values that students choose to realize their one intentional work value: Achievement. That is, students who pursue more achievements focus more on that their future jobs should match their personality and interests and should have good occupational perspectives. Therefore, this study obtained similar results to Jin and Li's (2005) on this point.

Ding (2007) and Wen and Zhang (2009) also found that students with higher levels of self-efficacy focused more on work values such as occupational perspective,

self-development, and self-actualization. Ding (2007) explained that those focusing on perspective and development might like more challenging and competitive work and also expend more efforts to realize their goals.

For instrumental work values, the results of this study also showed that students with higher levels of self-efficacy scored lower on Stability. According to Bandura's (1977) concept of self-efficacy, an individual with high self-efficacy is more active and expends more energy and efforts to realize his or her goals so he or she may focus less on remaining stability in his or her occupation. This result is also consistent with Jin and Li's (2005) in which they also found that stability was the last instrumental work value that those who were pursing achievements focused on. In their study, Jin and Li (2005) also indicated that those who valued more on maintaining their family focused more on stability, which supported their opinion that an individual could reach his or her goals by choosing different or the same instrumental values.

Key Finding Two: The Higher the Level of Motivation to Achieve Success, the Higher the Score of Intentional Work Values; the Higher the Level of Motivation to Avoid Failure, the Higher the Score of Instrumental Work Values

For the relationship between motivation to achieve success and intentional work values, Zhang and Lan (2007) found that, for students in universities and higher vocational colleges, those with higher levels of motivation to achieve success had higher scores on overall intentional work values and two factors under this dimension: Achievement and Social improvement. Zhang and Lan (2007) also found the same results in another study on students in teachers colleges. This study indicated similar results that students with higher levels of motivation to achieve success scored higher on overall

intentional work values. However, this study found that motivation to achieve success had significantly positive effects on all four factors under the dimension of intentional work values: Family, Status, Achievement, and Social improvement. This slight difference between Zhang and Lan's (2007) and this study implies that, in this study, students with higher levels of motivation to achieve success focused more not only on pursuing achievements and improving and developing the society, which was indicated in Zhang and Lan's (2007), but also on maintaining their family and pursuing higher status. Zhang (2010) also found a significantly positive relationship between motivation to achieve success and pursuing status and prestige for students in teachers colleges. In today's China, students in universities and community colleges with higher levels of motivation to achieve success more emphasize on their intentional work values which represent their life goals related to their career. They put more efforts on maintaining their family, pursuing higher status in their career, achieving more successes, and contributing to social improvement and development.

For the relationship between motivation to achieve success and instrumental work values, Zhang and Lan (2007) did not find significant relationship between motivation to achieve success and overall instrumental work values but found that students with higher levels of motivation to achieve success more emphasized two factors under the dimension of instrumental work values: Personality and interests and Occupational perspective. However, this study showed that students with higher levels of motivation to achieve success scored higher on overall instrumental work values. Specifically, this study found that motivation to achieve success had significantly positive effects on five factors under the dimension of instrumental work values: Personality and interests, Morality and norms,

Compensation and prestige, Occupational perspective, and Benefits. Therefore, this study found three more instrumental work values that were positively related to motivation to achieve success. Zhang (2010) also found a significantly positive relationship between motivation to achieve success and perspective and development for students in teachers colleges. Rokeach (1973) and Jin and Li (2005) indicated that an individual would choose appropriate instrumental values to finally reach his or her intentional values. In this study, students with higher levels of motivation to achieve success focused more on all intentional work values and they also focused more on those instrumental work values, except Stability, to reach their goals that their intentional work values represented. Zhang and Lan (2007) found that students with higher levels of motivation to achieve success focused less on Stability. They also found the same results in another study on students in teachers colleges in terms of Stability. These are very similar to Jin and Li's (2005) findings that those pursing achievements focused least on stability. This study did not find significant relationship between motivation to achieve success and the Stability factor of instrumental work values.

For the relationship between the other dimension of achievement motivation, motivation to avoid failure, and intentional work values, Zhang and Lan (2007) did not find significant relationship between motivation to avoid failure and overall intentional work values. However, they found that those with higher levels of motivation to avoid failure had lower scores on two factors under this dimension, Achievement and Social improvement, exactly which those with higher levels of motivation to achieve success focused more on in their study. They also found the same results in another study on students in teachers colleges. These implied that students with higher levels of motivation

to avoid failure tended to avoid pursuing achievements and social improvement. However, this study showed different results that students with higher levels of motivation to avoid failure scored higher on overall intentional work values as well as the other two factors: Family and Status. No significant relationships between motivation to avoid failure and Achievement or Social improvement were found. This implies that, in this study, students with higher levels of motivation to avoid failure focused more on maintaining family and pursuing status. For this different result between Zhang and Lan's (2007) and this study, we may say that different students with higher levels of motivation to avoid failure may tend to avoid different intentional work values. Further research is needed to investigate and clarify this relationship.

For the relationship between motivation to avoid failure and instrumental work values, Zhang and Lan (2007) found that students with higher levels of motivation to avoid failure focused more on overall instrumental work values as well as its two factors: Stability and Benefits. This indicated that those with higher levels of motivation to avoid failure tended to have a stable work and life and good benefits to maintain their life standards. In another study on students in teachers colleges, Zhang and Lan (2007) found a slightly different result that motivation to avoid failure only had significantly positive relationship with Benefits. However, this study showed that students with higher levels of motivation to avoid failure scored higher on overall instrumental work values as well as all its six factors: Stability, Personality and interests, Morality and norms, Compensation and prestige, Occupational perspective, and Benefits. Therefore, this study found four more instrumental work values that were positively related to motivation to avoid failure. Zhang (2010) also found significantly positive relationships between motivation to avoid

failure and hygiene factors of work values such as stability, compensation, and benefits

for students in teachers colleges. Jin and Li (2005) indicated that five instrumental work

values, except Personality and interest, were related to the first two intentional work

values: Family and Status. Therefore, the results of this study implies that students with

higher levels of motivation to avoid failure may choose those five instrumental work

values to reach their goals, that is, maintaining their family and pursuing higher status,

the two intentional work values that they focus more on. Therefore, the results of this

study imply that achievement motivation can predict work values. Zhang and Lan (2007)

and Zhang (2010) also indicated that achievement motivation could predict work values.

Key Finding Three: The Higher the Level of Self-Efficacy, the Higher the Level of

Motivation to Achieve Success and the Lower the Level of Motivation to Avoid Failure

Xiao (2003) and Zhang (2006) found that, for college students, academic

self-efficacy had a significantly positive correlation with motivation to achieve success

but a significantly negative correlation with motivation to avoid failure. Shi (2008) also

found similar results for graduate students. In addition, Xiao (2003) and Shi (2008) also

found a significant relationship between academic self-efficacy and overall achievement

motivation but Zhang (2006) did not find the similar result. Wang and Xiao (2010) found

that, for college students, career decision-making self-efficacy had a significantly positive

correlation with overall achievement motivation as well as on motivation to achieve

success but a significantly negative correlation with motivation to avoid failure. Although

Xiao (2003) and Zhang (2006) focused on academic self-efficacy, Wang and Xiao (2010)

focused on career decision-making self-efficacy, and this study focused on general

self-efficacy, all these studies found very similar relationships between self-efficacy and

achievement motivation. According to Bandura (1977), individuals who have higher levels of self-efficacy will be more active and expend more efforts to reach their goals. Thus, they will have stronger motivation to achieve success. Meanwhile, compared to individuals with lower levels of self-efficacy, those with higher levels of self-efficacy are more likely to try their best to achieve even if they might fail at the end. Therefore, they have lower levels of motivation to avoid failure.

However, some studies did not find such significant relationship between self-efficacy and motivation to avoid failure. Li, et al. (2007) and Ning and Qu (2010) found that, for college students, general self-efficacy had a significantly positive correlation with motivation to achieve success but no significant correlation with motivation to avoid failure or with overall achievement motivation. Wang and Zhang (2010) found that, for college students, career decision-making self-efficacy had a significantly positive correlation with overall achievement motivation and with motivation to achieve success but no significant correlation with motivation to avoid failure. Therefore, we can say that students with higher levels of self-efficacy may or may not have lower levels of motivation to avoid failure.

Key Finding Four: Institution Type Had a Mediation Effect in the Relationship between Self-Efficacy and Stability

Results indicated that institution type had a mediation effect in the relationship between self-efficacy and the first factor of the instrumental work values: Stability. The first key finding of this study showed that self-efficacy had a significantly negative effect on the Stability factor of instrumental work values, which implied that students with higher levels of self-efficacy scored lower on Stability. The mediation effect of institution

type in the relationship between self-efficacy and Stability indicated that part of the relationship was indirect. Results showed that community college students had significantly higher scores on Stability than regular four-year university students. Also, community college students had significantly lower levels of self-efficacy than regular four-year university students. Through the mediation effect of institution type (the indirect path), the self-efficacy level predicts institution type which then predicts the level of Stability.

No other mediation effect of institution type was found in the relationship between self-efficacy and any other factor of work values. In addition, no mediation effect of the institution type was found in the relationship between achievement motivation and any factor of intentional or instrumental work values. No studies have been found on the mediation effect of institution type in relationships among self-efficacy, achievement motivation, and work values. Further research can be conducted to investigate the mediation effect of institution type in those relationships, which will help understand the differences between community college students and regular four-year university students in China.

