INTRINSIC MOTIVATIONS OF OLDER ADULT LEARNERS IN TAIWAN

by

YI-YIN LIN

(Under the Direction of Lorilee R. Sandmann)

ABSTRACT

Older adults are increasing dramatically throughout the globe. Due to this trend, learning has become an important pathway to improve older adults' quality of life in many countries. The purpose of this study was to understand the intrinsic motivation of older adult learners in Taiwan. Older adult learners for this study are defined as learners over 65 years old. The three research questions guiding the study were: (a) what are the intrinsic motivations to learn for older adults in Taiwan? (b) to what extent can the intrinsic motivation to learn be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan? (c) to what extent are the relationships between personal predictor variables and intrinsic motivation to learn mediated by teacher support, peer support and/or family support?

Three research questions were examined in this study using descriptive statistics, multiple regression and path analysis by using SPSS 19.0 and MPlus 6.0. In total, the sample population for this study was 816 older adult learners in Taiwan with an average age of 67.95. The respondents were 32.4% male and 67.6% female. The three major conclusions of this study were: (a) The intrinsic motivations of older adult learners are

high; the most salient motivations for older adult learners are the desire for stimulation and generativity; (b) institutional predictor variables, especially teacher support and peer support, are the most important predictors of the intrinsic motivation of Taiwanese older adult learners; and (c) teacher support, peer support, and family support mediated the relationship between older adult learners' personal characteristics and intrinsic motivation to learn.

INDEX WORDS: Older adult learning, Motivation to learn, Intrinsic motivation, Gerontology, Andragogy, Gerogogy, Positive aging

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B.E., Hsuan Chuang University, 2003

M.Ed., National Chuang Cheng University, 2005

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2012

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May 2012

DEDICATION

To my parents and grandparents

ACKNOWLEDGMENTS

There are many special individuals I would like to acknowledge for their guidance, support, and compassion throughout my doctoral journey and the dissertation process. Their encouragement helped make this experience a success and I am so grateful.

First of all, I must acknowledge my advisor and committee chair, Dr. Lorilee Sandmann, for all she has done for me and my study. I know that this dissertation study would not have been done without her advice, guidance, support, and love. I also deeply appreciate my other dissertation committee members, Dr. Tom Valentine, Dr. Janet Truluck, and Dr. Su-I Hou for their encouragement and feedback on my study and dissertation. Dr. Tom Valentine's expertise in survey research was priceless and having the opportunity to work with him has been a great learning experience for me. Dr. Janet Truluck and Dr. Su-I Hou were wonderfully supportive and available to me through the process of my study.

Additionally, I would like to thank Dr. Bradley Courtenay and Julie Range, colleagues in work, for their encouragement that gave me the strength to keep going. The mentoring of Dr. Chin-Shan Huang, Dr. Kerstin Gerst, and Dr. Iris A. T. Li also carried me through the process to complete this degree. Thank you.

I have made many great friends throughout my time in UGA and would like to thank my fellow doctoral students in LEAP. With their friendship I felt less lonely during

my time in Athens. Especially, I would like to recognize a special friend—Ki Tae for his assistance with technical and other issues that made my work easier.

Finally, my deepest appreciations go to my beloved family for their unconditional love and support that sustained me in this journey. I am forever gratiful. I hope that you look on this accomplishment as a source of pride and as a testament to your ability as parents.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

As the number of older adults is increasing dramatically around the world, understanding and providing for this aging population is an important issue for the twenty-first century. Learning has become an important pathway to improve older adults' quality of life in many countries, particularly in Taiwan, the focus of this survey study (Boulton-Lewis, Buys, & Lovie-Kitchin, 2006). Therefore, there is a need to better understand older learners and to provide a specific framework to understand their learning.

Background

Within the growing population of older adults, the United Nations (2010) indicates that older-old adults (over 80) are growing more rapidly than any other older age group. As the over 80 years old age group grows, today's 50 to 55 year old adults are too young to be described as older adults because of their increasing good health and their active presence in the job field. However, the 50 to 55 age group is usually the main subject in studies of older adult education. In other words, this young older adult group is frequently regarded as representing older adults within the field of adult education, though they are not really old enough to be considered older adults. In order to really understand older adults, there is a need to focus on those 65 years of age and over so that they can be provided with appropriate educational opportunities. In this study, older adults are defined as those who are over 65 years of age (Butler, 1998; Neugarten, 1996).

Older Adults

The world's population is aging, and aging is one of the most pressing issues in almost every country. Data from the World Health Organization (WHO, 2010) showed that currently people over 65 years of age make up 8% of the world population. According to the report *Preparing For an Aging World* (RAND, 2001), the most rapid acceleration in aging will occur after 2010, when the large number of baby boomers begin to reach age 65. Also, the United Nation (UN, 2010, 2001) indicated that the proportion of people age 60 and over is growing faster than any other age group, and it is increasing by 2% each year, significantly faster than the total world population. Furthermore, for at least the next twenty-five years, the older segment of the population is expected to continue growing more rapidly than other age groups. Between 2025 and 2030, the estimated growth rate of those over 60 years old will reach 2.8% annually. Additionally, accompanied by the increasing proportion of older persons (60 years or older), the proportion of the young (under age 15) will decline according to estimates. By 2050, the number of older persons in the world is expected to exceed the number of young for the first time in history (UN, 2010).

Among the older age groups, the fastest growing one in the world is the oldest-old, those aged 80 years or older. This group currently is increasing by 3.8% per year and comprises more than one-tenth of the total number of older persons. On average, the annual growth rate of persons aged 80 years or over (3.8%) is currently twice as high as the growth rate of the population over 60 years of age (1.9%). At these rates, by the middle of the century, one-fifth of older persons will be 80 years or older (UN, 2002).

In terms of geography, WHO (2001) estimates that by 2050, the proportion of those aged 60 and over living in less developed regions will increase to 80%. Additionally, the majority of the world's older people live in Asia (with the largest numbers in Eastern Asia and China). Asia's share of the world's oldest people will continue to increase the most, while Europe's share will decrease the most over the next 25 years. To illustrate, it took 115 years for the proportion of older people in France to double from 7% to 14%; it will take only 27 years for that to happen in China and only 24 years to achieve the same increase in Taiwan (Huang, 2010; WHO, 2001). Specifically, aging in Taiwan is expected to accelerate the most globally speaking, and in 2033, Taiwan will become the most aged country in the world, with an aging ratio of 251, meaning the population of older adults (over 65 years) will be 2.51 times the population of children (under 15 years old) (Council for Economic Planning and Development, 2011).

Such rapid growth of an aging population brings major consequences and implications for facets of society. The UN (2010) indicated that population aging has an impact on economic growth, savings, investment and consumption, labor markets, pensions, taxation, and intergenerational transfers. From the social aspect, population aging affects health and health care, family composition and living arrangements, housing, and migration. Politically, population aging can influence voting patterns and representation. Additionally, this demographic shift not only presents a significant challenge to policy makers regarding economic, political, and social issues, it also mandates a vital role for education for the aging population. Increasingly, research is

showing that education is not only an important pathway to improve older adults' quality of life but also is one of the strongest predictors of sustained cognitive function in older adults (Depp, Vahia, & Jeste, 2010; Rowe & Kahn, 1998; Schaie, 1994). Nevertheless, the issue of learning and education for older adults has only recently received appropriate attention and is a relatively new field.

Older Adults as Learners

Learning is viewed as vital to older adults in many countries, and currently, there are trends in older adult learning that underlie the need to expand organized learning opportunities for learners over 65. There are four characteristic trends. First, in general, most participants in older adult learning activities are "young older adults," who are under 65 years old currently. In other words, substantial literature shows that the percentage of adults participating in learning activities declines after the age of 65 (Aslanian & Brickell, 1980; Kump & Krasovec, 2007; Lamdin & Fugate, 1997). This also happens in Taiwan, the focus of this study. Literature shows that the majority of Taiwanese older learners are under 65 years of age, and their needs in terms of learning decrease after 64 (Huang, Lin, & Liang, 2008; Hwang, 1994; Lin & Huang, 1989; Wei, Hu, & Huang, 2006). Therefore, the question arises: Why does participation in learning activities decline after age 65? Are the programs not appropriate for these learners, or is their motivation to learn different from what it was when they were in their 50s? Are the tools to measure learning needs not adequate?

Second, although the majority of older adult learners are under 65 years old, many researchers recently found that adults over 75 years of age are the second majority group

interested in joining learning activities (Lin, 2001; Wei, 2003; Yang, 2002). Does this older group have the same interest or learning motivation as those younger older adults? What is this older group's motivation to learn?

Third, older adult learners have specific changes in physical, psychological, and social characteristics that influence their learning process, and this requires further research. For example, in terms of physical changes, hearing loss and age-related vision impairment are the main disabilities among people aged 60 years and over (WHO, 2008). According to Huang (2004), approximately 50% of adult learners over 65 years old have vision problems. Regarding psychological changes, older adults might face some changes in cognitive abilities, especially by age 67 (Willis & Schaie, 2006); have a tendency to experience a decline in self-esteem; and have a strong need for autonomy (Orth, Trzesniewski, & Robins, 2010). However, they are still eager to continue their personal growth and development (Hoyer & Roodin, 2007; Labouvie-Vief, Chiodo, Goguen, & Diehl, 1995; Neurgarten, 1977; Truluck & Courtney, 2002). As for social characteristics, the changing social roles of a retiree, such as becoming a grandparent, for example, will also influence older adult learning.

Fourth, older adults face many learning challenges because of age-related changes. David (2001) describes the primary challenges of older adult learners as cognitive challenges, proving examples such as decreased short-term memory, decreased level of concentration, and increased reaction time. Also, older adult learners encounter life-stage challenges, including loss of identity, self-confidence, and independence. Furthermore,

some researchers argue that lack of interest is a major barrier to participation for older adult learners (Peterson, 1986; Trowbridge, 2007; Ventura & Worthy, 1982).

Overall, with the increasing number of older adults, not only are "young older adults" interested in learning but those over 65, and even over 75, are as well. Although older adults have specific features and challenges that influence their learning, the literature also suggests that learning provides benefits to older adults' aging processes. Therefore, it is vital to explore learning for older adults.

Older Adult Learning

The majority of literature indicates that older adults are more heterogeneous and complex then other age groups and are not the active, hands-on learners suggested by theories of general adult education (Delahaye & Ehrich, 2008; Truluck & Courtenay, 1999). However, many current discussions about older adult learning occurring in the field of adult education suggest options for older learners that are drawn from general adult education (Fisher, 1998). Some deficits exist, implying a need for an alternative framework of motivation to learn for older adult learners.

First and foremost, most studies that claim to focus on older adult learners in reality select populations that are "too young." One consequence of this situation is that the theoretical frameworks and instruments that have been widely used are not derived from older adults. Examples of this issue come from research on motivation to learn, the most obvious being Houle's (1961) and Boshier's (1973) typologies, which are not based on the study of older adult groups but rather on the study of *all* adult learners. As a result, it is debatable whether or not these typologies might with confidence be generalized to

include learners over 65. A second consequence is that most samples of current studies of older adult learners do not focus on learners who are 65 years old; instead, the majority in these samples are 50 or 55 year old learners, with the older-old a minority. That is, the samples of the majority of research are "young-old learners." Thus, because older adults' motivations might be unique due to their developmental stages, current theoretical frameworks and current research might fail to describe older adult learners' motivation appropriately.

Another deficit exists in the motivation to learn framework that is used currently. When older adults are the subject of research, the majority of researchers discuss why older learners participate in learning activities rather than focusing on their motivation in the moment of learning. Most studies indicate that older adult learners' primary motivations are intrinsic and include cognitive interest and a desire to learn (Bynum & Seaman, 1993; Bye, Pushkar & Conway, 2007; Fujita-Stark, 1996; Kim & Merriam, 2004; Scala, 1996). Despite these findings, few research studies report focusing specifically on the intrinsic motivations of older adult learners. Such a focus values "the drive from within," and especially examines the moment of learning that highlights the emotional aspect of motivation. This is consistent with the notion that most researchers in adult education or older adult education fail to consider the emotional aspects of adult and older adult learners' motivation (Brookfield, 1995; Stephan, Fouquereau, & Fernandez, 2008).

Last, little research considers the contextual influences on older adult learners. In particular, the impact of cultural value on learning has been demonstrated by many

studies, which have argued that cultural attitudes toward learning make a difference to a person's perceptions of the importance of learning and to their leaning behavior (Biggs & Watkins, 1996; Lee, 1999; Leung, Chi, Chow, Chan, & Chou, 2006). For example, in Chinese culture, the idea of learning is viewed as a lifelong and personal process that motivates people from within and that is based on Confucian principles—particularly "Hao-Hsüeh (the inner desire to learn or love of learning)" —that have been embedded in Chinese people (Leung, Yu-Hon, & Chi, 2005; Leung et al., 2006; Leung, Chi, & Chiang, 2008; Li, 2002, 2003, 2004). Furthermore, research suggests that interpersonal relationships are also one of the salient features within Chinese culture that influence learners (Li, 2002, 2003, 2004; Leung, Liu, & Chi, 2005). Although Taiwanese society is rooted in Confucianism, little research has considered the Chinese cultural context in exploring the inner motivation of Taiwanese older learners and the effects of relationships e.g., teacher and peer support) on older adults' motivation to learn (e.g., Chappell, Hawke, Rhodes, & Soloman, 2003; Delahaye & Ehrich, 2008; Fry, 1992).