Structures of Self-Efficacy, Achievement Motivation, and Work Values

Exploratory Factor Analyses (EFAs) were performed to explore the structures of self-efficacy, achievement motivation, and work values in this study. This study used the Self-Efficacy Inventory (SEI) developed by Wang (1999) and validated by Shi and Wang (2005) in the Chinese context. Shi and Wang (2005) indicated that the SEI had good reliability and validity and was an effective measurement of self-efficacy. In this study, a Cronbach α of the SEI was .75, implying that it had good reliability according to

Nunnally (1978). This study again provided evidence that the SEI is a good measurement of general self-efficacy in the Chinese context. Wang (1999) obtained a Cronbach α of .88 when originally developing the SEI. Shi and Wang (2005) obtained a Cronbach α of .81 when re-examining its reliability.

In this study, EFA revealed a three-factor structure of the SEI, which accounted for 51.73% of the total variance. The three factors were labeled as "Self-confidence," "Failure-anxiety," and "Challenge-seeking." Wang (1999) indicated that the SEI was a one-factor (uni-dimensional) structure in which the only one factor explained 32.4% of the total variance when he originally developed it. Shi and Wang (2005) confirmed this one-factor structure and indicated that the only one factor explained 24.4% of the total variance when they re-examined it. Future research is needed to further explore the structure of self-efficacy and to clarify whether it is a uni-dimensional or a multi-dimensional structure.

This study used Ye and Hagtvet's (1992) Achievement Motivation Scale (AMS) to measure achievement motivation. In this study, a Cronbach α of .83 was obtained, which indicated a good reliability of the AMS. The motivation to achieve success (MS) sub-scale had a Cronbach α of .86 and the motivation to avoid failure (MF) sub-scale had a Cronbach α of .90, which indicated that both MS and MF sub-scales had good reliability.

EFA revealed a three-factor structure of the AMS, which accounted for 44.44% of the total variance. The three factors were labeled as "Motivation to avoid failure," "Motivation to achieve success," and "Motivation to take challenges." The original structure of AMS is two-dimension: motivation to achieve success and motivation to

avoid failure. We can see that this three-factor structure is very similar to the original two-dimension structure but the original dimension of motivation to achieve success was split into two new factors: motivation to achieve success and motivation to take challenges. Future research can be conducted to further investigate the structure of achievement motivation.

This study used Jin and Li's (2005) Work Values Scale (WVS) to score work values. In this study, a Cronbach α of .90 was obtained for the dimension of intentional work values. The Cronbach α's of the four factors in this dimension ranged from .77 to .88. A Cronbach α of .85 was obtained for the instrumental work values dimension. The Cronbach α's of the six factors in this dimension ranged from .66 to .82. These Cronbach α's indicated a good reliability of the WVS.

EFA revealed an eight-factor structure, which accounted for 66.04% of the total variance. The eight factors were labeled as "Achievement," "Morality and development," "Status," "Stability and compensation," "Family," "Social improvement," "Benefits," and "Personality and interests." Although the results directly showed the specific structure at the sub-dimension (factor) level, we can still clearly see the two-dimension structure which is the same as the original structure: intentional work values and instrumental work values. At the sub-dimension level, a four-factor structure of intentional work values was obtained, which is exactly the same as the original structure. However, a four-factor structure of instrumental work values was obtained, which is different from the original six-factor structure. Two factors "Personality and interests" and "Benefits" remained the same though some items were deleted. The new factor "Stability and compensation" combined the original two factors "Stability" and "Compensation and prestige." Another

new factor "Morality and development" combined the original two factors "Morality and norms" and "Occupational perspective" and one item from the original factor "Benefits." These results imply that the structure of work values is stable and the WVS is a good tool to measure intentional and instrumental work values.

Limitations

This study has several limitations. First, participants in this study were students from one regular four-year university and one community college located in Beijing, the capital of China. Although the university and the community college are typical representatives of Chinese regular and adult HEIs in China's special history and the ongoing economic development and transition, the sample might not be good enough to represent all regular four-year university students and community college students in China.

In addition, participants from both institutions were students who were taking required and elective courses on philosophy and psychology in their own institution. Therefore, the sample may not be a random sample in this study and it should be cautious to generalize the results of this study.

Finally, the data were collected using a written survey which includes a demographic information sheet, the Self-Efficacy Inventory (SEI), the Achievement Motivation Scale (AMS), and the Work Values Scale (WVS). Survey- and/or questionnaire-based studies depend more on the self-report process, comprehension, previous experiences, and cooperation of participants. Therefore, participants might not objectively describe themselves or truly express their opinions and/or thoughts when they fill out the survey and questionnaires.

Implications

As discussed above, regular four-year universities and community colleges are two types of important higher education institutions in China. Although community colleges are playing a more and more important role, very few studies have been conducted on community college students due to the short history of community colleges in China. This study investigated the relationships among self-efficacy, achievement motivation, and work values for regular four-year university students and community college students in China and was an attempt to focus on both types of higher education institutions at the same time.

Implications for Research

The three constructs, self-efficacy, achievement motivation, and work values, in this study are three important factors related to career development which is important and challenging for students from both community colleges and regular four-year universities. Self-efficacy is a construct in a famous career development theory, Lent, Brown, and Hackett's (1994) Social Cognitive Career Theory (SCCT). Bonitz, et al. (2010) indicated that work values were embedded in the outcome expectations and were highly related to career interests and career outcomes which are constructs in the SCCT. Achievement motivation has strong relationships with those constructs in the SCCT (Bartels, 2007; Jenkins, 1987; Ji, et al., 2008; Li, et al., 2007; Nelson & DeBacker, 2008; Ning & Qu, 2010; Qiu, 2008; Tan, 2009; Wang & Xiao, 2010; Wang & Zhang, 2010; Xiao, 2003; Xue, et al., 2006; Xue & Li, 2006; Zhang, 2006; Zheng, Lian, & Huang, 2009).

This study did not focus on the SCCT itself but on the relationships among the three

constructs related to career development. Results indicated that students with higher levels of self-efficacy focused more on intentional work values including family, status, achievement, and social improvement. On the one hand, this supports Bandura's (1977) self-efficacy theory. On the other hand, this result reveals how self-efficacy relates to work values which are embedded in the outcome expectations in the SCCT. That is to say, an indirect relationship exists between self-efficacy and outcome expectations. In addition, results showed that students with higher levels of motivation to achieve success focused more on intentional work values and students with higher levels of motivation to avoid failure focused more on instrumental work values. Although achievement motivation is not a factor in the SCCT, this result implies how it relates to work values and thus outcome expectations. Furthermore, results indicated that students with higher levels of self-efficacy had higher levels of overall achievement motivation and motivation to achieve success but lower levels of motivation to avoid failure, which implies a strong relationship between achievement motivation and self-efficacy, a very important factor in the SCCT. In sum, the findings of this study provide insights on the relationships among these three constructs and contribute to the area of career development.

Implications for Practice

This study was conducted in a special background in China. On the one hand, with the rapid economic development, competitions are becoming increasingly severe not only in the products and services market but also in the labor market. Since the university enrollment expansion in 1999, millions of university graduates have been competing for limited job vacancies (MyCOS Institute, 2011). On the other hand, the new higher education institution type, the community college, plays a more and more important role

in China's adult higher education and in training competent professionals for varieties of positions and industries in the economic development. Community colleges in China are very different from those in Western countries such as the United States. Chen (2008), Liu (2001), Xu (2008), and Xu, et al. (2008) indicated that community college students were facing a more competitive labor market but had negative mental state in their study and job-hunting. They have value conflicts due to the economic transition and do not have correct self-judgment.

The comparison between community college students and regular four-year university students in this study indicated that community college students had significantly lower levels of self-efficacy, significantly higher levels of motivation to avoid failure, and significantly lower intentional work values than university students. These results imply that community college students have low levels of self-efficacy, low levels of self-confidence, and low expectations. They are more stressed, passive, anxious, conservative, and negative. These results provide further empirical evidence to support previous studies on the situation of community college students in China, which may attract more future research on community college students in China.

Previous studies showed that community college students did not realize the importance of career development (Mao, 2008; Mao & Teng, 2009; Rao, 2008; Shi, 2008). Meanwhile, community colleges provided very limited career services to students (Lang, 2009; Mao & Teng, 2009; Qi & Pang, 2008). Under this situation, many scholars, professionals, and practitioners proposed that a career planning and development service system (or similar function with other names) in Chinese community colleges should be established and also provided further actions. This study also implies that more attention

should be paid on community college students. Some of those actions were based on the empirical or theoretical research and were actually implemented while others were suggestions based on the analysis of current situation.

First, although some community colleges provide some types of courses related to career planning and development, more career planning and development curricula and programs are needed. On the one hand, because of the traditional Chinese education methods, students feel more comfortable to take career-related courses or programs rather than other Western-style activities. On the other hand, as indicated in some studies above, many community college students in China have negative mental state. They are self-diffident and remain passive in career development activities. Therefore, well-established and systematic career planning and development curricula and programs can provide direct career guidance for students.

In addition, more career-related activities such as career seminars, career lectures, career-related training and competitions, and mock employment are needed. Because China is under the economic transition and the employment pattern for college graduates has changed from guaranteed job assignments to the market-oriented two-way selection, community college students are facing highly competitive situation and are forced to improve their career-related skills to present and promote themselves.