Overall, deficits exist in research on older adult learners, especially concerning their motivation to learn. An alternative theoretical framework is needed to investigate the developmental nature of older adults' motivation to learn.

Older Adult Learning in Taiwan

Education for older adults now is developing dramatically in advanced countries. This is certainly the case in Taiwan, the particular site of this study. In addition to the researcher's familiarity with Taiwan, it is an apt site for the study because Taiwan is facing a dramatic change in demographic structure, especially the remarkable increase in

the number of older adults: according to the Council for Economic Planning and Development (2011), Taiwan will become the oldest country in the world in 22 years, outstripping even Japan. Huang (2010) indicated that changing demographics have had a great effect upon the development of educational gerontology in Taiwan. Therefore, currently, the central government, local governments, and private organizations are all involved in the aging issue and, of course, are calling for the development of educational gerontology.

Specifically, there are three demographic trends that drive the development of older adult education in Taiwan. First, Taiwan is rapidly moving from a so-called aging society to an aged society. In 1993, more than 7% of the population was 65 years old or over, and this is estimated to grow to 14% (aged society) by 2017 and to 20% (super-aged society) by 2025. Thus, the transformation of Taiwan from an aging society to an aged society will take about 24 years but that from an aged society to a super-aged society will occur in only 8 years.

Second, the average life expectancy is rising. Because of medical advances, the Ministry of the Interior (2010) estimated that the average life expectancy of Taiwan's population will rise in 2009 to 78.97 years, 0.4 years longer than in the previous year. Compared to 1995, when the projected life expectancy was 74.53 years, the latest figures show that the life span of Taiwan's citizens has increased by 4.44 years over the past decade and a half. With such a rise, later life stages will become longer than before, and people will have more time in retirement.

Third, the number of older-old adults is increasing dramatically. According to the report of the Council for Economic Planning and Development (2008), with the rapid aging phenomenon in Taiwan, among older adults (those aged 65 and older) the percentage of the older-old adult population (those aged 75 and over) will increase from 43.1% in 2008 to over 50% in 2036. In 2056, around 60% of the older adult population will be 75 and over. Additionally, the number of centenarians in Taiwan is also gradually increasing. These trends indicate that there is a need to conduct further research on older-old or even oldest-old age groups.

Additionally, another vital impetus for development of older adult education in Taiwan is the support of the government. Specifically, in 2006, the Ministry of Education (2006) released a new educational White Paper entitled *Toward an Aged Society: Policies on Education for Older Adults,* and under the policies set forth therein, both central and local governments are required to emphasize the subsequent development of older adult education. The White Paper outlines the programs and projects for older adults and the organization structure of the academic field required to vigorously implement older adult education throughout the country. In particular, according to the White Paper, the Ministry of Education should establish the Learning Resource Center for Active Elderly (LRCAE; see Appendix A) in every town to provide education-oriented programs for older adults. Currently, 210 LRCAEs have been established and located in community centers, libraries, senior centers and schools. Elementary and secondary schools were also encouraged to transform their classrooms into LRCAEs due to the declining birth rate. About 20 schools responded to this policy

(Ministry of Education, 2010). Now, there are thousands of programs and classes offered by LRCAEs to provide older adult learning in Taiwan.

Last, there is a cultural context that encourages the development of older adults in Taiwan. Taiwanese culture and social structures still adhere to traditional values associated with Confucianism and are very different from those of the West, which have been influenced by individualism. These cultural values drive Chinese to pursue learning intrinsically and to emphasize filial piety, hierarchical power within the family, and interpersonal bonding (Culture Connection,1987; Streib, 1987).

Overall, it is Taiwan's rapidly aging population—the most rapidly aging population in the world—that drives the dramatic development of older adult education in Taiwan. Additionally, Taiwan has its own specific cultural context and is greatly influenced by Confucian principles. It is vital to conduct research to understand older adult learners in Taiwan.

Statement of Problem

With an increasing number of older adults in the world, participation in education is an important strategy to improve older adults' quality of life (Boulton-Lewis, Buys, & Lovie-Kitchin, 2006). However, substantial research literature shows that the percentage of older adults who participate in learning activities declines after the age of 65 (Aslanian & Brickell, 1980; Kump & Krasovec, 2007; Lamdin & Fugate, 1997; Pearce, 1991); the same pattern was also found in Taiwan (Huang, Lin, & Liang, 2008; Hwang, 1994; Lin & Huang, 1989; Wei, Hu, & Huang, 2006). Therefore, many current studies of older adult learners start with those 50 or 55 years old and over, and very few studies focus only on

those 65 years of age and over; furthermore, most of the current suggested options for older learners are drawn from general adult education (Fisher, 1998) but not from older adults themselves (65-year-old age and over). For example, most adult development theories, such as Erickson's (1950, 1986) eight life stages and Levinson's (1986) framework, appear to apply only to healthy and "young-old" groups but fail to provide suggestions for "old-old," "oldest-old," or frail older adults; also, the prominent adult learning theories might not describe older adults adequately; Knowles's (1984) work, for example, is not highly applicable to older adult learners, especially for those older adults who turn inward to engage in their inner world and disengage from society to some extent. Therefore, there is a need to study the over-65 years old learners specifically.

Deficits were also found in exploring adult education literature related to explaining the learning process in older adults. Foremost, the theoretical frameworks and instruments that have been widely used are not derived from older adults but rather from *all* adult learners. The most obvious examples are Houle's (1961) and Boshier's (1973) typologies, which are not based on the study of older adult groups. When older adults are the subject of research, the findings indicate that cognitive interest and a desire to learn are the primary motivation of older adult learners (Bynum & Seaman, 1993; Bye, Pushkar & Conway, 2007; Fujita-Stark, 1996; Kim & Merriam, 2004; Scala, 1996). However, few research reports focusing specifically on older adults' intrinsic motivations, including not only "the drive from within" but the moment of learning that highlights the emotional aspect of motivation. That is, most researchers in adult education or older

adult education fail to consider the emotional aspects of these groups' motivation (Brookfield, 1995; Stephan, Fouquereau, & Fernandez, 2008).

Also, contextual influence has been demonstrated to have great impact on learners' motivation. Specifically, Taiwanese society is rooted in Confucianism. However, few research studies have been conducted and few research frameworks have been developed that consider the specific context when studying older adult learners in Taiwan. Therefore, the current typologies derived from the adult education literature are insufficient for understanding older adult learners' motivation.

Additionally, in Taiwan in particular, the current population has aged faster than that of almost any other country in the world. The number of older adults in the population, specifically the group age 75 and over, is increasing dramatically, and this group is also the second largest group in terms of participation in non-formal learning activities. Therefore, an alternative paradigm to address the motivations for learning of older adult learners that focuses primarily on over-65-year-old learners and that considers the contextual influences on their motivations to learn is needed.

Purpose of Research Question

The purpose of this survey study was to understand the intrinsic motivations of older adult learners in Taiwan.

This study was designed to answer the following questions:

1. What are the *intrinsic motivations to learn* of older adults in Taiwan?
2. To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables

of older adult learners in Taiwan?

3. To what extent are the relationships between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support and/or family support?

In order to better understand the motivation to learn in adult learners over 65 years old in Taiwan by using the framework of intrinsic motivation, this study developed a composite theory based on both self-determination theory (SDT) and socioemotional selectivity theory (SST) and also explored the influence of the support from older learners' teachers, peers and family as well as considered Chinese cultural values.

Significance of the Study

The number of older adults is increasing dramatically, specifically within the older-old adults group. When learning is viewed as an approach to healthy life, the current research and programs fail to focus on this older age group. Therefore, this study attempts to investigate the motivations of over-65-year-old learners.

Theoretically, this study attempts to build a framework of motivation drawn from older adult learners instead of adult learners. Specifically, this study can potentially make three theoretical contributions. First, this study makes the effort to build a composite theory that can articulate older adults' motivations to learn and lead to comprehensive understanding instead of drawing on the framework of all adult learners. As discussed previously, current adult learning theories and adult development theories might not sufficiently describe older adult learners in-depth. Therefore, this study is interested in older learners instead of young old learners; additionally, the literature

specifically focused on older adult development and theories of motivations for older adults was reviewed to build the theoretical framework to guide this study. Second, the theoretical framework of this study is situated in Chinese culture. Specifically, Chinese cultural values cause individuals to view learning as an inner desire, and interpersonal relationships derived from such sources as teacher support and peer support are vital during their learning; therefore, in order to better understand older adult learners, especially older learners in Taiwan Chinese society, the framework of intrinsic motivation was selected. Additionally, teacher support, peer support and family support were explored in this study. Third, the logical framework, intrinsic motivation, provides a means of emphasizing the positive approach to older adult learning, which is essential for facilitating optimal functioning of growth and integration as well as for constructive social development and personal well-being.

From a practical perspective, this study aims to understand the older-old adults' motivation to learn and to thus enable educators, as well as educational providers, to become more aware of older adult learners and to facilitate optimal motivational function. Specifically, there are three practical points of significance for this survey study. First is the consideration of the factors causing the decline of participation of 65-year old learners, the factors causing the increase of over 75 years older learners, and the implications related to the phenomenon of motivation to learn. By attempting to deeply understand the motivations of over 65-year-old learners, this study suggests improvements in instructional design of learning activities for older learners by increasing their learning interests to enhance and sustain their participation in education.

Second, by using intrinsic motivation as the theoretical framework to understand the motivation of older adult learners, this study provides educators a specific lens to understand and enhance older adults' motivations to learn. Finally, intrinsic motivation looks at what might bring about a healthier and positive lifelong learning situation. Therefore, this study suggests ways for policy makers to provide learning activities within the lives of older adult learners by being aware of their intrinsic motivation, joy, and meaning through increased participation in learning activities.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study is to understand the intrinsic motivations of older learners in Taiwan. The central questions of the study are: (a) What are the *intrinsic motivations to learn* for older adult learners in Taiwan? (b) To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan? (c) To what extent are the relationships between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support and/or family support?

This review of literature sets the context for the study by first discussing positive aging and older adult development. The review then continues by examining the literature on older adult learning and the motivation to learn.

Positive Aging

A new positive paradigm has emerged in the research on aging in recent decades. Throughout the history of humanity, there have been two traditional paradigms about the study of aging: the positive perspectives of Plato and the negative view of Aristotle. According to Fernández-Ballesteros (2007), in the recent history of gerontology, work on aging has been primarily devoted to the study of negative (pathological) conditions, emphasizing those human systems, functions, or characteristics that decline, are impaired, or are lost during the process of aging. In the final decades of the 20th century, a new scientific concept in the field of aging emerged. Examples of concept that emerged

within the field of aging during this time are as follows: successful aging (Chou & Chi 2002; Rowe & Kahn 1998), healthy or active aging (WHO, 2002), positive aging (Cheung et al., 2002; Minichiello & Coulson, 2005), and aging well (Vaillant, 2002). These terms overlap because they all describe desirable states in terms of physical, psychological, social, and financial well being, with minor variations emphasizing a particular dimension.

Prior to clarifying the definitions of these similar terms, an early definition of human aging called *normal aging* must be addressed. In the 1960s and 1970s, human aging was characterized as a biological process akin to chronic disease; in other words, it was considered irreversible and deleterious. However, this limited definition of aging makes it very difficult to disentangle aging from disease.

In the late 1960s, Palmore (1970) proposed the term *normal aging.* He stated that "when we can distinguish normal and inevitable processes of aging from those which may accompany aging simply because of accident, stress, maladjustment, or disuse, we can better focus our attention and efforts on those factors which can be changed and corrected" (p. vii). The term *normal aging* has evolved as a result of large population-based studies, such as the Baltimore Longitudinal Study, which followed multiple cohorts of adults throughout their lifespans. A critical aspect of this definition is the presence of disease.

In the later years, Rowe and Kahn (1987) argued that the process of aging could be captured in terms more representative of its greater dimensionality, with emphasis on those individuals who have experienced preservation of health and functionality even

though they were aging. They viewed normal aging as descriptive of two subcomponent processes that they labeled *usual aging* and *successful aging*. *Usual aging* is similar to *normal aging* and emphasizes extrinsic factors of deterioration, such as diminished bone density, deficits in carbohydrate metabolism, diminished episodic memory efficiency, or other manifestations of deterioration that could be anticipated for all persons as they increase in chronological age, especially through the latter half of their lifespans. Successful aging, on the other hand, emphasizes the role of health behaviors as mediators of the aging process.

Along with this definition, Rowe and Kahn (1987) introduced and later popularized the idea that behavior and behavior change strategies could affect the course of aging for any given person and, in aggregate, could also alter general trends in longevity. This view, along with the findings that emerged from the McArthur Longitudinal Studies of Successful Aging (Berkman et al., 1993), culminated in a general definition of successful aging based on three components: (a) active engagement with life, (b) absence or avoidance of disease or risk factors for disease, and (c) maintenance of high levels of physical and cognitive functioning (Depp & Jeste, 2006; Rowe & Kahn, 1999). However, much of the research conducted under the umbrella of successful aging has focused on healthy individuals who are essentially disease free and are presumably highly resistant to age-related deterioration in physiological or cognitive processes.

In recent years, a growing research emphasis on the positive gains associated with aging has emerged (e.g., Dittman-Kohli, 1990; Strongman & Overton, 1999). Fernández-Ballesteros (2007) indicated that a positive view of aging can be traced back to 1947,

when the World Health Organization changed the conceptualization of health from the "absent of illness" to the total physical, mental, and social well-being of the individual. Specifically, positive aging emerged from three main observed facts supported by longitudinal, cross-sectional, experimental, and quasi-experimental studies: (1) the compression of morbidity; (2) the extreme variability of any bio-psycho-social condition in old age; (3) the plasticity of human beings, expressed through the modifiability of most declined or impaired conditions; and finally, (4) the assumption that aging involves not only decline but also positive change and development. Additionally, Hill (2011) provided a basic assumption in positive aging: because decline is unavoidable, it is more adaptive to accept diminished functioning as part of one's lifestyle routine rather than denying or controlling it.

In the recent literature, positive aging and successful aging are always used interchangeably (Bowling 1993); however, they are not necessarily equivalent, and each has its own particular concerns. Overall, a common, current understanding of successful aging is that it is a process of successful adaptation to age-related changes (Baltes & Baltes, 1990), an adaptation consisting of the ability to effectively adjust to changes (Baltes, Lindenberger, & Staudinger, 1996; Kling, Seltzer, & Ryff, 1997; Myers & Diener, 1995; Strongman & Overton, 1999). Positive aging emphasizes the positive gains associated with aging; for example, many current studies show that emotional functions improve with aging (Carstensen, Isaacowitz, & Charles, 1999; Fung & Carstensen, 2003; Loeckenhoff, 2004; May, Rahhal, Berry, & Leighton, 2007; Osborne, 2007).

Additionally, *active aging* is another term that is similar to positive aging and usually used in aging research. Active aging places an emphasis on disease prevention through the maintenance of healthy lifestyles, while the words *successful* and *positive* cover a wider domain to include social relationships, environment, and engagement in society.

Concept of Positive Psychology

Positive aging is an extension of the positive psychology movement, which focuses on issues specific to old age (Hill, 2005; Hill & Mansour, 2008; Hill, 2011). Since World War II, psychology has become a science of healing. It concentrates on repairing damage within a diseased model of human functioning. This approach often fails to pay attention to pathology and neglects fulfilled individuals and the thriving community. The aim of positive psychology is to begin to catalyze a change in the focus of psychology from a preoccupation only with repairing the worst things in life to also building positive qualities. Positive psychology, according to its founders and leading proponents Seligman and Csikszentmihalyi (2000), is "a science of positive subjective experiences, positive individual traits, and positive institutions [that is concerned with identifying] the factors that allow individuals, communities, and societies to flourish" (p. 5). Its aim is to expand the focus of scientific psychology beyond a perceived dominant preoccupation with pathology "to also building positive qualities" (p. 6), and it has as its basic premise the viewpoint that human beings are "self-organising, self-directed, adaptive entities" (p. 8).

This positive psychology has been described as the study of human strengths and optimal functioning. It is a field that has recently been called within the discipline a

science of psychology grounded in positive experience (Bandura, 2007; Gilham & Seligman, 1999; Seligman & Csikszentmihalyi, 2000; Vaillant, 2000). The core philosophy behind the positive psychology movement is the premise that by focusing on the discovery, development, and nurturing of strengths, illness can be prevented and optimal mental health and life fulfillment can be attained (Seligman, 2003). In the positive psychology orientation, some researchers have noted the need to examine the strengths and positive assets of the developmental stage rather than focusing on the multitude of stressors and potential negative outcomes (Johnson, Robert, & Worell, 1999). Also, Johnson and Roberts (1999) recognized that "looking at strengths rather than liabilities is slowly becoming an increasing presence in psychotherapy, education, and parenting literature" (p. 5).

According to Pajares (2001), one of the vital aims of positive psychology is to foster research on the positive personal traits and dispositions that are thought to contribute to subjective well-being and psychological health. The pathway of positive psychology is to provide a contrast to the traditional study of people's distress, pathology, and maladaptive functioning that continues to characterize American psychology. Moreover, although positive psychology shares with the humanistic movement the aim of advancing human fulfillment, another aim of positive psychology is to ground its methodology firmly in systematic and scientific inquiry (Myers, 2001; Hill, 2011).

Positive Psychology of Aging

Positive psychologists provide a specific approach to research in positive aging. According to Seligman (2000), positive aging is achieved through processes embedded in valued subjective experiences that one acquires across the lifespan; people who are the

most capable in engendering well-being in later life learn how to construe age-related transitions in such ways that optimize well-being.

Furthermore, Ranzijn (2002) indicated that gerontology, the study of aging, is an ideal field in which to explore the possibilities of positive psychology because relatively little work has been done to identify gains and areas of growth. However, empirical evidence is emerging that demonstrates the hitherto under-recognised skills, potentials, and contributions of older adults. The emerging science of positive psychology can contribute a great deal toward enabling the potentials of older adults to be realized. Specifically, Ranzijn indicated three main reasons why it is important to explore the possible applications of positive psychology to gerontology.

First, older age has stereotypically been associated with losses and declines, and relatively little work has been done to identify gains and areas of growth. Second, if positive psychology can improve people's mental and physical health, it can also be utilized in reducing dependency and, thus, the cost of aged care in the future. Third, given that an increasing proportion of the clients of psychologists in the future will be older adults, it is important for clinical psychologists and other professionals working with older people to understand the potential, as well as the limitations, of older adults to respond to interventions designed to improve their levels of functioning.

In aging, many of the transitions are a consequence of age-related decline—thus, preserving well-being and happiness in the presence of this diminished functional capacity, particularly in advanced age, means dealing with unavoidable loss. Terminology that captures the tendencies to remain affirmative, even in the presence of

physical and cognitive decline, loss, pain, disappointment, grief, and suffering, will become increasingly important as greater numbers of older adults live into their 8th decade and beyond. As was noted with regard to successful aging, specific behaviors were postulated to mediate the deteriorative effects of aging. In an earlier work (see Hill, 2005), Hill described this approach in terms of positive aging characteristics, namely: (a) the ability to mobilize latent or dormant coping potentialities, (b) flexibility in thinking and behaving, (c) a decision-making style that affirms personal well-being even when choices represent departures from familiar activities that may no longer be possible when functionality for these activities is irretrievably compromised, and (d) an optimistic viewpoint about issues embedded in decline.

Overall, the implication of positive aging in this research is that older adults' strengths and potentialities must be reinforced and promoted, as well as recognized, as social resources. Recently, an increasing body of evidence indicates that there are many possible gains associated with aging. These possibilities will be discussed in the following section.

Older Adult Development

Along the lines of the positive psychological approach, in this section, the literature regarding what older adults perceive as positive mental development direction and how they perceive it is addressed through an examination of older adult development theories and age-related changes facilitated to frame the context of positive aging for this study. Specifically, this section will first address theories of older adult development to show that older adulthood can be a stage of continued growth. Second, studies of age-

related changes were discussed to show that mental abilities of older adults are not totally regressive in comparison to other age groups.

Psychosocial Development of Older Adults

Theories of adult development attempt to predict both changes and stability. Although there are many development theories, not all of them include development in late adulthood. Jung (1933), Erickson (1950, 1986, 1997), Peck (1956), and Vaillant (2002) were sources of important theories that contributed to older adult development. Mental health literature, which typically elaborates the negative end of psychological functioning, nonetheless includes some exposition of positive health (Birren & Renner, 1980; Jahoda, 1958).

C. Jung. Carl G. Jung (1933) was among the first psychoanalysts to formally address psychological developments in later adult life and was also primary in postulating systematic stages in adult life that characterize people's relation to the world. He divided developmental life into two phases. The first half of adulthood relates to procreation and career development and focuses on engagement with the outside world. In the second half of life, individuals are thought to strive toward self-knowledge and the transmission of culture, which involves engagement with the inner world. Along with these arguments, he specified that life goal inventories are age-related and are decreasing in creative expansion (e.g., striving for public success) and increasing in self-limiting adaptation (e.g., acceptance of limitation) (Buhler, Brind, & Horner, 1968). According to Loeckenhoff (2004), older adults' emphasis on emotionally salient material could be interpreted as the result of an increasing focus on inner states that promote self-knowledge based on Jung's theoretical framework.

Jung indicated that the goal of life is to realize the self. When people are young, they focus on the ego and worry about the trivialities of the persona. When people are older, they focus more deeply on the self and become closer to all people, all life, even the universe itself. The self-realized person is actually less selfish. Specifically, Jung stated that old age is the period when the elderly withdraw themselves from the outside world and focus on themselves. Additionally, Jung believes that people are meant to progress in a positive direction and not just adapt. His idea of self-realization is clearly similar to that of self-actualization (Jung, 1933; Silverman, 1987).

E. Erickson. Erik Erikson (1950), whose work was based on the psychoanalytic theory of Freud, provided the first (and still dominant) model of psychosocial development from infancy to late adulthood. Also, adult development theory acknowledges the prominent influence of Erickson's (1950, 1997) ideas. In his eight stages of human development, Erickson attempted to go beyond psychoanalysis to include one's society and culture (Schultz & Salthouse, 1999), which expanded ideas from his teacher, Anna Freud. Erickson focused on the influence of interpersonal relationships and social forces that affect psychological development. Each of his eight stages of development is characterized by a central life-task, and successful development requires a resolution of the resulting psychosocial crisis.

Of particular importance to this research are the last two stages delineated by the conflict of stagnation versus generativity and despair versus ego integrity. The task in the former is to resolve the dilemma of concern for the next generation, going beyond love for one's own children or grandchildren to a humble and caring desire to generate the

next generation, resulting in a goal of care. The final six tasks function to resolve the accompanying dilemmas surrounding a perspective on one's life. Specifically, generativity helps people to achieve integrity, which is an experience that conveys some world order and spiritual sense. For older adults, integrity is the need to find meaning in their existence and to make meaning of what they have done and are doing in their lives (Erikson, Erickson, & Kivnick, 1994).

Overall, Erickson's theory attempts to widen Freud's psychoanalytic perspective from that of the pervasive influence of the unconscious and the id and argues that vital involvement in old age through generativity and ego integrity leads to a successful completion of the life cycle (Erickson, 1950; Erickson, Erickson, & Kivnick, 1994; Merriam & Caffarella, 1999; Schulz & Salthouse, 1999).

Expanding on E. Erikson's theory, Joan Erickson (1994) added a ninth stage to the conventional eight—"gerotranscendence." She argued that E. Erickson's eighth stage did not incorporate many of the disappointments of older adults who are 80 or 90 years old. Joan Erikson stated that this ninth stage incorporates issues of ageism, despair, and loss of physical ability. She borrowed ideas from Eastern philosophies and stated her perspective that gerotranscendence in older adults is a shift in personal ideology from a materialistic rationale to a cosmic transcendence resulting in life satisfaction. She encourages communities to embrace older citizens and aging person to accept death and become more in touch with their souls.

R. Peck. Peck (1956) expanded the challenge of Erikson's final life stages into three development tasks: (a) ego differentiation vs. work-role preoccupation; (b) body

transcendence vs. body preoccupation; (c) ego transcendence vs. ego preoccupation. Ego differentiation indicates a shift in the value of the system through which the elder appraises or defines his or her self-worth; the individual's task is to obtain his or her sense of self-esteem from sources of productivity and accomplishment related to work or child-rearing. Body transcendence indicates individuals' redefinition of happiness and fulfillment in terms of satisfying human relationships beyond the physical comforts, especially with regard to physical illness. Such a change would establish a more ordered adulthood. Ego transcendence indicates the ability to rise above the self and to face the prospect of death with peace and contentment. According to Peck, the capacity to live in ego transcendence requires a relatively high level of emotional stability and firm ego integrity *from the start*. Individuals can achieve this state by devoting themselves to ensuring the happiness of their children and society (Koenig, 1994).

G. E. Vaillant. Based on Erick Erickson's theory, Vaillant (2002) describes six adult life tasks: (a) identity; (b) intimacy; (c) career consolidation; (d) generativity; (e) keeper of meaning; and (f) integrity. Among them, generativity, keeper of meaning, and integrity are tasks associated with later life. Generativity involves taking care of the next generation through volunteering, home tutoring, advising grandchildren on life's quandaries, or mentoring others in a workplace. Keeper of meaning focuses on conservation and preservation of the collective products of mankind—the culture in which one lives and its institutions rather than just the development of its children. According to Vaillant (2002), the transition from generativity to keeper of meaning is a function of increased experience that results in decreased physical stamina.

Overall, the theories of psychosocial development discussed previously show the tendency of older adults' motivation is toward positive growth and well-being. From developmental psychology, Erikson, Valliant, and Peck articulate wellness as trajectories of continued growth across the human life cycle.

Age-related Changes

Some empirical studies also provided the evidence of positive aging.