Furthermore, as a support and complement of the career planning and development curricula and programs, community colleges need to have a team of career professionals to provide career guidance services for students. Career counseling services also should be provided in community colleges in China. Because community college students in China are facing the conflict between traditional and new values, have negative mental

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state, and do not correctly assess themselves, they need career guidance and career counseling services to adapt themselves to the competitive labor market.

As discussed above, self-efficacy, achievement motivation, and work values are three important factors that relate to career development. Results of this study revealed the relationships among these three factors thus provided insights on how to help college students, especially community college students, on their career development.

This study showed that, compared to regular four-year university students, community college students had significantly lower levels of self-efficacy and they focused less on intentional work values including family, status, achievement, and social improvement. Meanwhile, they had lower levels of overall achievement motivation and motivation to achieve success but higher levels of motivation to avoid failure, which related to their instrumental work values. Therefore, psychological counseling services also need to be established in community colleges to help students deal with their negative mental state during their study. More importantly, this study may raise awareness of the differences between the two student groups for policymakers, educators, practitioners, and employers.

Recommendations for Future Research

The relationship among the three constructs. This study investigated the relationship among self-efficacy, achievement motivation, and work values for community college students and university students. Although some hypotheses were supported and some findings were similar to previous studies, this study did not clearly specify some relationships. Future research is needed to further investigate these relationships such as relationships between self-efficacy and intentional work values, between motivation to

avoid failure and intentional work values, and between self-efficacy and motivation to avoid failure. In addition, further research is also needed to examine the mediation effect of the institution type in the relationships between self-efficacy and work values and between achievement motivation and work values to further explore the differences between community college students and university students in China.

The structures of the three constructs. The Self-Efficacy Inventory (SEI), the Achievement Motivation Scale (AMS), and the Work Values Scales (WVS) used in this study were either originally developed in the Chinese context or originally developed in Western societies but revised and validated in the Chinese context. All three instruments have good reliability and validity.

EFAs in this study revealed a three-factor structure of the SEI, a three-factor structure of the AMS, and an eight-factor structure of the WVS. Wang (1999) and Shi and Wang (2005) indicated that the SEI was a one-factor structure. Therefore, future research is needed to further probe the structure of self-efficacy to clarify whether it is a uni-dimensional or a multi-dimensional structure. The new structures of the AMS and the WVS are similar to their original structures but still have slightly differences. Future research is needed to further investigate the structures of achievement motivation and work values.

Generalization of the study. The sample of this study was from a community college and a regular four-year university located in Beijing, China. Although the community college and the university are typical representatives of their own institution type in China's special background, it should be careful to generalize the findings of this study. To collect data from more community colleges and more regular four-year universities

across China would be another recommendation for future research.

Further research on the Social Cognitive Career Theory (SCCT). This study focused

on the three constructs: self-efficacy, achievement motivation, and work values.

Self-efficacy is one important construct in the SCCT. Work values are embedded in the

outcome expectations and were highly related to career interests and career outcomes

which are constructs in the SCCT. Previous studies demonstrated that achievement

motivation had strong relationships with those constructs in the SCCT. This study is a

good attempt to investigate the relationships among these three career-related constructs.

Future research is expected on these three constructs and their roles and effects in and on

the SCCT.

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APPENDIX A

DEMOGRAPHIC INFORMATION SHEET

ENGLISH VERSION

1. Age: _____

2. Gender: (1) Male   (2) Female

3. Ethnicity: _____

4. Marital status: (1) Single   (2) Married or remarried   (3) Divorced   (4) Widowed

5. Highest education level: (1) Elementary school   (2) Junior high school

                              (3) Senior high school   (4) Associate degree

                              (5) Bachelor   (6) Master   (7) Doctorate

6. Major: _____

7. Which semester are you in? _____

8. Are you attending college full-time or part-time?   (1) Full-time.   (2) Part-time.

9. Are you currently employed?   (1) Yes.   (2) No.

APPENDIX B

SELF-EFFICACY INVENTORY (SEI)

ENGLISH VERSION

(Wang, 1999; Shi & Wang, 2005)

Directions: Please rate whether each of the following statements can describe you on a six point scale with "1" representing "extremely not appropriate" and "6" representing "extremely appropriate." Circle the appropriate number for each statement.

	Extremely not appropriate					Extremely appropriate
10. I can do some things much better than other people.	1	2	3	4	5	6
11. I worry that I can't easily adapt to a new environment.	1	2	3	4	5	6
12. I am usually satisfied with my own choices and decisions.	1	2	3	4	5	6
13. I am very confident in my ability to face the challenges in my future life.	1	2	3	4	5	6
14. I prefer to choose relatively difficult tasks or work.	1	2	3	4	5	6
15. I am ambitious and I believe that I can achieve a great deal.	1	2	3	4	5	6
16. I lack confidence in doing challenging work.	1	2	3	4	5	6
17. I can easily cope with any problem in a crisis.	1	2	3	4	5	6
18. No matter how difficult things are, I can be successful as long as I try my best.	1	2	3	4	5	6
19. I'm stressed and anxious before exams though others believe I will do well.	1	2	3	4	5	6
20. I believe that, with effort, I can realize all my wishes.	1	2	3	4	5	6
21. Frustration from failures disturbs me for long periods.	1	2	3	4	5	6
22. Taking risks is necessary for fulfilling my ideal.	1	2	3	4	5	6
23. I worry that I might not be able to adapt to the future work demands.	1	2	3	4	5	6
24. I feel that the world changes too fast for me to understand and control it.	1	2	3	4	5	6
25. I never give up when facing a problem, always trying out ideas until I resolve it.	1	2	3	4	5	6
26. My teacher/supervisor often makes demands that I find hard to meet.	1	2	3	4	5	6
27. The harder a task, the more interested I am in it and the harder I work.	1	2	3	4	5	6
28. I like to try new environments.	1	2	3	4	5	6

APPENDIX C

ACHIEVEMENT MOTIVATION SCALE (AMS)

ENGLISH VERSION

(Ye & Hagtvet, 1992)

Directions: Please rate whether each of the following statements can describe you on a six point scale with "1" representing "extremely not appropriate" and "6" representing "extremely appropriate." Circle the appropriate number for each statement.

	Extremely not appropriate					Extremely appropriate
29. I like unfamiliar and difficult tasks, even risky ones.	1	2	3	4	5	6
30. I dislike to work in the uncertain environment because I do not know whether I will fail or not.	1	2	3	4	5	6
31. I feel happy when I complete a difficult task.	1	2	3	4	5	6
32. I worry about failure in an uncertain environment.	1	2	3	4	5	6
33. I will be attracted by the tasks that can help me know my abilities.	1	2	3	4	5	6
34. I worry about failure when I deal with the tasks that, I think, are difficult.	1	2	3	4	5	6
35. I like tasks that I can accomplish when I try my best.	1	2	3	4	5	6
36. I feel anxious when I think that I have an unfamiliar and difficult task.	1	2	3	4	5	6
37. I prefer to work unremittingly on unexpectable problems.	1	2	3	4	5	6
38. I dislike the tasks that examine my abilities.	1	2	3	4	5	6
39. I will be easily involved in a difficult task even if it doesn't have much meaning.	1	2	3	4	5	6
40. I feel anxious when I don't think I am competent for the task.	1	2	3	4	5	6
41. I consider it as a spur and challenge when I have an opportunity to test my abilities.	1	2	3	4	5	6
42. I dislike the task that I am, or others are, not sure if I can complete it.	1	2	3	4	5	6
43. I will be attracted by difficult tasks.	1	2	3	4	5	6
44. I feel anxious when I am in an environment that tests my abilities.	1	2	3	4	5	6
45. I will be attracted by those tasks that I am not sure if I can succeed.	1	2	3	4	5	6
46. I worry about failure on the tasks that need special opportunities.	1	2	3	4	5	6

	Extremely not appropriate					Extremely appropriate
47. I like to start a task immediately even if I have much time.	1	2	3	4	5	6
48. I feel anxious when I do the task that seems to be very difficult.	1	2	3	4	5	6
49. I will be attracted by the opportunity that tests my abilities.	1	2	3	4	5	6
50. I dislike to work in an unfamiliar environment even if nobody knows.	1	2	3	4	5	6
51. I will be very excited and happy when I face difficulties that I am not sure if I can succeed.	1	2	3	4	5	6
52. I don't want to be assigned the difficult tasks.	1	2	3	4	5	6
53. I will be interested in those things that cannot be understand immediately.	1	2	3	4	5	6
54. I dislike to do the task that needs me to exert myself.	1	2	3	4	5	6
55. Doing difficult tasks is important to me and it doesn't matter no one knows.	1	2	3	4	5	6
56. I dislike the task that I am not sure if I am competent for it.	1	2	3	4	5	6
57. I like to be assigned difficult tasks.	1	2	3	4	5	6
58. I will feel anxious when I have a question that I cannot answer or understand immediately.	1	2	3	4	5	6

APPENDIX D

WORK VALUES SCALE (WVS)

ENGLISH VERSION

(Jin & Li, 2005)

Directions: Please rate how each of the following statements is important to you when you search for a job on a six point scale with "1" representing "not important at all" and "6" representing "extremely important." Circle the appropriate number for each statement.