Age-related change in cognitive abilities. The effects of aging on intellectual abilities have been studied since the post-World War I era. However, these earliest studies of intellectual abilities assume that intelligence declined progressively with age. For example, the World War I Army Alpha Test on officer recruits 18 to 60 years of age and older confirmed the idea of intellectual decline. Also, Miles (1934) studied 832 subjects ranging from age 5 to 94 and found similar results. In 1955, Wechsler (the Wechsler Adult Intelligence Scale [WAIS]) developed an IQ test adjusted for each age group that artificially gave older people a boost in their otherwise declining raw test scores. These studies were cross-sectional with each subject interviewed once, and this methodology contained biases favoring the better educated young and reflecting historical and environmental differences between the generations.

However, another group of scholars conducted longitudinal research that studied individuals over a period of time to measure intellectual abilities over the life cycle to avoid the disadvantages of cross-sectional design (Bayley & Oden, 1955; Horn & Cattell, 1965; Owen, 1966). These researchers found IQ scores increasing until the twenties and then eventually stabilizing, remaining unchanged until late life, and there was no overall decline with age. The most useful study was conducted by Horn and Cattell (1965).

They proposed a distinction between fluid intelligence and crystallized intelligence. Fluid intelligence is the capacity to process novel information and apply mental power to a situation that requires little or no previous knowledge. Crystallized intelligence is the ability to apply learned information and experience-knowledge acquired over a lifetime. This sort of intelligence depends on well learned, automatic information processing, especially with regard to such complex tasks as reading, word association, and responses to social situations and dilemmas. Moreover, they argued that crystallized intelligence typically improves through middle age and continues to improve often until near the end of life.

The traditional pessimistic view of normal cognitive aging began to change in the latter third of the twentieth century. For example, the Seattle Longitudinal Study (Schaie, 1983) found wide individual differences in intellectual changes over time, with a large number of elderly persons showing little decline, even among octogenarians. Additionally, the Georgia Centenarian Study (Poon & Perls, 2008; Poon, Clayton, & Martine, 1992) investigated the patterns of age-related differences in 100-, 80-, and 60-year-old groups and found that although the centenarians performed worse on all psychometric intelligence tests compared to octogenarians and sexagenarians, the magnitude of age differences was significantly smaller on crystallized intelligence tests than on fluid intelligence tests. Also, they found that some centenarians can perform cognitively at the level of 60-year-old adults.

Overall, age-related changes of cognitive abilities do not necessarily represent declines; some cognitive abilities might move toward stability and growth in later life.

Age-related changes in emotion. Emotions and emotional states are fundamental motivators across the entire lifespan (Evans & Cruse, 2004; Schmitt & Juchtern, 2001). Recently, the idea that emotional functions may improve or remain stable with aging has gained support based on the results of many experimental studies.

Some studies showed that the processing of emotionally meaningful material is relatively spared from age-related cognitive decline (Carstensen, Isaacowitz, & Charles, 1999; Fung & Carstensen, 2003; Loeckenhoff, 2004; May, Rahhal, Berry, & Leighton, 2007; Osborne, 2007). May, Rahhal, Berry, and Leighton (2007) conducted two experiments assessing younger and older adults' ability to remember contextual information about an event. Each experiment examined memory for three different types of contextual information: perceptual information (e.g., location of an item); conceptual, nonemotional information (e.g., quality of an item); and conceptual, emotional information (e.g., safety of an item). They found that age differences in source memory were eliminated when participants recalled emotional source information. The findings suggested that emotional information differentially engages older adults, possibly evoking enhanced elaborations and associations. The data are also consistent with a growing body of literature suggesting that emotional processing remains stable with age.

Also, some studies demonstrated that older adults exhibit lower levels of depression and anxiety; in addition, their regulation skills, life satisfaction, and emotional well-being appear to improve with age (Hoare, 2006; Lawton, 2001; Loeckenhoff, 2004; Osborne, 2007). Charles, Reynolds, and Gatz (2001) conducted a longitudinal study in which participants completed self-assessment measures of well-being. They found that

reports of negative affect declined steadily over the life-span, whereas positive affect remained relatively stable. Additionally, Gross, Caretensen, Pasupathi, Tsai, Skorpen, and Hsu (1997) used self-assessment questionnaires measuring emotional experience, expression, and control of adults. They found that older adults reported experiencing less negative emotion and having greater emotional control than young adults. Furthermore, Carstensen, Isaacowitz, and Charles's (1999) study showed that emotionally meaningful goals resulting in behaviors that feel good are primary to older adults. In their study, they explored the perception of time between older adults and young people and focused on how social goals function to direct behavior. The results showed that adults' social goals can be classified into one of two broad functional categories: those goals related to the acquisition of knowledge and those related to the regulation of emotion. They found that for older adults, goals that are satisfied by the resulting "feeling" state are more likely to be pursued because they are experienced in the here and now, a valuable commodity in the face of limited time. Younger adults tend to pursue the acquisition of knowledge.

Overall, although many older individuals suffer many social and personal losses, they have the potential to maintain high levels of positive affect and well-being.

Age-related changes in motivation and goal. Motivational priorities are subject to continuous change. Adult development has demonstrated age differences in general types of motivations and goals that people pursue over the lifespan. For older adults, many studies have revealed that they have unique motivations for their development; specifically, a need to turn more toward personal growth fulfillment in old age was demonstrated by a great deal of research. In Cumming and Henry's (1961) study

conducted using the framework of disengagement theory, the authors suggested that older adults become disengaged from society as an adaptive process that allows them to focus on their inner lives and withdraw from the challenging roles that they can no longer master. According to this theory, older adults focus on their emotional experience because active engagement with society is no longer desirable.

Moreover, many theories also articulated similar findings and suggested that older adults have motivation for the tendency toward inwardness and reflect upon their inner selves in order to find personal fulfillment and meaning. In other words, they indicated that older age is a stage for continued personal growth and development (Carstensen, Fung, & Charles, 2003; Erickson, 1950, 1997; Hoyer & Roodin, 2007; Jung, 1933; Labouvie-Vief, Chiodo, Goguen, & Diehl, 1995; Loeckenhoff & Carstensen, 2004; Neurgarten, 1977; Truluck & Courtney, 2002). For example, Jung (1933) indicated that individuals in the second half of adulthood engage in striving toward self-knowledge and the transmission of cultural knowledge, which involves engagement with the inner world. In Jung's framework, one might find age differences decreasing in creative adaptation and in increasing in self-imitating adaptation (Buhler, Brind, & Horner, 1968).

Also, according to Erickson's eight stages theory, it is during the stage of generativity versus stagnation that the major undertaking and primary conflict of middle-adulthood takes place. In this stage, a person is involved in the care and nurturance of the next generation, and the failure to accomplish the central tasks of this stage leaves a person with a sense of personal stagnation, a lack of purpose. In old age, people may achieve ego-integrity through a meaningful re-evaluation of their lives or develop a sense

of despair due to lack of meaning. Therefore, older adults look back to previous life stages and come to terms with the positive and negative ways they effected their own life paths as well as the life of others (Erikson, Erikson, & Kivnick, 1994).

More recently, Carstensen and her colleague conducted a series of studies based on a growing body of empirical research suggesting that the emotion domain is largely spared from the deleterious processes associated with aging and attempted to explain the observed gains in terms of motivation. They argue that age is associated with increasing motivation to derive emotional meaning from life and decreasing motivation to expand one's horizons (Carstensen, 1992; Carstensen & Jacobs, 1993; Carstensen, 1995; Carstensen, Isaacowitz, & Charles, 1999; Carstensen, Fung, & Charles, 2003; Fung & Carstensen, 2004).

Regarding the motivation to learn, many studies also reveal age differences in motivation to learn (Bye, Pushkar & Conway, 2007; Glastra, Hake, & Schedler, 2004; Jacobsen, 2000; Wolfgang & Dowling, 1981; Morstain & Smart, 1974). Specifically, the majority of them suggested that older adult students have stronger intrinsic motivation than younger students whether based on EPS or other frameworks of motivation. Using EPS, Wolfgang and Dowling (1981) compared young and older adults enrolled in universities based on Boisher's Educational Participation Scale. They found that older students scored significantly higher at the 0.01 level than younger students on the cognitive interest scale but were less motivated than traditional-age students to pursue a college degree for reasons of forming social relationships or meeting the external expectations of another person or authority. Also using EPS, Morstain and Smart (1974)

found a general pattern of greater intrinsic motivation with age, particularly for women. Fujita-Stark (1996) also found older adults more likely to be interested in personal development than younger students.

Additionally, some studies using other frameworks also have found evidence of intrinsic motivations of older learners in comparison to younger students, and most of these studies were in an academic setting. For example, Bye, Pushkar, and Conway (2007) investigated the motivation, interest, and positive affect in traditional students (young students) and non-traditional students (older students). They found that nontraditional students reported higher levels of intrinsic motivation for learning than did traditional students. Intrinsic motivation correlated with positive affection more strongly for nontraditional than traditional students. Also, Jacobsen (2000) found traditional students had higher extrinsic goal orientation scores than nontradtitional students. Loeckenhoff's study (2004) tested a complementary hypothesis, SST, suggesting that age differences are partially grounded in motivational factors and finding that older adults are more sensitive to the emotional consequences of health-related information gathering and decision-making than younger adults. Overall, whether using EPS or some other framework, researchers have found a similar pattern of greater intrinsic and personal growth motivation of older adults in comparison to younger students.

In sum, age-related changes in cognitive abilities, emotion, and motivation do not necessarily involve declines over the life span. Instead, older adults have the potential to maintain high levels of positive feeling and well-being.

Older Adult Learning

In this section, first, the theories of adult and older adult learning will be discussed. Then, a review of the literature of older adults' motivation to learn will be presented. Finally, based on the prior discussion, self-determination theory and socioemotional selective theory will be presented to inform the logical framework of this research.

Theories of Adult and Older Adult Learning

Current research on older adult learning is primarily based on adult learning theories. Therefore, adult learning theory was introduced first.

The territory of adult learning theory is extremely diverse and complex (Merriam, 2001; Merriam & Caffarella, 1999). Currently, most of the suggested options for older learners are drawn from general adult education (Fisher, 1998). However, the majority of researchers indicated that older adults are more heterogeneous and complex than other age groups and are not as much the active, hands-on learners as suggested by theories of general adult education (Delahaye & Ehrich, 2008; Truluck & Courtenay, 1999). Therefore, in this section, the researcher argues that adult learning and development theories currently are not really appropriate and specific enough to explain older adult learners because the data from these theories are drawn from adults or even children.

Adult development theory. Theories of development have been used as a way to explain individual differences among people of all ages and can be useful in examining the similarities and differences found among older adults (Truluck & Courtenay, 2002). Adult development theories are generally divided into three types: those that address

physical changes, those that address cognitive or intellectual development, and those that address personality and life-span role development (Merriam & Caffarella, 1991; Tennant & Pogson, 1995). The theories that are concerned with physical changes are merely descriptive of typical changes experienced by adults. However, older adults suffer unique changes, such as changes in vision, hearing, and the central nervous system, that are quite different from those of adult learners. With regard to cognitive or intellectual development, according to Merriam and Caffarella (1991), the foundation of most adult cognitive development theories is the work of Piaget, whose work focused on children. However, cognitive development of older adults is quite different from other age groups. For example, though their fluid intelligences decline, their crystallized intelligences grow, and their emotional memory improves; such findings demonstrate that older adults' development differs from that of younger adults and children.

Regarding life-span role development, most theorists of adult development discuss life stages until 65+ years and stop there. Their descriptions of all older adults are captured under one broad heading: over 65 years of age, too general a description to cover all older adults (over 65 years of age). Questions arise concerning those old-old, oldest-old and frail-old adults. Older adults are more heterogeneous and complex than can be imagined. For example, Erikson's (1950, 1997) eight stages of psychosocial development were widely used to understand adult learners or older adult learners. He described the fundamental issues to be "generativity" versus "stagnation" (25-65 years) and "integrity" versus "despair" (65+years), covering all older adults in one stage. Also, his theory can be critiqued as applying only to the healthy and young-old group

(McCluskey-Fawcett & Ashcraft, 2002; Westermeyer, 2004). Additionally, another widely used theory is Levinson's framework, which was built on and expanded Erickson's work. Levinson organized the alternating periods of stability and transition throughout life into four eras, each with its own biopsychosocial characteristics, and three of the four eras take place during adulthood: early adulthood, lasting from approximately age 7 to 45; middle adulthood, lasting from roughly age 40 to 65; and late adulthood, beginning at approximately age 60. He also used 60+ years to cover all older adults and did not provide a specific discussion of those 60 years of age and above (Levinson, 1986).

In sum, adult development theories are not really appropriate and specific enough to explain older adult learners. These theories appear only to apply to the healthy and young-old group and fail to provide suggestions for old-old, oldest-old or frail older adults.

Theories of adult learning. The territory of adult learning theory is extremely diverse and complex (Merriam, 2001; Merriam & Caffarella, 1999). Kiely, Sandmann, and Truluck (2004) furthered Merriam and Caffarella's (1999) work to create a holistic vision of a four-lens model that includes learners, educators, process, and context to discuss the theories of adult learning. Due to the desire to focus on the individual adult learner, the researcher will use the learner's lens as the dominant lens for discussion. Specifically, the most prominent theorist to focus on the individual adult learner is Malcolm Knowles (1980), who proposed andragogy.

Knowles' andragogical model posits six assumptions regarding the characteristics of adult learners that contrast with child learners (Knowles, 1984; Knowles, Holton, &

Swanson, 2005). However, the researcher notes that these assumptions might not fit "real" older adults, specifically those older adults turning inward to engage in their inner world and disengaging from society to some extent.

For example, regarding "the learner's self concept," some literature provides evidence that older adults' self-concept or self-esteem declines with age (Kalish, 1975; Norman, McCluskey-Fawcett, & Ashcraft, 2002; Orth, Trzesniewski, & Robins, 2010); specifically, one study demonstrates that self-esteem declines sharply among older adults, while the middle-aged are most confident (Orth et al., 2010), which might lead to a difference in self-directedness between adults and older adults. Regarding "the role of the learner's experience," older adult learners might have difficulties in applying their experience. Jarvis (2002) further explained that the third age is composed of more experienced learners; however, they tended to choose things with which they are familiar if they harbored more experiences. Regarding "readiness to learn," some literature suggests that in later life, individuals suffer from health issues; their spouses pass away, among other losses; and their social roles often diminish (Cumming & Henry, 1961; Desrosiers, Robichaud, Demers, Geinas, Noreau, & Durand, 2008; Rose, 1965). Regarding "the need to know," for older adult learners, acquiring meaning from an experience is more important than applying that experience. Jarvis's article (2002) also highlights the idea that the meaning of experience is vital for older adult learners. Regarding "the learner's orientation to learn," older adults may use different problem-solving strategies that differ from those of other age groups (Berg, Strough, Calderone, Sansone, & Weir, 1998; Heckhausen & Schulz, 1995). Furthermore, many empirical

studies have shown that older adult learners prefer a subject of personal interest to them. Overall, Knowles' andragogy might not describe older adults adequately because its assumptions might not fit older adult learners.

Beyond andragogy to gerogogy. Accordingly, there are some researchers who have suggested the need for special educational approaches in dealing with the elderly beyond andragogy (Bettersby, 1987; Huang, 2004), using the term *gerogogy* to refer to the art and science of teaching the elderly (Battersby, 1987; John, 1988; Lebel, 1978; Lowy & O'Connor, 1968). Specifically, Battersby (1987) identified the characteristics of older adult learners that often influence the learning experience and those that differ from younger adult learners, including their self-concept of dependency, difficulties in applying experiences, withdrawal from social roles and movement toward self-centered orientation, and their tendency to value the acquisition of meaning from learning experience over the application of that experience.

Additionally, Shigeo (1999), based on Batterby's ideas, developed a framework of gerogogy that contrasts with pedagogy and Knowles' andragogy (See Table 2.1).

In sum, theories of adult learning and development might only apply to the healthy and specifically to those under 65 year old adults who are still active and healthy enough, ignoring disengaged adult groups including old-old, oldest-old, and frail adults.

Table 2.1

Contrasting Andragogy and Gerogogy

	Andragogy	Gerogogy
Learners' self-concept	Adults have a self-concept of being responsible for their own decisions, for their own lives.	Have self-concept of dependency
The role of the learners' experience	Adults have accumulated more experiences and different kinds of experiences, which provide a rich foundation for adult education.	Have difficulties integrating life experiences with the immediate learning process
Readiness to learn	An especially rich source of readiness to learn is the developmental task associated with moving from one developmental stage to the next.	Experiencing development away from social roles and coping with physical issues
The need to know	Adults need to know why they need to learn something before undertaking to learn it and need to immediately apply what they learn.	The concept of application is often secondary to the primacy of the learning experience
Learning orientation	Adults are life-centered (or task-centered or problem-centered).	Have a subject-centered orientation.

Note. Adapt from "The development of andragogy to gerogogy," by C. S. Huang, 2004, *Adult Education, 78*, p.10.

Theories of Motivation to Learn

Motivation is used to explain why organisms do what they do and to designate the relationship an organism has with the environment. Motivation has been investigated from a variety of perspectives, and research on older adults' motivations typically falls into three major groups that were introduced in this section. One branch of research is based on or modifies Houle's and Boshier's typologies to study the *reasons* older adult learners participate in education. The second branch of research, in addition to conducting empirical studies like first branch, utilizes several models that have been suggested to explain adults' motivation to participate in education. The third branch of

research is derived from a psychological perspective with a focus on older learners' (nontraditional students) motivation, and intrinsic/extrinsic motivations usually are identified in this branch of research. The first and second branches of research tend to explain the *reason* for participating in education, while the third one is derived from a psychological viewpoint to examine the motivation to learn of learners. Taking into account the literature review and the real situation of older adult learners, in the final part of this section, the researcher proposed a composite theory to explore the older adult learners' motivation from the perspective of intrinsic motivation to understand older adult learners' natural capacity to focus attention and energy in the learning process.

Motivation to Learn Based on Houle and Boshier's Works

Houle's typology is the most classic taxonomy. The most accepted theoretical framework to explain adult learners' motivation in the field of adult education is Cyril Houle's typology (Houle, 1961). Most of the subsequent research has attempted to test and refine Houle's basic concept. Houle is a professor emeritus of education at the University of Chicago. He conducted a landmark study in the 1960s, and this study spawned numerous subsequent studies of motivation to participate for older adult learners. He conducted in-depth interviews of 22 adults (12 men and 10 women) to understand the reason that adult learners participate in continuing education activities. He finally identified three types of adult learners based on their motivations to learn: goal-oriented, activity-oriented, and learning-oriented. The goal-oriented adult has clear objectives usually related to social advancement, such as job promotion. The activity-oriented adult learner participates in learning activities primarily for social purposes, and the purpose of

any given class is assumed to be secondary in importance. The third category of adult learners sees learning as good in and of itself. Therefore, for the learning-oriented person, education is a constant rather than a periodic activity. Houle suggested that these three were not pure types; the best way to represent them pictorially would be three circles overlapping at the edges. However, the central emphasis of each type was clear.

Boshier's instrument is the most popular tool. Based on Houle's taxonomy, many instruments and studies were developed and carried out to investigate adult or older adult learners' motivation to participate in education, and these studies provide a general picture of these learners. Among these studies, Boshier (1971) developed the Education Participation Scale (EPS), which elaborated Houle's typology and has become a standard in the field. It is broadly used to understand the reasons of adult and older adult learners to participate in continuing education in most parts of the world, including Africa, Asia, New Zealand, Canada and the United States with a total of 13,442 adult learners (Boshier & Collins, 1985).

In 1991, Boshier developed a new version of the EPS (A-form) and suggested that the former EPS (F- form) should be retired. The final form of the EPS contains seven factors, each consisting of six items for a total of 42 items. The final seven factors are: (1) Communication improvement, (2) Social contact, (3) Educational preparation, (4) Professional advancement, (5) Family togetherness, (6) Social stimulation, and (7) Cognitive interests. The new version of the EPS was tested by Fujita-Starck (1996) to construct reliability and validity. He indicated the usefulness of the EPS for indentifying the participation motivations of various curricular groups (Kim & Merriam, 2004).

Boshier's instrument was also widely used in exploring older adults' motivation to learn. More recently, many researchers have modified Boshier's typology to investigate the motivations for participating in education and to provide rich information about older adult learners (Brady & Fowler, 1988; Bynum & Seaman, 1993; Chiu, 1987; Furst & Steele, 1986; Kao, 2005; Kim & Merriam, 2004; Mulenga & Liang, 2008; Scala, 1996; Tasy, 2007; Tsu, 2004; Wolfgang & Dowling, 1981). One example is Kim and Merriam's (2004) study. They investigated one hundred eighty-nine members of a learning in retirement institute, and the instrument was modified from the EPS (A-form). Based on the suggestions of the president and the board directors of the LIR, three factors among the seven factors of the original EPS (A- form) were considered inappropriate. Consequently, the final version of the EPS used in their study contained four factor: (1) Social contact, (2) Family togetherness, (3) Social stimulation, and (4) Cognitive interests. The findings of this study suggested that LIR older adult learners are more influenced by cognitive interests to engage in learning than by any other factors. However, their research also revealed that LIR participants are least likely to be motivated by Social Stimulation and Family Togetherness.

One important finding of these studies of older adult learners is that motivation is an intrinsic tendency in older adult learners. Three themes of older adult learners' motivations were drawn from the abundant research based on or expanded from the EPS. First, cognitive interest or a desire to learn is the primary motivation for old adult learners, and this was demonstrated to apply whether in a non-formal educational setting (Brady & Fowler, 1988; Bynum & Seaman, 1993; Chiu, 1987; Furst & Steele, 1986; Kao, 2005;

Kim & Merriam, 2004; Scala, 1996; Tasy, 2007; Tsu, 2004; Wei et al., 2006; Wolfgang & Dowling, 1981) or a formal education (mostly at the college level) setting (Dellmann-Jemkins & Papalia-Finlay, 1983; Kingston, 1982a; Morstain & Smart, 1974; Mulenga & Liang, 2008; Romaniuk & Romaniul, 1982). Research in Taiwan also supports this notion. Chiu (1987) investigated 1350 over-65 adults in Taiwan and found cognitive interests and social contacts are the primary motivations for these learners. Additionally, Yang (2007) conducted a study of the factors influencing elders' motivational orientations in English language learning and found that the 65-69 years old age group has the strongest need to explore their cognitive interests compared to other age groups.

Second, some researchers state that personal growth and satisfaction are also motivations of older adults to learn. The items of this motivational category might include "enrichment," "enjoyment," "sense of accomplishment," and "self-esteem" (Furst & Steele, 1986; Little, 1995; Mulenga & Liang, 2008; Pritchard, 1979; Steele, 1984). Additionally, Truluck and Courtenay (2002) investigated older adult learners' ego development and found that there is a large percentage of the entire sample (84.3%) in the self-aware and conscientious stages of ego development. The 55-65 and 66-74 age groups both have higher percentages in the conscientious and individualistic stages, while the 75 and over age group has a higher percentage in the self-aware stage. Additionally, when older adults choose educational activities, they prefer personal interest courses compared to other types of adult education activities, and these figures suggest that 65 year old adults prefer personal interest courses and value learning for self-development (American Council for Education, 2007; National Center for Educational Statistics, 2004).

Specifically in Taiwan, there are studies that identify self-growth as the motivation for over 65 adult learners (Wei, 2003; Wu, 2008).

Regarding the two motivations, Scale (1996) indicated that cognitive interest and personal growth represent intrinsic or expressive motivations or goals because they "lie within the act of learning itself, or are so closely related to it that the process of learning appears to be the goal" (Kingston, 1982b, p.45)

Additionally, social contact or other social interaction (Chiu, 1987; Chen, 2004; Kim & Merriam, 2004; Spouse, 1981) is an important motivation of older adult learners, but it should be noted that this motivation is not primarily one for older learners in many studies (Kim & Merriam, 2004; Mulenga & Liang, 2008; Wolfgang & Dowling, 1981). Specifically, Wolfgang and Dowling's (1981) study shows that the motivation of social relationship of older students is less than for younger students.

Some shortcomings exist in the EPS. The first concern is with the study samples. Most of the samples of the current studies target adult learners or "young" older adult, not real older adult learners (e.g. Adair & Mowesian, 1993; Boisher, 1971; Bynum & Seaman, 1993; Houle, 1961; Kim & Merriam, 2004; Mulenga & Liang, 2008). Specifically, the majority of studies define old age as 50, 55, or 60 years of age; however, this age group might be too young to represent real older adult learners because as indicated in the previous section, some age-related changes exist in older adulthood, and young older adults might differ from the older age group in this regard. Additionally, Houle's typology has been criticized for its small sample (n=22) and for the limitation of participants' motivations to learn only three orientations. Overall, it is necessary to

understand those 65 year old learners instead of researching those in the 50 or 55 year old group and presuming that they represent all older adult learners.

Additionally, the modifications to the EPS suggest that this instrument/framework is not comprehensive enough to describe older adult learners' motivations. Mulenga and Liang (2008) reviewed some studies based on the EPS and found that many modifications were made regarding the scope of the survey instrument. They further explained that the EPS was not design for older adults who are retired and that it overlooked the reasons related to older adults in late-life development that were considered important for older adults in an academic setting (Little, 1995; Manheimer, Sondgras, & Moskow-McKenzie, 1995; Scala, 1996).

Last, this body of work produced mainly reasons for educational participation. Overall, Houle's typology is the most widely used model in the adult educational field, and the literature provides important evidence that the motivation of older adults to learn tends to be intrinsic. However, it seems that most studies focus on the older adult learners' reasons to participate in education but lack a consideration and deep understand of their intrinsic motivation in connection with the learning process. Pourchot (1999) also argued that only the variable of "cognitive interest" could be truly considered an intrinsic motivator. Therefore, a framework more tied to a psychological viewpoint to provide a sufficient understanding of older adult learners' intrinsic motivation might be needed.