	Not important at all					Extremely important
59. I can take care of my parents.	1	2	3	4	5	6
60. There will be no conflict between work and family.	1	2	3	4	5	6
61. My spouse and I can work in the same city.	1	2	3	4	5	6
62. I will be easily promoted to a higher position.	1	2	3	4	5	6
63. I will have a salary above average.	1	2	3	4	5	6
64. I will receive recognition in the position.	1	2	3	4	5	6
65. I can enjoy my personal space with high status.	1	2	3	4	5	6
66. Other people will envy me if I get the job.	1	2	3	4	5	6
67. The job will bring me enthusiasm.	1	2	3	4	5	6
68. The job will make me creative.	1	2	3	4	5	6
69. The job will help me actualize my ambition and goals.	1	2	3	4	5	6
70. The job will improve my abilities.	1	2	3	4	5	6
71. I can use my abilities and strengths in the position.	1	2	3	4	5	6
72. The job will give me the opportunity to enhance the competitive power of my country.	1	2	3	4	5	6
73. The job will give me the opportunity to change the social environment.	1	2	3	4	5	6
74. The job will give me the opportunity to create values for the development of the society.	1	2	3	4	5	6
75. There will be few changes or risks in the job.	1	2	3	4	5	6
76. I don't have to travel a lot or relocate.	1	2	3	4	5	6

	Not important at all					Extremely important
77. The job will not be demanding or full of stress.	1	2	3	4	5	6
78. I have the talent in the area.	1	2	3	4	5	6
79. The job will match my personality.	1	2	3	4	5	6
80. The job will match my interests.	1	2	3	4	5	6
81. My boss will have the personality that I'm expecting.	1	2	3	4	5	6
82. I will not be gangrened or untruthful in the job.	1	2	3	4	5	6
83. Few ethical dilemmas will happen in the job.	1	2	3	4	5	6
84. I will get higher starting position.	1	2	3	4	5	6
85. The position should be in a large organization.	1	2	3	4	5	6
86. I will get higher starting salary.	1	2	3	4	5	6
87. The organization will have good opportunities for development.	1	2	3	4	5	6
88. My boss and colleagues will be easy to get along with.	1	2	3	4	5	6
89. I have good network in the area.	1	2	3	4	5	6
90. The organization will provide accommodation.	1	2	3	4	5	6
91. I will get the registered permanent residence if I get the job.	1	2	3	4	5	6
92. The organization will provide various insurance.	1	2	3	4	5	6

APPENDIX E

DEMOGRAPHIC INFORMATION SHEET

MANDARIN CHINESE VERSION

您好！非常感谢您参与这项研究！请提供以下信息：

1. 年龄：_____

2. 性别：(1) 男　　(2) 女

3. 民族：_____

4. 婚姻状况：(1) 未婚　　(2) 已婚或再婚　　(3) 离异　　(4) 丧偶

5. 最高教育水平：(1) 小学　　　(2) 初中　　　(3) 高中

　　　　　　　　　(4) 大专　　　(5) 本科　　　(6) 硕士　　　(7) 博士

6. 专业：_____

7. 这是您的第几个学期？_____

8. 您是全日制学生还是半读生？　(1) 全日制学生。　(2) 半读生。

9. 您目前是否工作？　　　(1) 是。(2) 否。

APPENDIX F

SELF-EFFICACY INVENTORY (SEI)

MANDARIN CHINESE VERSION

(Wang, 1999; Shi & Wang, 2005)

指导语：本问卷旨在调查你的自我了解程度。你的回答无所谓对错，不要顾虑。请看清楚每一个问题，并用 1-6 分评定它在多大程度上适合描述你或你的观点。"1"表示你"完全不同意"，"6"表示"完全同意"。请凭你的第一印象尽快回答，在合适的数字上画圈。请回答所有问题。谢谢合作。

	完全不同意					完全同意
10. 有些事我能比别人做得好得多。	1	2	3	4	5	6
11. 我担心自己能否很容易地适应新的环境。	1	2	3	4	5	6
12. 我对自己的抉择、决定感到很满意。	1	2	3	4	5	6
13. 我自信有能力承受未来生活的严峻考验。	1	2	3	4	5	6
14. 我喜欢选择难度比较大的工作或任务。	1	2	3	4	5	6
15. 我雄心勃勃，觉得自己能干一番事业。	1	2	3	4	5	6
16. 我对富于挑战性的工作信心不足。	1	2	3	4	5	6
17. 关键时刻我能应付自如。	1	2	3	4	5	6
18. 即使面对巨大困境，只要我努力去做，我就能成功。	1	2	3	4	5	6
19. 考试或检查工作前我总是紧张、焦虑，即使别人都认为我能顺利通过。	1	2	3	4	5	6
20. 我认为，我只要努力总能实现自己的愿望。	1	2	3	4	5	6
21. 失败的挫折往往在很长一段时期内缠绕着我。	1	2	3	4	5	6
22. 冒险对于实现我的理想是必要的。	1	2	3	4	5	6
23. 我担心自己是否能适应未来工作的要求。	1	2	3	4	5	6
24. 我觉得这个世界变化太快，令我难以理解和把握。	1	2	3	4	5	6
25. 面对困难我从不放弃，努力尝试各种办法，直到解决为止。	1	2	3	4	5	6
26. 老师或领导总是提出一些我觉得难以达到的要求。	1	2	3	4	5	6
27. 较艰巨的任务更能引起我的兴趣和投入。	1	2	3	4	5	6
28. 我喜欢尝试新的陌生环境。	1	2	3	4	5	6

APPENDIX G

ACHIEVEMENT MOTIVATION SCALE (AMS)

MANDARIN CHINESE VERSION

(Ye & Hagtvet, 1992)

指导语：请认真阅读下面的每个句子，判断句中的描述符合你的情况的程度。请选择 1-6 来表示你认为的符合程度，数字越大表示越符合。"1" 表示"非常不符合"，"6" 表示"非常符合"。请凭你的第一印象尽快回答，在合适的数字上画圈。请回答所有问题。谢谢合作。

	非常不符合					非常符合
29. 我喜欢新奇的、有困难的任务，甚至不惜冒风险。	1	2	3	4	5	6
30. 我讨厌在完全不能确定会不会失败的情境中工作。	1	2	3	4	5	6
31. 我在完成有困难的任务时，感到快乐。	1	2	3	4	5	6
32. 在结果不明的情况下，我担心失败。	1	2	3	4	5	6
33. 我会被那些能了解自己有多大才智的工作所吸引。	1	2	3	4	5	6
34. 在完成我认为是困难的任务时，我担心失败。	1	2	3	4	5	6
35. 我喜欢尽了最大努力能完成的工作。	1	2	3	4	5	6
36. 一想到要去做那些新奇的、有困难的工作，我就感到不安。	1	2	3	4	5	6
37. 我喜欢对我没有把握解决的问题坚持不懈地努力。	1	2	3	4	5	6
38. 我不喜欢那些测量我能力的场面。	1	2	3	4	5	6
39. 对于困难的任务，即使没有什么意义，我也很容易卷进去。	1	2	3	4	5	6
40. 我对那些没有把握能胜任的工作感到忧虑。	1	2	3	4	5	6
41. 面对能测量我能力的机会，我感到是一种鞭策和挑战。	1	2	3	4	5	6
42. 我不喜欢做我不知道能否完成的事，即使别人不知道也一样。	1	2	3	4	5	6
43. 我会被有困难的任务所吸引。	1	2	3	4	5	6
44. 在那些测量我能力的情境中，我感到不安。	1	2	3	4	5	6
45. 对于那些我不能确定是否能成功的工作，最能吸引我。	1	2	3	4	5	6
46. 对需要有特定机会才能解决的事，我会害怕失败。	1	2	3	4	5	6

47.	给我的任务即使有充裕的时间，我也喜欢立即开始工作。	1	2	3	4	5	6
48.	那些看起来相当困难的事，我做时很担心。	1	2	3	4	5	6
49.	能够测量我能力的机会，对我是有吸引力的。	1	2	3	4	5	6
50.	我不喜欢在不熟悉的环境下工作，即使无人知道也一样。	1	2	3	4	5	6
51.	面临我没有把握克服的难题时，我会非常兴奋、快乐。	1	2	3	4	5	6
52.	如果有困难的工作要做，我希望不要分配给我。	1	2	3	4	5	6
53.	如果有些事不能立刻理解，我会很快对它产生兴趣。	1	2	3	4	5	6
54.	我不希望做那些要发挥我能力的工作。	1	2	3	4	5	6
55.	对我来说，重要的是做有困难的事，即使无人知道也无关重要。	1	2	3	4	5	6
56.	我不喜欢做那些我不知道我能否胜任的事。	1	2	3	4	5	6
57.	我希望把有困难的工作分配给我。	1	2	3	4	5	6
58.	当我遇到我不能立即弄懂的问题，我会焦虑不安。	1	2	3	4	5	6

APPENDIX H

WORK VALUES SCALE (WVS)

MANDARIN CHINESE VERSION

(Jin & Li, 2005)

指导语：就选择职业来说，下列条目重要性如何？请选择1-6来表示你认为的重要程度，数字越大表示越重要。"1"表示"很不重要"，"6"表示"很重要"。请在合适的数字上画圈。请回答所有问题。谢谢合作。