Some Other Research Framework of Participation in Education

As stated, Houle's typology and Boshier's (1971) studies are the most popular theoretical framework to understand the *reason* why adult or older adults *participate* in education. In addition, some theories also help to account for the motivation to particpate in education. For example, Force Field Analysis (Miller, 1967) assumed that for adults, socio-economic status and participation in learning are directly related. It is suggested that lower socio-economic status will be interested in education to meet survival needs, while well-educated people continue learning for personal development and self-understanding. Additionally, economically stable older adults are higher on Maslow's needs hierarchy and are free to devote energy to enhance personal satisfaction.

Boshier's (1973) congruence model argues that learning is successful when self-concept and the educational environment are congruent. Additionally, self-esteem is one of the primary factors that influence adults' learning. Also, Rubenson's (1977) expectancy-valence framework attempts to explain motivations and incentives of people for work. In adult education, *expectancy* refers to the expectation of personal success in educational activity in anticipation of positive consequences. The valence part is the algebraic sum of the positive and negative consequences of participation and can be positive, indifferent, or negative.

Cross (1981) argued that there is a positive correlation between self-esteem, confidence, and learning participation. Low confidence in one's ability to learn and a demonstrated lack of learning ability will cause low motivation to learn for older adult learners.

Most conceptual frameworks mentioned above focus on the *reasons* of older adults to participate in education. However, there seem to be few studies that consider older adult learners' motivation *during* the learning process and that are more tied to a psychological viewpoint to understand the perceived forces that move learners to act in learning. This might result in a failure to consider the emotional aspect of older adult learners in providing learning activities.

Motivation to Learn From a Psychological Viewpoint

Older adult learners indeed have unique approaches to learning (Bye, Pushkar, & Conway, 2007; Delahaye & Ehrich, 2008; Justice & Dornan, 2001; Truluck & Courtenay, 1999), and there is a growing body of literature focusing on older adult learners from the psychological field. This literature can be categorized as advancing three themes, as determined by the researcher: intrinsic/extrinsic motivation, a popular approach for investigating older learners; contextual influences, which are valued in this approach to research on motivation to learn; and the emotional motives of older adult learners.

First, intrinsic/extrinsic motivation is a popular approach in investigating older learners from a psychological perspective. Wlodkowski and Ginsberg (1995) indicated that two types of learners' motivation are specifically identified in education: extrinsic motivation and intrinsic motivation. Extrinsic motivation basically assumes that individual learning behaviors are supported by the incentive network of external rewards, such as academic grades or other social rewards. Differing from this viewpoint of eternal incentives, intrinsic motivation is naturally intrinsic-activated; that is, people perform activities because of the positive feelings resulting from the activities themselves (Deci & Ryan, 2008). In this intrinsic/extrinsic approach, a great deal of research is guided by

self-determination theory (SDT). SDT deals with the psychological factors of motivation. It essentially assumes that people are by nature active and self-motivated, curious and interested, and vital and eager to succeed because success itself is personally satisfying and rewarding. Thus, SDT is the investigation of people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration as well as for the conditions that foster those positive processes (Ryan & Deci, 2001). Some studies have used SDT to examine older adult learners and have found that older learners exhibit a higher intrinsic orientation to learn. Szűcs's (2001) study based on self-determination theory (SDT) investigated the differences between the motivation of international and domestic Elderhostel participants. She found that the majority of the respondents' motivations were intrinsic.

Additionally, the majority of the research from the psychological perspective of the motivation to learn follows this approach to compare young students' (traditional students) and older students' (nontraditional students) motivation, with the finding that older students have greater intrinsic motivation. For example, Bye, Puskar, and Conway (2007) questioned the differences between younger (traditional) and older students' (nontraditional) motivation to learn, intrinsic motivations, and effect with regard to learning in an undergraduate program. Their study determined that nontraditional students have higher intrinsic motivation; that is, age did act as a predictor of intrinsic motivation to learn. Also, Wolfgang and Dowling's (1981) study found that differences in the motivation of undergraduates to enroll in higher education exist between adult and younger students. Traditional age students are more responsive to external demands and

establishing social relationships. Adult students, however, are more interested in learning for its own sake.

Second, contextual influences are highly valued in the psychological viewpoint on motivation to learn. One contextual influence studied by researchers is the support offered by the learning setting. In the intrinsic motivation studies, an interpersonal climate was demonstrated to positively affect people's intrinsic motivation, especially when the climate was supportive and informational (Deci, Connell, & Ryan, 1989; Deci, Schwartzm Sheinman, & Ryan, 1981; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Similarly, many researchers of older adult learners have identified the value of social support for their learning (Delahaye & Ehrich, 2008; Donaldson, 1999; Chu & Chu, 2010; Ng, 2008). In particular, a climate that is safe, nonthreatening, and less formal, as provided by facilitators, is beneficial to older adult learners (Chappell, Hawke, Rhodes, & Soloman, 2003; Fry, 1992). Chu (2010) found that peer support can predict individual Internet self-efficacy and individual e-learning outcomes for people over 45. Additionally, aside from the support from the learning setting, family support, according to some research, is also important for older learners (Graham & Donaldson, 1999; Chu, 2010). Chu's (2010) study indicated that emotional family support has both direct and indirect influences on older adults' perceived effects of e-learning.

Though the importance of social support for older adult learners has been shown by current research, little research has examined the connection between social support and older learners' motivation and how the different types of social support, such as teacher support, peer support, and family support, connect to different motivations. Also,

few studies treat social support as a mediator to predict older adult learners' motivation to learn in order to further understand in what situations this type of support can increase the motivation of older adults to learn.

Cultural values also affects older adult learning when consider the contextual influence on their motivation to learn. A recent study identified the Chinese learning model in young Chinese students (Li, 2002). Li found that Confucianism apparently shaped Chinese people's thinking and behavior during learning; in particular, Chinese learners viewed learning as a lifelong process and continued to learn all their lives. Also, they usually felt gratitude for their families' nurturing of good learning. Additionally, another of Li's (2003) studies found that the teacher-student relationship is especially important for Chinese students. She compared U.S. and Chinese students' concepts of learning to learning-related terms and argued that Chinese students mentioned the relationship between teacher and learner, while American students mentioned the relationship less often. Though these studies did not focus on older adult learners, they provide evidence that cultural values influence students' learning.

Some research also found this cultural norm in older adult learners. Leung, Chi, and Chiang (2008) studied seventeen Chinese retirees to explore their learning interests after retirement and found that they tended to learn for expressive motivation rather than instrumental motivation; also, their family members, such as children and spouses, and close relatives, could affect their learning decisions. Additionally, Chu (2010) studied Taiwanese older learners and found that emotional family support had both a direct and indirect influence on older adults' perceived effects of e-learning. Though some studies

found that cultural values has an impact on learning, not much research on older adult learners with cultural value as an important consideration has been carried out. Especially in Taiwan, where Confucian thinking is embedded in society and where people value learning, continue to learn all their lives, and emphasize interpersonal relationships, few studies on older adult learners currently consider this cultural influence.

Third, this research approach values the fact that the emotional motives of older adult learners are embedded in intrinsic motivation in the learning process. Bye, Puskar, and Conway (2007) found that older students enjoyed the classroom experience to a greater degree than did younger students. The researchers noted that "Positive affect seems to be embedded in the motivational process for older students, but for younger students positive affect is described as independent of the intrinsic motivation to learn" (p. 153). In addition, Spigner-Littles and Anderson (1999) believe that older learners tend to be emotionally attached to beliefs, knowledge, ideas, and world views, with the result that older adults prefer emotional information. Emotion is important because emotions are mediators in the process of learning and are synergistically related to motivational components.

The theory that represents advances in the notion of the importance of emotions for older adults is Carstensen's SST. Derived from the intrinsic motivation viewpoint, Carstensen's (1991, 1993) socioemotional selectivity theory states that older adults exhibit greater emotional motivation compared to young adults because they limit their social interaction to close friends and family in old age. There have been few attempts to apply these theoretical perspectives to the examination of older individuals' motivation for

learning. For example, Loeckenhoff (2004) studied the difference in health-related information-seeking and decision-making by age and found that older adults are more sensitive to the emotional consequences of health-related information gathering and decision-making than younger adults.

Intrinsic Motivation to Learn: SDT and SST

The review indicates that current typologies of motivation to learn derived from the adult education literature are insufficient for understanding older adult learners' motivation. Also, from the review of work in psychology, there appears to be research and frameworks of intrinsic motivation that contribute to better understanding older adults' learning. Therefore, self-determination theory and socioemotional selectivity theory, which are derived from positive psychology, were chosen to form the conceptual framework of this study to investigate older adults' motivation to learn.

Self-determination theory (SDT) (Deci & Ryan, 1985) is one of the main theories used to understand learners' intrinsic motivation in educational settings. Its premise is that individuals have intrinsic needs and physiological drives, and these intrinsic needs provide energy for the individuals to act on the environment (rather than simply providing the *reason* for participation). Another helpful theory is the socioemotional selectivity theory (SST) (Carstensen, 1991), which provides a lens for examining social and emotional characteristics such as emotional regulation and generativity to understand the motivations of older adults.

Self-determination theory. Deci and Ryan (1985) proposed a classic distinction between intrinsic and extrinsic motivation and contributed most to the concept of intrinsic

motivation. Many studies of intrinsic motivation in education or learning are based on their theory.

Self-determination theory (Deci & Ryan, 1985, 1991) is an organismic motivational theory that categorizes motivation into three basic types spread across a spectrum: extrinsic motivation, intrinsic motivation, and amotivation. Intrinsic motivation implies engaging in an activity for the pleasure and satisfaction inherent in the activity. Extrinsic motivation refers to a broad array of behaviors having in common the fact that activities are engaged in not for reasons that are inherent in them but for instrumental reasons. Amotivation refers to an individual's display of a relative absence of motivation. In such instances, individuals do not perceive a contingency between their behavior and an outcome, so they do not act with the intention to attain an outcome. For the purposes of this research, intrinsic motivations will be the specific focus.

Vallerand et al. (1989) and Vallerand and Pelletier (1992) modified the basic structure of SDT by identifying three subtypes of intrinsic motivation. They are motivation for knowledge (engaging in an activity for the pleasure and satisfaction experienced while learning, exploring, or trying to understand something new), motivation for accomplishment (carrying out an activity for the pleasure and satisfaction of improving on earlier performances and trying to reach new personal objectives), and motivation for experiencing stimulation (engaging in activities to experience the stimulating sensations derived from the engagement).

SDT points to a potential problem for those who are concerned with enhancing the well-being of individuals, young or old, who seem apathetic or unmotivated

(Vallerand, O'connor & Hamel, 1995). Currently, SDT is usually applied in the fields of sports, health, and education (Berger & Hanze, 2009; Deci & Ryan, 2000; Hagger & Chatzisarantis, 2007; Kaplan & Flum, 2009; McAuley, Duncan, & Tammen,1989; Noels, Pelletier, Clement, & Vallerand, 2003; Wilson, Mack, & Grattan, 2008), and the majority of SDT research into those fields focuses on young people. Few studies focus on older adults. However, literature on adult education suggests that older adults' motivation to learn is primarily intrinsic, specifically with regard to cognitive interest or mental stimulation. Also, self development and social contacts might be the secondary motivation to learn for older adults. These trends indicate that their learning tends toward intrinsic motivation and results from an interaction between psychological and social factors. These points fit with the primary concepts of SDT.

Socioemotional selectivity theory. Laura L. Carstensen is the creator of Socioemotional Selectivity Theory (SST), a life-span theory that is based on the element of human motivation.

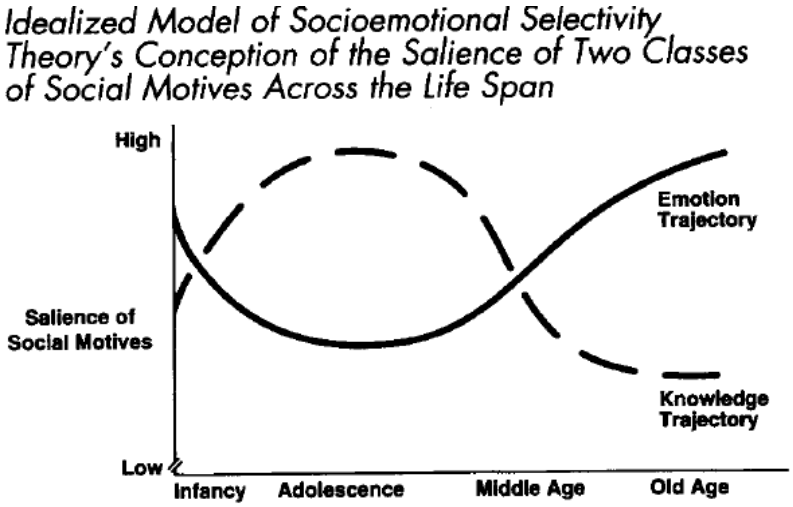
The fundamental tenet of socioemotional selectivity theory is that the perception of time plays a fundamental role in the selection and pursuit of social goals. The three assumptions of SST are as follows: first, social interaction is central to survival; second, humans inherently are guided by the search for and fulfillment of goals; and third, people always have multiple or opposing goals and must clarify their goals before taking action.

SST suggests that age-related differences in the anticipated future lead to developmental trends in the ranking of the knowledge trajectory of motivation and the emotional trajectory of motivation. The knowledge trajectory of motivation starts high

during the early years of life and declines gradually over the life course. The emotional trajectory of motivation is high during infancy and early childhood, declines from middle childhood throughout early adulthood, and rises from later adulthood into old age (see Figure 2.1). Furthermore, Lang and Carstensen (2002) distinguish two subtypes of the emotional trajectory of motivations—one relating to the regulation of emotions and one relating to generativity. Emotional regulation refers to self-regulatory goals such as seeking to be in control over one's emotions or seeking meaningful emotional experiences. Generativity includes goals such as being or becoming a "keeper of the meaning" (Vaillant & Milofsky, 1980) as well as taking responsibility for future generations. Generativity goals have been found to be the most prominent in later adulthood (McAdams, Harts, & Maruna, 1998). SST concludes that older adults' goals are satisfied by the resulting "feeling" state that is likely to be pursued because they are experienced in the here and now, a valuable commodity in the face of limited time.

Additionally, SST suggests that because older adults incline increasingly toward selecting social partners who are close family members or old friends and to engage in smaller social groups, they can experience emotionally meaningful and supportive relationships (Carstensen, Fung, & Charles, 2003; Fung, Carstensen, & Lang, 2001; Osborne, 2007). Therefore, older adults experience an increase in their emotional trajectory of motivation, which can explain why there is a decrease in participation in activities for those over 65 and a tendency to turn toward close social relationships, specifically with their family members.

Currently, though an abundance of research shows that in old age, individuals gradually interact with fewer people as they deliberately withdraw from social contact in peripheral relationships while maintaining or increasing involvement in relationships with close friends and family (Fingerman, Miller, & Charles, 2008; Fung et al., 2001; Ha, 2008; Lansford & Sherman, 1998; Potts, 1997; Yeung, Fung, & Lang, 2007), SST explains this diminishing of older adults' networks by attributing it to their need for experiencing more emotionally meaningful and supportive relationships. Presently, more and more research is based on SST because of its emphasis on the emotional motives of older adults, and SST is particularly used in the promotion of health or physical activity for older adults (Godbey, Burnett-Wolle, & Chow, 2007; Isaacowitz, Smith, & Carstensen, 2003; Löckenhoff & Carstensen, 2004; Löckenhoff & Carstensen, 2007; Piercy, 2000; Zhang, Fung, & Ching, 2009; Ziegelmann, Lippke, & Schwarzer, 2006).



Note. From "The Social Context of Emotion," by L. L. Carstensen, J. Gross, & H. Fung, 1997, *Annual Review of Geriatrics and Gerontology, 17,* p. 331. Copyright 1997 by Springer Publishing Company, Inc. Reprinted with permission.

Figure 2.1. Two Classes of Social Motives Across the Life Span

SDT, SST, and adult education. Before providing the definitions of the main constructs of this study, the researcher made the connection between Houle's taxonomy, which is a salient and widely used typology to describe adult learners, and the constructs of intrinsic motivation used in this study. Basically, the five intrinsic motivations were derived from and rooted in Houle's *learning oriented* motivation. However, some intrinsic motivations are related to and provide the psychological explanation of Houle's typology. In Figure 2.1, the researcher drew a conceptual picture of the connection of these typologies. Additionally, in Table 2.2, the researcher contrasts each of the constructs of the two taxonomies and also provides their definitions. The explanations are as follows.

First: Houle's goal-oriented motivation and SDT's toward accomplishment. Houle's goal-oriented approach argued that adults pursue education as a means to achieve an object. Therefore, knowledge for this group of adults is mainly put to use for purposes such as getting a better job, and these purposes serve as motivation. However, for older adult learners, the literature demonstrates that their learning is not for pragmatic purposes but for the enjoyment of the learning process and learning itself. The SDT concept of toward accomplishment emphasizes that the learner's pleasure and satisfaction come from the process of achieving rather than being dependent on the outcome. That is, the latter concept, which comes from SDT, is more appropriate to describe the motivation of older adult learners than Houle's goal-oriented concept because of the focus on the learning process instead of the outcome.

Second: Houle's learning-oriented motivation and SDT's desire for knowing and desire for stimuli. Houle argued that adult learners seek knowledge for its own sake. Furthermore, much of the literature on older adult learners indicates that older adult learners not only are eager to learn new ways of thinking but also want stimuli to maintain their mental function. Therefore, SDT's concepts of desire for knowing and desire for stimuli provide further explanation of why older adults desire learning for its own sake. Specifically, in this study, the researcher separated Houle's general concept of *learning-oriented* motivation into two subconcepts based on SDT; one is desire for knowledge, and the other is desire for stimuli.

Third: Houle's activity-oriented motivation and SST's emotional regulation and generativity. Houle argued that adult learners engage in learning for social reasons unrelated to the purpose or content of the activity, such as making new friends and escape from loneliness. However, further studies demonstrate that older adult learners' social motives include the desire not only to passively escape loneliness and make new friends but also to experience being or becoming keepers of meaning and to take responsibility for future generations through learning activities. Additionally, through social interaction, adult learners can seek to be in control of their emotional state and to have meaningful emotional experiences. Therefore, SST's concept of emotional regulation and generativity provides further explanation as to why older adults seek social interaction through learning. Specifically, Houle's general concept of *activity-oriented* motivation can be further explained by SST's social motives of emotional regulation and generativity of older adults.

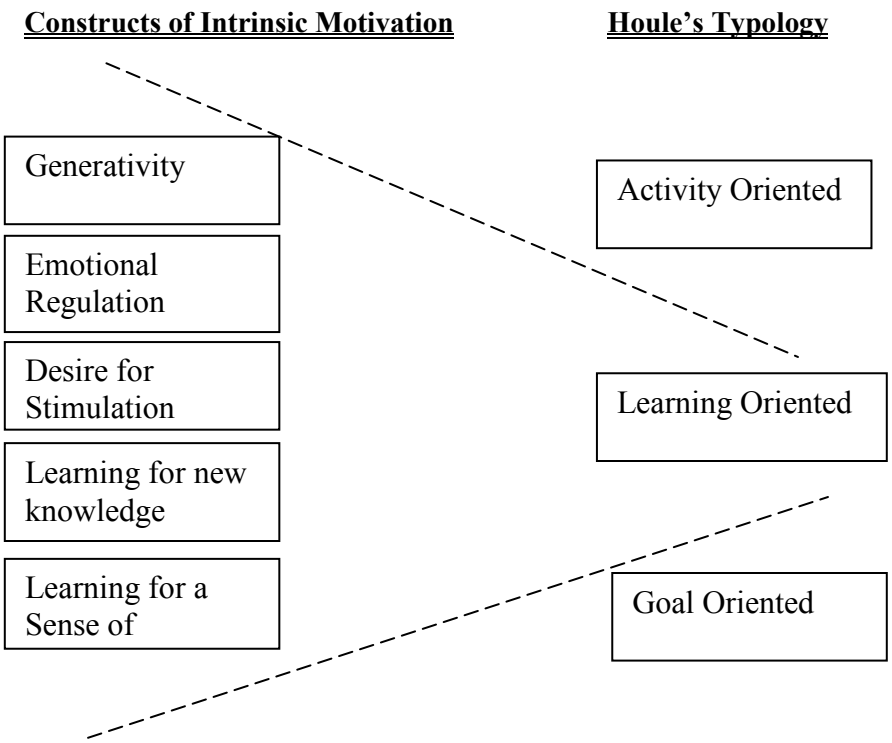


Figure 2.2. Conceptual Picture of the Two Typologies

In sum, the combination of the theories of intrinsic motivation of SDT and SST used as a lens to understand the nature of the motivation of older adult learners might provide important insight for the adult education field.

Table 2.2

Contrast Between Houle's Typology and Composite Theory As Applied in This Research

Definition	Constructs of Intrinsic motivation	Houle's typology	Definition
The desire to control one's emotions through increased learning.	*Emotional regulation (SST)*	*Activity-oriented*	• Participating in learning primarily for reasons unrelated to the purpose or content of the activities in which learners are engaged. • The main reasons are loneliness and social milieu.
Engaging in learning in order to contribute to the well-being of society, family, and future generations.	*Generativity (SST)*		
The desire to learn something new and previously unknown.	*Learning for new knowledge (SDT)*	*Learning-orientated*	• Participating in learning in order to seek knowledge for its own sake. • Education is a continual activity.
The desire for mental and emotional stimulation in the act of learning.	*Desire for stimuli (SDT)*		
The desire to experience satisfaction during the process of learning instead of focusing on the outcome.	*Learning for a sense accomplishment (SDT)*	*Goal-oriented*	• Participating in learning in order to obtain knowledge that is put to use. • Education as a means of accomplishing fairly clear-cut objectives.

Chapter Summary

As described in this chapter, the review of literature first sets the context for the study by discussing positive aging and older adult development. Then, the review

continues to inform the study through the discussion of the literature on the motivation to learn and older adult learning.

Positive aging is an extension of the positive psychology movement, which focuses on issues specific to aging. Gerontology is an ideal field in which to explore the possibilities of positive psychology because relatively little work has been done to identify gains and areas of growth. The emerging science of positive psychology can contribute a great deal toward enabling the potential of older adults to be realized.

Recently, an increasing body of evidence has emerged that indicates that many mental functions improve or at least remain stable as people age. The theories of older adult development suggest that older adulthood is a stage of continued growth and maintenance of stability. Specifically, from the standpoint of developmental psychology, Erikson (1959), Vailliant (2002), and Peck (1956) articulate wellness as trajectories of continued growth across the life cycle. Also, some empirical research provides evidence that mental abilities throughout the adult years do not necessarily decrease with age; instead, some aspects of mental abilities continue to improve in older age.

However, adult learning and development theories currently might not be specific enough to explain older adult learners because the data from these theories are drawn from adults and even children. Therefore, some researchers have suggested the need for special educational approaches in dealing with the elderly beyond andragogy (Bettersby, 1987; Huang, 2004), and they use the term *gerogogy* to refer to the art and science of teaching the elderly (Battersby, 1987; John, 1988; Lebel, 1978; Lowy & O'Connor, 1968).

Additionally, a growing body of literature from psychology focuses on older adult learners, providing further suggestions about older adult learning. This collection of literature can be categorized as advancing three themes, as determined by the researcher. They are: Intrinsic/extrinsic motivation as a popular approach for investigating older learners, contextual influences on motivation to learn, and the emotional motives of older adult learners.

Finally, from the previous discussion, current adult theories might not be sufficient to describe older adult learners. Self-determination theory and socioemotional selectivity theory, which are derived from positive psychology, were chosen to form the conceptual framework of this study to investigate older adults' motivation to learn.

CHAPTER 3

METHODOLOGY

The purpose of this research is to understand the motivations of older learners in Taiwan. This chapter describes the methodological details employed for this study, which is designed to answer the following questions:

1. What are the *motivations to learn* of older adults in Taiwan?
2. To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan?
3. To what extent are the relationships between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support, and/or family support?

The chapter is organized into seven sections describing the study's logical framework, instrumentation, study population, data collection, data recoding, data analysis, and limitations.

Logical Framework

In order to achieve the study's purpose, this research developed a composite theory, using self-determination theory (SDT) and socioemotional selective theory (SST) as the logical framework for this study. This framework provides a further lens for deep understanding and also a better description to explain older adults' motivations to learn,

and the rationale of the framework is further discussed in the literature review of this study. Overall, the researcher presents the logical framework in the following graphic (See Figure 3.1).