	很不重要					很重要
59. 工作能使我方便照顾父母。	1	2	3	4	5	6
60. 工作能和家庭不相冲突。	1	2	3	4	5	6
61. 工作能使我和未来配偶在一个城市。	1	2	3	4	5	6
62. 工作能使我容易晋升到高地位。	1	2	3	4	5	6
63. 工作能使我有高于一般水平的年薪。	1	2	3	4	5	6
64. 工作能使我受到重视。	1	2	3	4	5	6
65. 工作能使我享受高地位的个人空间。	1	2	3	4	5	6
66. 工作能使周围人羡慕我。	1	2	3	4	5	6
67. 工作能带给人激情。	1	2	3	4	5	6
68. 工作能使我发挥自己的创造性。	1	2	3	4	5	6
69. 工作能使我实现个人的抱负和目标。	1	2	3	4	5	6
70. 工作环境能磨练我的个人能力。	1	2	3	4	5	6
71. 工作能使我施展个人的能力和特长。	1	2	3	4	5	6
72. 工作能使我提高我国在该行业的世界竞争力。	1	2	3	4	5	6
73. 工作能使我改变目前另人担忧的社会现状。	1	2	3	4	5	6
74. 工作能使我为社会发展创造价值。	1	2	3	4	5	6
75. 单位少有改革或风险。	1	2	3	4	5	6
76. 工作不要经常出差或到异地工作。	1	2	3	4	5	6

	很不重要					很重要
77. 工作强度或压力不能大。	1	2	3	4	5	6
78. 自己在该领域有天分。	1	2	3	4	5	6
79. 与自己的性格相符。	1	2	3	4	5	6
80. 符合自己的兴趣爱好。	1	2	3	4	5	6
81. 领导的性格人品符合期待。	1	2	3	4	5	6
82. 环境不容易使人变得腐败或虚伪。	1	2	3	4	5	6
83. 工作不常发生道德困境。	1	2	3	4	5	6
84. 初始的职位较高。	1	2	3	4	5	6
85. 单位企业规模大。	1	2	3	4	5	6
86. 一开始的薪酬就比较高。	1	2	3	4	5	6
87. 单位有很好的发展前途。	1	2	3	4	5	6
88. 单位的上司和同事好相处。	1	2	3	4	5	6
89. 在该领域积累了一定的朋友圈。	1	2	3	4	5	6
90. 单位提供住房或住宿。	1	2	3	4	5	6
91. 单位解决户口问题。	1	2	3	4	5	6
92. 单位提供的保险齐全。	1	2	3	4	5	6

APPENDIX I

EXPLORATORY FACTOR ANALYSES (EFAS) ON

SELF-EFFICACY, ACHIEVEMENT MOTIVATION, AND WORK VALUES

The Exploratory Factor Analyses (EFAs) on self-efficacy, achievement motivation, and work values were performed to explore the structure of each of the constructs in this study. The comparisons between the results and the original scale structures were discussed.

The Exploratory Factor Analysis (EFA) on Self-Efficacy

In this study, the 19-item Self-Efficacy Inventory (SEI) had a Cronbach α of .75 (Table 5), which, according to Nunnally (1978), indicated that the Inventory had a good reliability. Shi and Wang (2005) obtained a Cronbach α of .81 when exploring the reliability of the Inventory.

The Exploratory Factor Analysis showed that the first three components had eigenvalues larger than 1.0, which, according to the Kaiser criterion, revealed a three-factor structure of the Inventory (Table I1). The Scree Plot is shown in Figure I1. In this three-factor structure, the three factors accounted for 51.73% of the total variance.

Table I1

Total Variance Explained in Exploratory Factor Analysis of Self-Efficacy (Components with Eigenvalues > 1.0)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.35	28.18	28.18	5.35	28.18	28.18	3.85	20.25	20.25
2	3.14	16.54	44.72	3.14	16.54	44.72	3.41	17.96	38.20
3	1.33	7.01	51.73	1.33	7.01	51.73	2.57	13.52	51.73

Extraction Method: Principal Component Analysis.
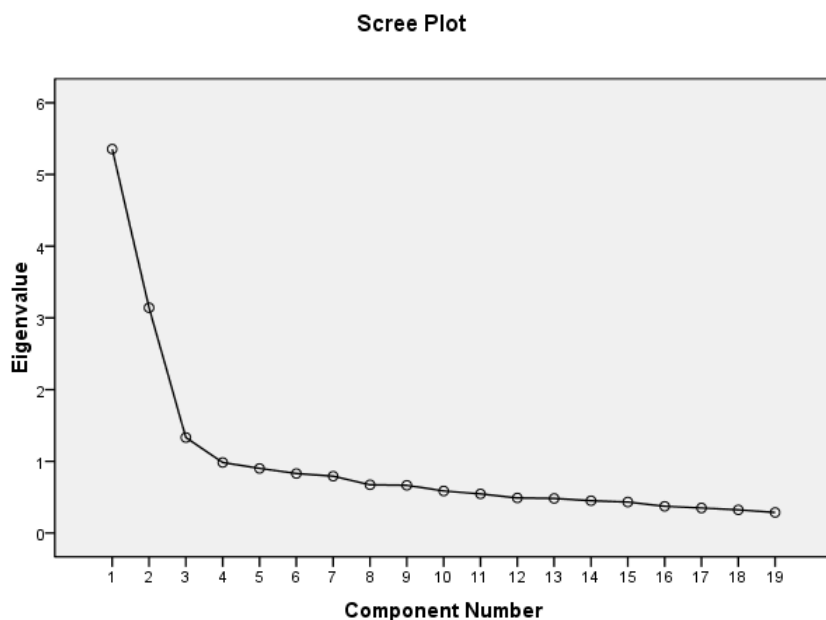
Figure I1. The Scree Plot of Exploratory Factor Analysis of Self-Efficacy.

Table I2

Rotated Component Matrix of Exploratory Factor Analysis of Self-Efficacy

	Component		
	1	2	3
SE4	**.75**	-.14	.20
SE3	**.73**	-.07	.08
SE9	**.70**	-.09	.18
SE8	**.69**	.03	.21
SE11	**.63**	-.07	.12
SE16	**.60**	-.06	.26
SE1	**.58**	-.06	.07
SE6	**.56**	-.07	**.51**
SE12	-.05	**.77**	.09
SE14	-.20	**.76**	.03
SE15	-.11	**.72**	-.01
SE17	.00	**.72**	.01
SE7	-.08	**.62**	-.25
SE2	.04	**.60**	-.15
SE10	-.07	**.59**	.10

(table continues)

Table I2 *(table continued)*

| | Component | | |
	1	2	3
SE19	.10	-.09	**.75**
SE18	.33	-.04	**.71**
SE13	.19	.14	**.69**
SE5	**.42**	-.09	**.67**

Extraction Method: Principal Component Analysis.
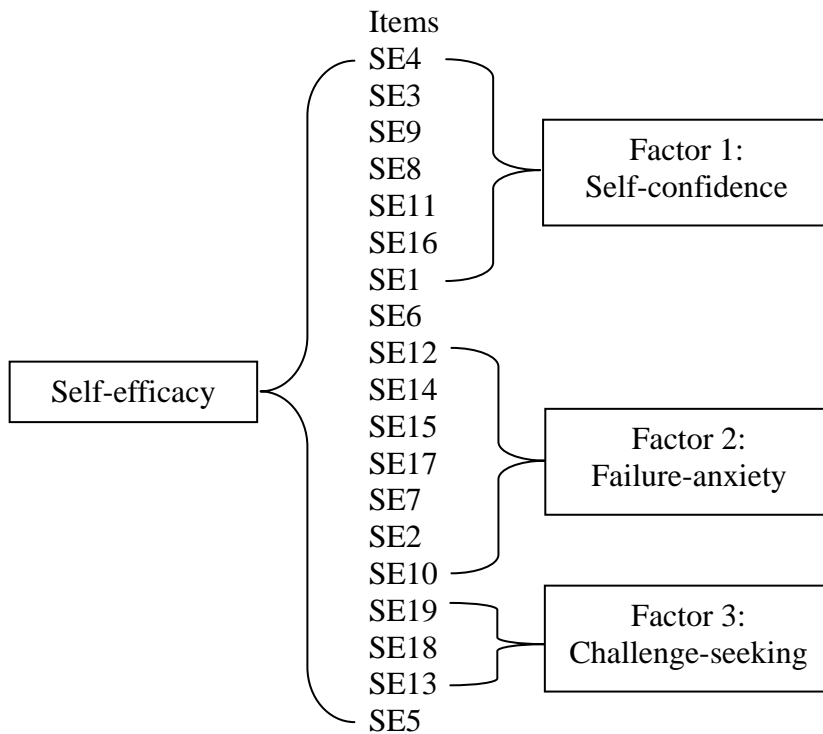Rotation Method: Varimax with Kaiser Normalization.

Table I2 shows loadings of all 19 items on each component with loadings of .40 or above in bold, which also indicates a three-factor structure of the Self-Efficacy Inventory. Two items, SE6 and SE5, which had high cross loadings (.40 or higher) on more than one factor, were deleted. Each of the three factors was labeled based on the content of each item included in that factor (Table I3). The first factor included 7 items (SE4, SE3, SE9, SE8, SE11, SE16, and SE1) and was labeled as "Self-confidence." The second factor included 7 negatively worded (reverse scored) items (SE12, SE14, SE15, SE17, SE7, SE2, and SE10) and was labeled as "Failure-anxiety." The third factor included 3 items (SE19, SE18, and SE13) and was labeled as "Challenge-seeking." Wang (1999) and Shi and Wang (2005) demonstrated a one-factor (unidimensional) structure of self-efficacy when they originally developed and further examined the Self-Efficacy Inventory. Figure I2 shows the comparison of self-efficacy structure between the original scale and the Exploratory Factor Analysis results in this study.

Table I3

The Three-Factor Structure of the Self-Efficacy Inventory

Factors	Items
Factor 1: Self-confidence	SE4: I am very confident in my ability to face the challenges in my future life.
	SE3: I am usually satisfied with my own choices and decisions.
	SE9: No matter how difficult things are, I can be successful as long as I try my best.
	SE8: I can easily cope with any problem in a crisis.
	SE11: I believe that, with effort, I can realize all my wishes.
	SE16: I never give up when facing a problem, always trying out ideas until I resolve it.
	SE1: I can do some things much better than other people.
Factor 2: Failure-anxiety	SE12: Frustration from failures disturbs me for long periods.
	SE14: I worry that I might not be able to adapt to the future work demands.
	SE15: I feel that the world changes too fast for me to understand and control it.
	SE17: My teacher/supervisor often makes demands that I find hard to meet.
	SE7: I lack confidence in doing challenging work.
	SE2: I worry that I can't easily adapt to a new environment.
	SE10: I'm stressed and anxious before exams though others believe I will do well.
Factor 3: Challenge-seeking	SE19: I like to try new environments.
	SE18: The harder a task, the more interested I am in it and the harder I work.
	SE13: Taking risks is necessary for fulfilling my ideal.

Items
SE4
SE3
SE9
SE8   Factor 1:
SE11   Self-confidence
SE16
SE1
SE6
SE12
Self-efficacy   SE14
SE15   Factor 2:
SE17   Failure-anxiety
SE7
SE2
SE10
SE19   Factor 3:
SE18   Challenge-seeking
SE13
SE5

Figure 12. The Comparison of Self-Efficacy Structure between the Original Scale and the

Exploratory Factor Analysis Results in This Study.

The Exploratory Factor Analysis (EFA) on Achievement Motivation

In this study, the 30-item Achievement Motivation Scale (AMS) had a Cronbach α

of .83 (Table 5), which, according to Nunnally (1978), indicated that the Scale had a good

reliability. The entire Scale includes two sub-scales which represent the corresponding

two dimensions of achievement motivation, the motivation to achieve success (MS) and

the motivation to avoid failure (MF), respectively. The MS contains 15 items and had a

Cronbach α of .86 (Table 5). The MF contains the other 15 items and had a Cronbach α

of .90 (Table 5). Fan and Zhang (2009) indicated that the AMS had the Cronbach α's of

the sub-scales ranged from the low .60s to high .70s in previous studies.

Exploratory Factor Analysis showed that the first five components had eigenvalues larger than 1.0, which, according to the Kaiser criterion, revealed a five-factor structure of the Scale (Table I4). The Scree Plot is shown in Figure I3. In this five-factor structure, the five factors accounted for 55.14% of the total variance.

Table I4

Total Variance Explained in Exploratory Factor Analysis of Achievement Motivation (Components with Eigenvalues > 1.0)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.11	23.71	23.71	7.11	23.71	23.71	5.85	19.49	19.49
2	4.98	16.59	40.30	4.98	16.59	40.30	4.69	15.63	35.12
3	2.09	6.95	47.25	2.09	6.95	47.25	2.80	9.32	44.44
4	1.23	4.10	51.36	1.23	4.10	51.36	2.02	6.72	51.15
5	1.14	3.79	55.14	1.14	3.79	55.14	1.20	3.99	55.14

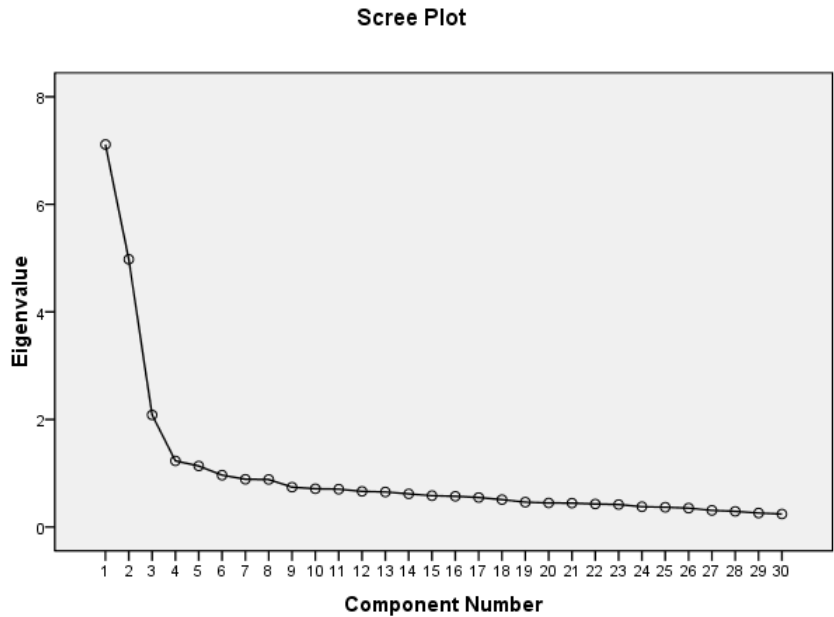Extraction Method: Principal Component Analysis.

Figure I3. The Scree Plot of Exploratory Factor Analysis of Achievement Motivation.

Table I5

Rotated Component Matrix of Exploratory Factor Analysis of Achievement Motivation

	Component				
	1	2	3	4	5
AM18	**.76**	-.06	.05	-.04	.00
AM6	**.76**	-.14	.08	.02	-.02
AM20	**.74**	-.01	.02	.19	-.14
AM16	**.71**	.00	-.14	.10	.13
AM8	**.71**	.04	-.23	.19	.22
AM4	**.68**	-.20	.17	.07	.00
AM30	**.65**	.00	.03	.28	-.12
AM12	**.65**	-.06	-.02	.31	.10
AM10	**.59**	-.07	-.19	-.15	**.45**
AM22	**.54**	.05	-.06	.29	.03
AM14	**.54**	-.06	-.04	**.51**	.06
AM17	-.03	**.81**	.07	-.02	-.01
AM23	-.14	**.78**	.07	.00	.02
AM27	.05	**.73**	-.03	.06	-.01
AM29	-.06	**.71**	.07	-.05	.13
AM15	-.18	**.66**	.31	-.08	.12
AM25	-.04	**.59**	.17	-.01	.16
AM1	-.13	**.54**	.26	-.11	-.09
AM9	-.02	**.54**	**.43**	-.20	.18
AM21	-.08	**.51**	**.49**	.10	-.27
AM11	.36	**.47**	-.07	-.32	-.22
AM5	.09	.22	**.68**	-.13	-.11
AM3	-.10	.04	**.67**	.12	.35
AM7	.05	.19	**.66**	-.04	.24
AM13	-.02	.37	**.61**	-.02	-.19
AM26	.31	**.43**	**-.47**	**.42**	-.03
AM28	**.42**	-.15	-.10	**.63**	.16
AM2	.39	-.08	.08	**.58**	-.07
AM24	**.49**	-.05	-.17	**.53**	-.09
AM19	.08	.21	.18	.05	**.64**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table I5 shows loadings of all 30 items on each component with loadings of .40 or

above in bold, which also indicates a five-factor structure of the Achievement Motivation

Scale. Seven items, AM10, AM14, AM9, AM21, AM26, AM28, and AM24, which had

high cross loadings (.40 or higher) on more than one factor, were deleted. The last two

factors, which included only one item, AM2 and AM19, respectively, were deleted. Thus, a final three-factor structure of the Achievement Motivation Scale emerged and the three factors accounted for 44.44% of the total variance (Table I4). Each of the three factors was labeled based on the content of each item included in that factor (Table I6). The first factor included 9 items (AM18, AM6, AM20, AM16, AM8, AM4, AM30, AM12, and AM22) and was labeled as "Motivation to avoid failure." The second factor included 8 items (AM17, AM23, AM27, AM29, AM15, AM25, AM1, and AM11) and was labeled as "Motivation to achieve success." The third factor included 4 items (AM5, AM3, AM7, and AM13) and was labeled as "Motivation to take challenges."

Figure I4 shows the comparison of the achievement motivation structure between the original scale and the Exploratory Factor Analysis results in this study. In general, the results supported the two-dimension structure of achievement motivation: motivation to achieve success and motivation to avoid failure. However, the original dimension of motivation to achieve success was split into two new factors: motivation to achieve success and motivation to take challenges.

Table I6

The Five-Factor Structure of the Achievement Motivation Scale

Factors	Items
Factor 1: Motivation to avoid failure	AM18: I worry about failure on the tasks that need special opportunities.
	AM6: I worry about failure when I deal with the tasks that, I think, are difficult.
	AM20: I feel anxious when I do the task that seems to be very difficult.
	AM16: I feel anxious when I am in an environment that tests my abilities.
	AM8: I feel anxious when I think that I have an unfamiliar and difficult task.
	AM4: I worry about failure in an uncertain environment.
	AM30: I will feel anxious when I have a question that I cannot answer or understand immediately.
	AM12: I feel anxious when I don't think I am competent for the task.
	AM22: I dislike to work in an unfamiliar environment even if nobody knows.
Factor 2: Motivation to achieve success	AM17: I will be attracted by those tasks that I am not sure if I can succeed.
	AM23: I will be very excited and happy when I face difficulties that I am not sure if I can succeed.
	AM27: Doing difficult tasks is important to me and it doesn't matter no one knows.
	AM29: I like to be assigned difficult tasks.
	AM15: I will be attracted by difficult tasks.
	AM25: I will be interested in those things that cannot be understand immediately.
	AM1: I like unfamiliar and difficult tasks, even risky ones.
	AM11: I will be easily involved in a difficult task even if it doesn't have much meaning.
Factor 3: Motivation to take challenges	AM5: I will be attracted by the tasks that can help me know my abilities.
	AM3: I feel happy when I complete a difficult task.
	AM7: I like tasks that I can accomplish when I try my best.
	AM13: I consider it as a spur and challenge when I have an opportunity to test my abilities.

Items
AM17
AM23
AM27
AM29
AM15
AM25
AM1
AM11
AM9
AM21
AM5
AM3
AM7
AM13
AM19
AM26
AM18
AM6
AM20
AM16
AM8
AM4
AM30
AM12
AM22
AM10
AM14
AM28
AM2
AM24

Motivation to achieve success

Factor 2: Motivation to achieve success

Factor 3: Motivation to take challenges

Motivation to avoid failure

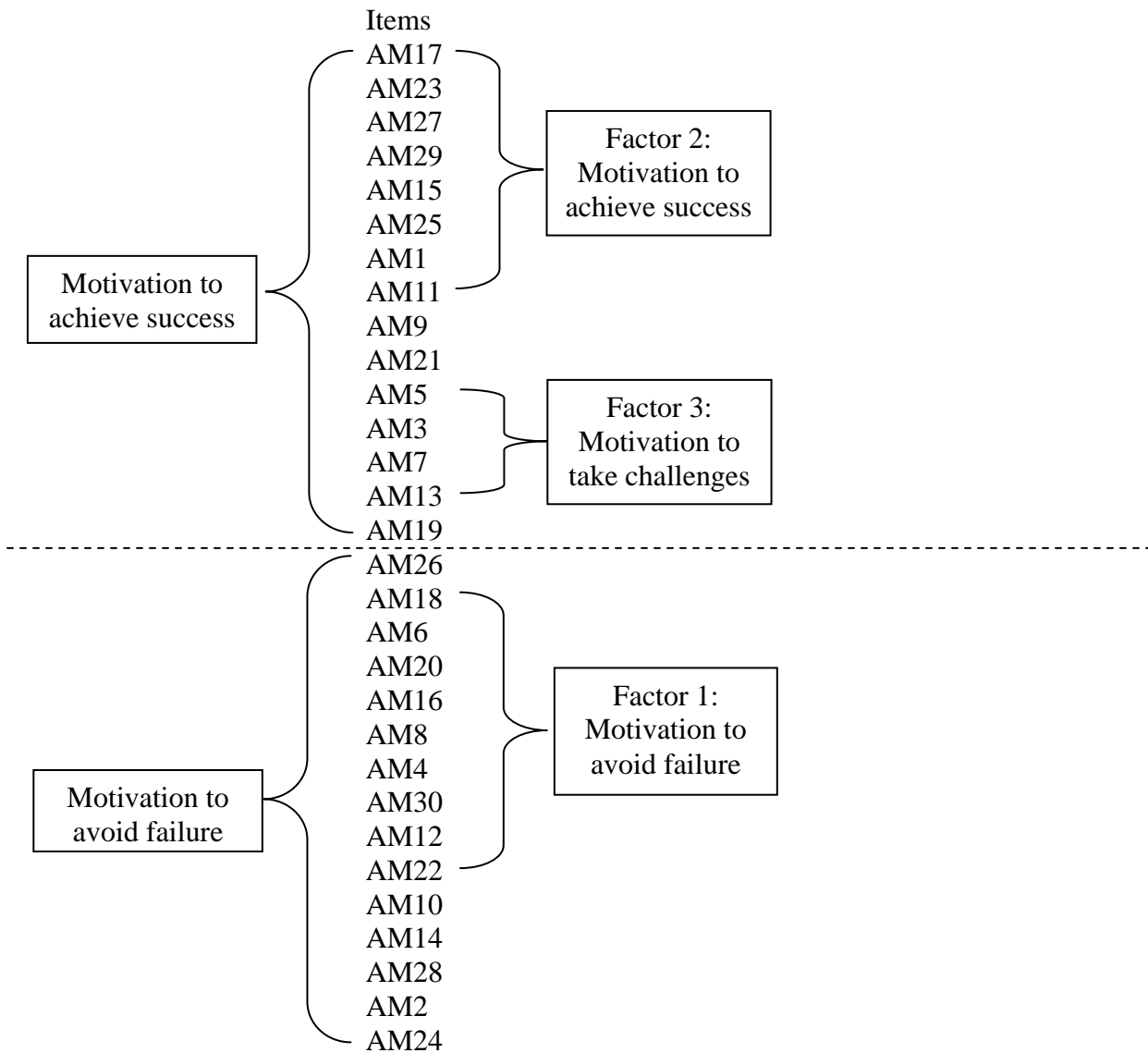Factor 1: Motivation to avoid failure

Figure I4. The Comparison of Achievement Motivation Structure between the Original

Scale and the Exploratory Factor Analysis Results in This Study.

The Exploratory Factor Analysis (EFA) on Work Values

In this study, the 16-item intentional work values construct had a Cronbach α of .90

with the Cronbach α's of the four factors ranged from .77 to .88 (Table 5), which,

according to Nunnally (1978), indicated that the Inventory had a good reliability. The

18-item instrumental work values construct had a Cronbach α of .85 with the Cronbach α's of the six factors ranged from .66 to .82 (Table 5).

Exploratory Factor Analysis showed that the first eight components had eigenvalues larger than 1.0, which, according to the Kaiser criterion, revealed an eight-factor structure of the Scale (Table I7). The Scree Plot is shown in Figure I5. In this eight-factor structure, the eight factors accounted for 66.04% of the total variance.

Table I7

Total Variance Explained in Exploratory Factor Analysis of Work Values (Components with Eigenvalues > 1.0)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.60	28.25	28.25	9.60	28.25	28.25	4.43	13.02	13.02
2	3.70	10.89	39.14	3.70	10.89	39.14	3.66	10.77	23.79
3	2.28	6.69	45.83	2.28	6.69	45.83	2.95	8.68	32.47
4	1.85	5.45	51.28	1.85	5.45	51.28	2.83	8.32	40.79
5	1.47	4.31	55.59	1.47	4.31	55.59	2.47	7.26	48.05
6	1.38	4.06	59.65	1.38	4.06	59.65	2.30	6.77	54.81
7	1.15	3.38	63.02	1.15	3.38	63.02	1.98	5.81	60.63
8	1.03	3.01	66.04	1.03	3.01	66.04	1.84	5.41	66.04

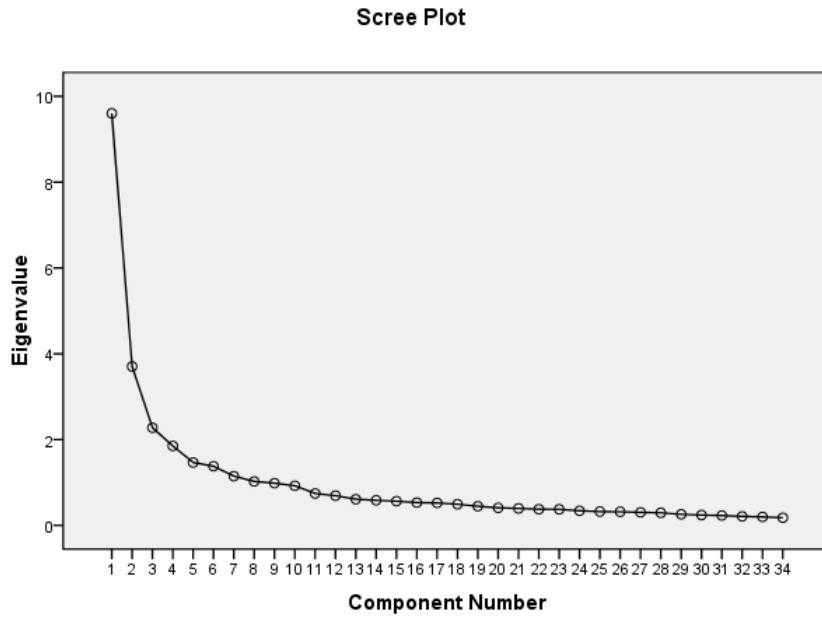Extraction Method: Principal Component Analysis.

Figure I5. The Scree Plot of Exploratory Factor Analysis of Work Values.

Table I8

Rotated Component Matrix of Exploratory Factor Analysis of Work Values

	Component							
	1	2	3	4	5	6	7	8
WV9	**.82**	.10	.06	-.02	.08	.12	.05	.18
WV10	**.80**	.10	.04	-.05	.09	.19	-.05	.23
WV11	**.76**	.10	.13	-.08	.08	.19	.01	.20
WV13	**.73**	.22	.22	-.04	.08	.15	-.07	.11
WV12	**.61**	.24	.19	.04	.14	.31	-.17	-.11
WV30	.12	**.70**	.21	.03	.21	-.03	.07	.15
WV23	.19	**.70**	.17	.12	.13	.00	.17	.13
WV24	.22	**.63**	-.28	.12	.13	.18	.05	.09
WV31	.02	**.62**	.23	.16	.00	.21	.03	.08
WV29	.18	**.61**	.37	-.11	.12	.18	.09	.15
WV25	.22	**.59**	-.33	.16	.23	.06	.09	.01
WV34	.00	**.46**	.32	.31	.09	.01	.20	-.35
WV4	.20	.15	**.75**	.13	.22	.17	.00	.05
WV5	.24	.17	**.68**	.07	.29	.21	.02	.24

(table continues)

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Table I8 *(table continued)*

	Component							
	1	2	3	4	5	6	7	8
WV6	**.54**	.19	**.58**	-.01	.17	.12	.03	-.11
WV7	**.54**	.03	**.54**	.11	.12	.10	.17	.05
WV8	.36	-.02	**.49**	**.41**	-.05	.05	.19	-.09
WV18	-.05	-.02	.03	**.75**	.21	-.03	-.09	-.03
WV17	-.02	.15	.01	**.73**	.18	.12	.08	-.13
WV19	.00	.07	-.01	**.64**	.34	-.08	.17	.25
WV27	-.15	.29	.34	**.57**	-.19	.21	.18	.11
WV26	.01	.21	.14	**.52**	-.30	.21	.37	.23
WV28	-.05	.32	.34	**.44**	-.26	.13	.32	.28
WV2	.13	.18	.09	.12	**.77**	.11	.01	.12
WV1	.08	.18	.12	.19	**.68**	.14	.03	.09
WV3	.19	.17	.21	.09	**.67**	.11	.02	.08
WV14	.28	.13	.15	.03	.08	**.79**	.09	.03
WV16	.36	.10	.10	.00	.19	**.72**	.09	.00
WV15	.19	.11	.13	.15	.10	**.72**	.09	.11
WV32	-.01	.15	.10	.14	.05	.02	**.85**	-.02
WV33	-.04	.12	.01	.07	.03	.16	**.84**	-.02
WV20	.31	.15	.15	.17	.14	.04	-.01	**.72**
WV21	.32	.36	.03	-.02	.33	.08	-.03	**.60**
WV22	.37	**.41**	-.02	-.07	.15	.13	.04	**.52**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table I8 shows loadings of all 34 items on each component with loadings of .40 or

above in bold, which also indicates an eight-factor structure of the Work Values Scale.

Four items, WV6, WV7, WV8, and WV22, which had high cross loadings (.40 or higher)

on more than one factor, were deleted. Each of the eight factors was labeled based on the

content of each item included in that factor (Table I9). The first factor included 5 items

(WV9, WV10, WV11, WV13, and WV12) and was labeled as "Achievement." The

second factor included 7 items (WV30, WV23, WV24, WV31, WV29, WV25, and

WV34) and was labeled as "Morality and development." The third factor included 2

items (WV4 and WV5) and was labeled as "Status." The fourth factor included 6 items

(WV18, WV17, WV19, WV27, WV26, and WV28) and was labeled as "Stability and

compensation." The fifth factor included 3 items (WV2, WV1, and WV3) and was labeled as "Family." The sixth factor included 3 items (WV14, WV16, and WV15) and was labeled as "Social improvement." The seventh factor included 2 items (WV32 and WV33) and was labeled as "Benefits." The eighth factor included 2 items (WV20 and WV21) and was labeled as "Personality and interests."

Figure I6 shows the comparison of the work values structure between the original scale and the Exploratory Factor Analysis results in this study. The results supported the two-dimension structure of work values: intentional work values and instrumental work values. For intentional work values, the Exploratory Factor Analysis results in this study generated the same four-factor structure as that in the original scale. However, for instrumental work values, the results generated a four-factor structure, compared to the six-factor structure in the original scale.

Table I9

The Eight-Factor Structure of the Work Values Scale

Factors	Items
Factor 1: Achievement	WV9: The job will bring me enthusiasm. WV10: The job will make me creative. WV11: The job will help me actualize my ambition and goals. WV13: I can use my abilities and strengths in the position. WV12: The job will improve my abilities.
Factor 2: Morality and development	WV30: My boss and colleagues will be easy to get along with. WV23: My boss will have the personality that I'm expecting. WV24: I will not be gangrened or untruthful in the job. WV31: I have good network in the area. WV29: The organization will have good opportunities for development. WV25: Few ethical dilemmas will happen in the job. WV34: The organization will provide various insurance.

(table continues)

Table I9 *(table continued)*

| Factors	Items
Factor 3: Status	WV4: I will be easily promoted to a higher position. WV5: I will have a salary above average.
Factor 4: Stability and compensation	WV18: I don't have to travel a lot or relocate. WV17: There will be few changes or risks in the job. WV19: The job will not be demanding or full of stress. WV27: The position should be in a large organization. WV26: I will get higher starting position. WV28: I will get higher starting salary.
Factor 5: Family	WV2: There will be no conflict between work and family. WV1: I can take care of my parents. WV3: My spouse and I can work in the same city.
Factor 6: Social improvement	WV14: The job will give me the opportunity to enhance the competitive power of my country. WV16: The job will give me the opportunity to create values for the development of the society. WV15: The job will give me the opportunity to change the social environment.
Factor 7: Benefits	WV32: The organization will provide accommodation. WV33: I will get the registered permanent residence if I get the job.
Factor 8: Personality and interests	WV20: I have the talent in the area. WV21: The job will match my personality.
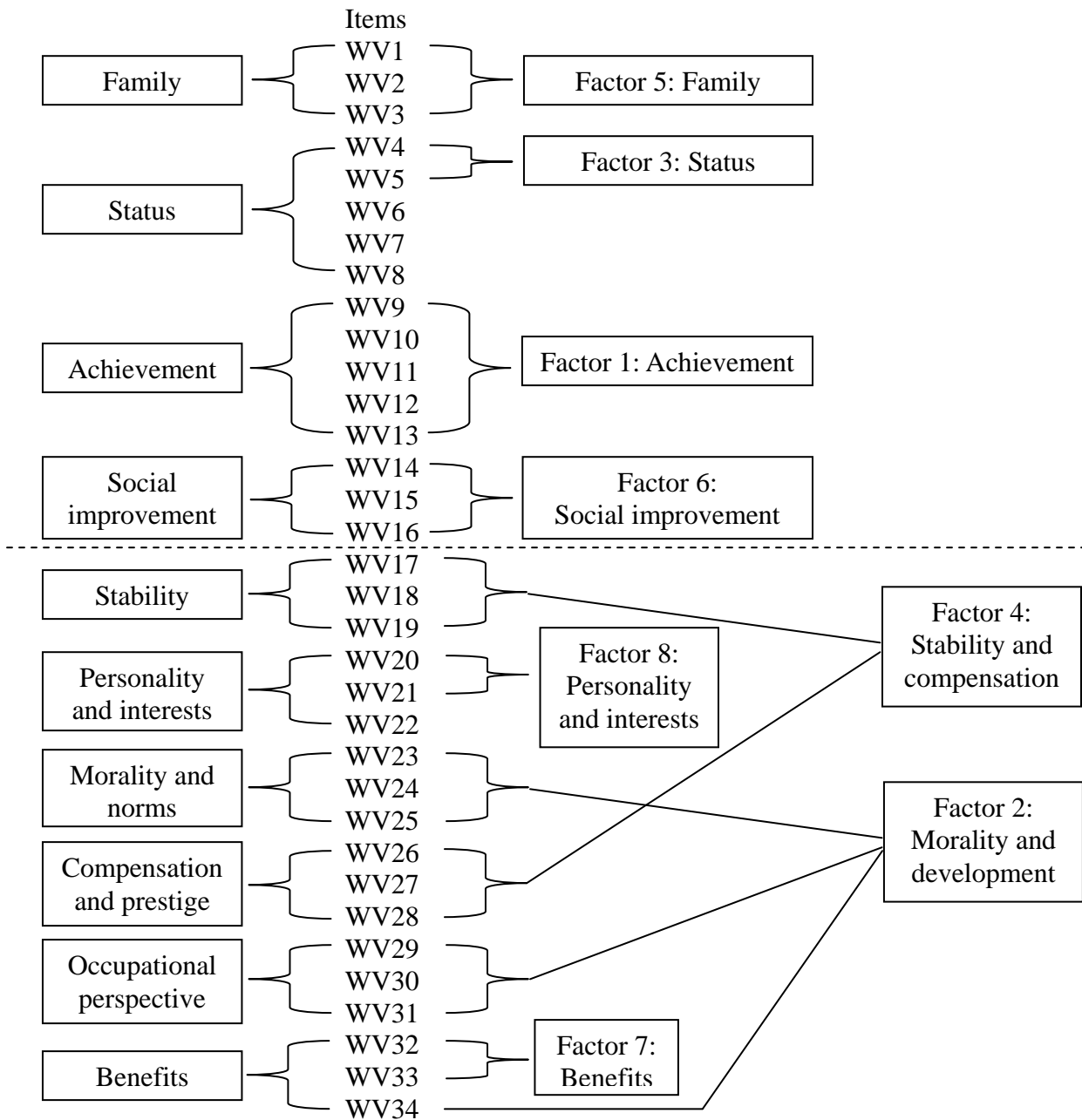
Figure 16. The Comparison of Work Values Structure between the Original Scale and the

Exploratory Factor Analysis Results in This Study.