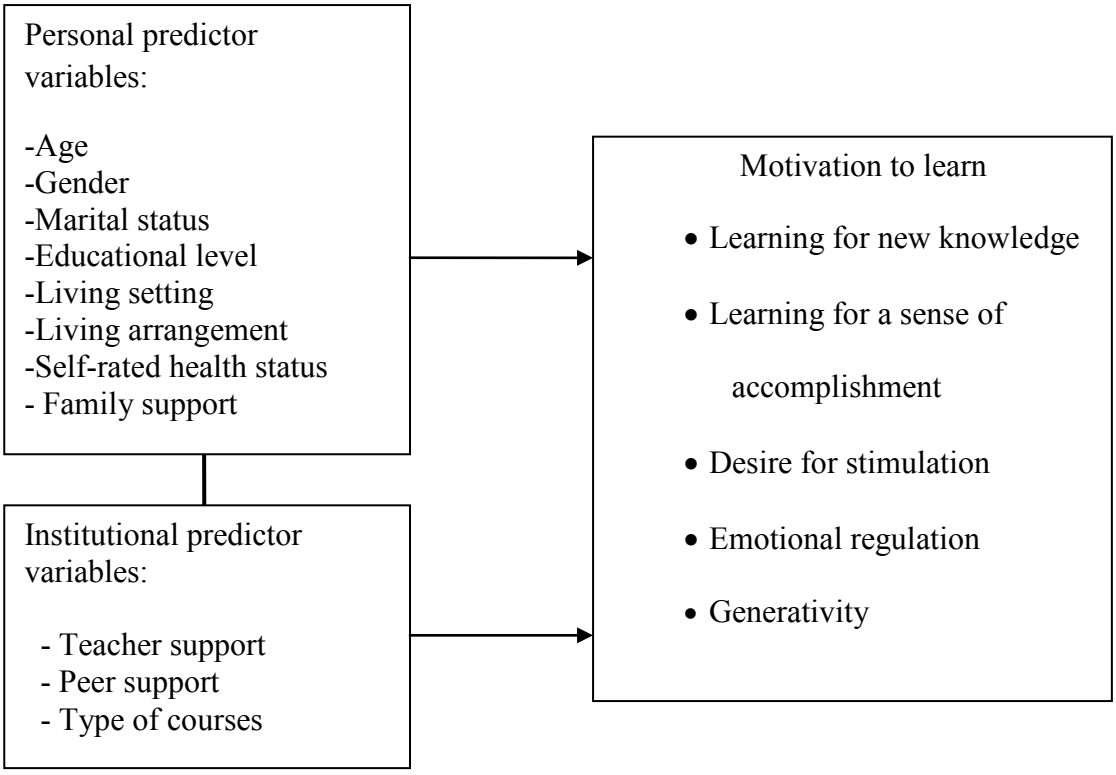


Figure 3.1. Logical Framework of This Study

As illustrated, the outcome variable of this study has five constructs to measure older adult learners' motivation. *Learning for new knowledge*, *learning for a sense of accomplishment*, and *desire for stimulation* are motivations derive from Vallerand et al. (1989) and Vallerand and Pelletier's (1992) taxonomy of intrinsic motivations, which is modified from the basic structure of SDT (Deci & Ryan, 2005). This taxonomy was chosen because it fits older learners' primary motivations to learn as understood by adult education theories. The other two motivations, *emotional regulation* and *generativity*, are

derived from Carstensen's SST and were demonstrated to be salient to older adults. This taxonomy was chosen because it helps to explain the social emotional motivation for older adult learners from the adult education literature. Carstensen's model considers emotion to be a chief determinant of social interaction; also, emotional development was found to be prominent for older adults in recent research. However, emotion currently is still not a major part of adult or older adult educational theory; therefore, the motivational constructs of this study provide a broad range of motivation to learn, specifically for older adult learners. Table 3.1 provides definitions of the constructs of motivations in a learning context.

Table 3.1

The Definitions of Intrinsic Motivation to Learn

Dimensions of Motivations	Definition
Learning for new knowledge	The desire to learn something new and previously unknown.
Learning for a sense of accomplishment	The desire to experience satisfaction during the process of learning instead of focusing on the outcome.
Desire for stimulation	The desire for mental and emotional stimulation in the act of learning.
Emotional regulation	The desire to control one's emotions through increased learning.
Generativity	Engaging in learning in order to contribute to the well-being of society, family, and future generations.

Additionally, other variables contributed to the logical model and guided this study, including the personal predictor variable and institutional predictor variables that were demonstrated by previous research to affect motivation to learn. Two sets of variables were identified based on the literature: expert input and personal experiences. Personal factors include age, gender, marital status, educational level, living area,

economic status, self-rated health, and family support. Institutional factors include instructor support, peer support, and type of courses. The development and selection of each of the variables will be discussed later on this chapter.

Instrumentation

The instrument used in this research was modified using existing survey instruments from Self-determination theory and Socioemotional Selectivity theory. However, the instrument was not primarily designed to measure motivation among older adults. Therefore, the instruments were adjusted significantly to achieve one main objective: to modify all the items in the original surveys to suit a learning context and fit the context of older adult learners.

The development of the instrument followed an eight-stage process: identifying items to measure the constructs of intrinsic motivation to learn, selecting personal and institutional predictor variables, establishing a cultural critique session, creating an English version of the questionnaire, developing validity, creating an on-line questionnaire, performing translation and back translation, and conducting pilot studies. Each step is shown in Table 3.2 and is explained in the discussion that follows.

Table 3.2

Instrument Development Process

Instrument Development Process
1. Identifying items to measure *intrinsic motivation* constructs
2. Selecting personal and institutional predictor variables
3. Cultural critique session
4. Create English version of questionnaire
5. Establish validity for the instrument
6. Translation and back translation
7. Create on-line questionnaire
8. Pilot study

Identifying Items to Measure Intrinsic Motivation

Developing and refining the item pool is the first stage of developing the measurement of intrinsic motivation to learn. The focus of this procedure was to develop items that could potentially represent the key elements of intrinsic motivation in older adult learners. In this stage, researcher developed a preliminary set of items adapted from existing instruments, the literature, and the informal interviews with older adult learners. Two theories of intrinsic motivation—SDT and SST—were combined as the measurement used in this study and will be explained.

Most of the items of *learning for new knowledge*, *learning for a sense of accomplishment*, and *desire for stimulation* were adapted from the Global Motivation Scale (GMS) (Guay, Mageau, & Vallerand, 2003). The Global Motivation Scale is based on Deci and Ryan's SDT, and it assesses people's global motivations for behavior in their lives as a whole. The motivation at the global level that is used in this study is the most stable when compared to motivations in contextual and situational levels (Vallerand & Ratelle, 2002). In this scale, the three components mentioned above were directly designed to measure intrinsic motivation, including *learning for new knowledge*, *learning for a sense of accomplishment*, and *desire for stimulation*. Additionally, some items of these three motivations were derived from the literature of older adult learners and the informal interviews with older adult learners based on the taxonomy of intrinsic motivation by Guay, Mageau, and Vallerand (2003).

Regarding the items of *emotion regulation* and *generativity*, most of them were adapted from the questions regarding the priority of goal domains in a card-sort task in

Lang and Carstenen's (2002) further study, which issues from the postulates derived from SST. In their study, the authors aimed to explore the relationship between time perspectives, goals, and social relationships; specifically, they distinguished two subtypes of emotionally meaningful goals—one relating to the regulation of emotions, the other relating to generativity. Additionally, there were also some items derived from the literature of older adults and the informal interview with older adult learners based on *emotional regulation* and *generativity*.

However, the items that derived from the existing instruments did not specifically fit the context and the population of this study; therefore, it was necessary to reword those original items. An illustration of the original items, the new items, and the rationale that was used can be seen in Appendix B.

Selecting Personal and Institutional Predictor Variables

The goal of this stage was to identify the personal and institutional predictor variables that influenced intrinsic motivation. Based on the literature review, eight personal predictor variables and three institutional predictor variables were chosen.

Personal predictor variables. Based on the literature review and discussions with professionals in adult education, the researcher selected relevant personal predictor variables that influence *intrinsic motivation to learn*. They are gender, age, marital status, educational background, living arrangement, living setting, self-rated health status, and family support. The justification for each personal predictor variable is discussed as follows.

Age. Different ages might have different intrinsic motivations to learn. Age was demonstrated by some researchers as being related to intrinsic motivations to learn (Stephens-Grube, 2008; Vallerand & Bissinnette, 1992; Jacobson, 2000). Wisner and Lucas (1984) compared pre-senior (60–64 years of age) and senior (65 and over) citizens at Harper College in Illinois and found that the two groups had different educational aspirations and enrollment patterns.

Gender. The previous studies showed that female learners display more self-determined or intrinsic motivational profiles than male learners (Daoust et al., 1988; Vallerand & Bissinnette, 1992; Vallerand, 1989).

Educational background. Much of the literature suggests that educational level is the best predictor of whether an adult is likely to take part in adult education (Kim, & Merriam, 2004; Manheimer, et al., 1995). Generally speaking, older adults' motivations to learn are related to their terminal educational levels (Kao, 2005; Tasy, 2007; Truluck & Courtenay, 2002; Tsu, 2004).

Living arrangement. Most older adults who participate in learning activities live with families. Lamdin and Fugate's (1997) study found that a majority of older adult learners (52.4%) live with a spouse or partner, followed by those who live alone (38.3%).

Marital status. Marital status was demonstrated as being relevant to older adult learners' motivations to learn (Szucs, 2001). Szucs investigated the socio-demographic variables and affective motivational factors to distinguish between international and domestic Elderhostel participants and found that marital status variables were significant predictors of motivational factors on types of program.

Self-rated health. Health status might influence older adults' involvement in social organizations (Anderson, 2002). Lamdin and Fugate (1997) and Wu's (1997) studies all found that health status are related to older adults' motivations to learn. In this study, subjective health was assessed by a single item on a Likert-type scale ranging from 1 (poor) to 5 (excellent), with higher scores indicating better perceived health.

Family support. Family support influences the intrinsic motivation to learn. Chu's (2010) study indicated that family support influences older adults' perceived effects of e-learning. In this study, family support was measured using a short four-point Likert like scale (See Table 3.3).

Table 3.3

Items Measuring Family Support

Variable	**#**	**Item**
Family Support	1.	My family members (grandchildren, son/daughter, spouse) support my learning.
	2.	My family and I talk about my learning experiences.
	3.	My family members are willing to listen to me share my learning experiences from class.
	4.	My family has given information to me about learning opportunities.
	5.	My family provides financial resources for my class.
	6.	My family provides transportation for me to attend the class.

Institutional predictor variables. The researcher also selected the institutional predictor variables that influence the intrinsic motivation of older adult learners, including teacher support, peer support, and type of courses (See Table 3.4~ Table 3.5), based on the literature and discussions with adult education professionals as well as personal experience. The variables teacher support and peer support are adapted from an

existing instrument: the Learning Climate Questionnaire (Williams & Deci, 1996). Interpersonal climates have been proved to affect people's intrinsic motivations. Specifically, social climates that are supportive and informational enhance intrinsic motivation (Deci, Connell, & Ryan, 1989; Deci, Schwarta, Sheinman, & Ryan, 1981; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). The typology of type of course was based on the current categories of courses in LRCAE, including life skill courses, expressive courses, volunteer-related courses, and spiritual-related courses.

Table 3.4 and Table 3.5 list the items for institutional predictor variables.

Table 3.4

Items Measuring Teacher/Peer support

Variable	**#**	**Item**
Teacher support	1.	My instructor provides me choices and options.
	2.	My instructor conveys confidence in my ability to do well during the learning.
	3.	My instructor makes sure I understand the goals of the course and what I needed to do.
	4.	My instructor encourages me to ask questions.
	5.	My instructor answers my questions fully and carefully.
	6.	My instructor cares about me as a person.
	7.	My instructor tries to understand how I see things before suggesting a new way to do things.
Peer support	8.	My peers always support me during the learning process.
	9.	My peers and I often discuss the class materials.
	10.	My peers always give me positive feedback.
	11.	My peers and I meet outside of the class.
	12.	I like to interact with my peers during the learning process.

Table 3.5

Items Measuring Type of courses

Variable	#	Item
Type of courses	1.	Life skill courses
	2.	Expressive courses
	3.	Volunteer related courses
	4.	Spiritual-related courses

Cultural Critique Session

In this study**,** the instruments were derived from existing scales. The purpose of this step is to adjust all the items in the original surveys to suit a learning context and fit with older adult learners. Adaptation of survey instruments involves tailoring questions to better fit the needs of a given audience while still retaining the stimulus or measurement properties of the source (Harkness, Villar & Edwards, 2010). Adaptation can help to improve the validity of this study. In order to accomplish this, the constructs and items that make up the testing instrument were shared with a committee that consists exclusively of five graduate students from the Eastern Asian countries of Taiwan, China, and Korea.

During two two-hour sessions, committee members examined the handout (see Appendix C) and had a general discussion to ensure that each item within the construct made sense in the context of Asia and also that each item was appropriate for older adults. After these sessions, the items for each construct were selected, and the draft of the English version of the questionnaire was created.

Creating the English Version of the Questionnaire

After the cultural critique sessions, two steps were conducted to develop the English version of the questionnaire. First, an expert panel consisting of professionals and three graduate students from the field of adult education examined the items to determine if they described the constructs well. Then the members of the panel reviewed a construct sheet for all the items. Panel participants were asked to provide critiques and suggestions for improvements to the definition of each construct and the description of each item. After integrating the feedback, they suggested that some items should be rewritten in order to obtain a better understanding of each construct and to make the items easier to read.

Second, in order to make appropriate and easily understandable items according to the suggestions from the expert panel, the methodologist and researcher decided to rewrite items by drafting three types of sentences for each item. The first type of sentence began with "I like to learn because ….", the second type of sentence employed the phrase "I like…. ", and the third type of sentence used "I attend the class because….". Eventually, the first and third types of sentences were abandoned, and the second type of sentence was chosen because the first type of sentence was leading, and the third type of sentence did not match the purpose of this research. The methodologist and researcher finalized all items based on the second type of sentence, and the items for all the constructs were developed (see Table 3.6).

Table 3.6

The Items of Five Intrinsic Motivations Constructs

Constructs	Items
Learning for new knowledge	1. I like to make interesting discoveries.
	2. I like to acquire new knowledge.
	3. I like to learn interesting new facts.
	4. I like to keep up on current events.
	5. I like to learn new things even if they are not connected to my everyday life.
Learning for a sense of accomplishment	1. When I am learning, I feel proud of the things I can accomplish.
	2. When I am learning, I feel proud of my increasing abilities.
	3. When I am learning, I feel proud of my mental powers.
	4. When I am learning, I feel proud of my efforts.
	5. When I am learning, I feel proud of my own personal growth.
Desire for stimulation	1. I like to learn because it exercises my brain.
	2. I feel emotionally stimulated when I am learning.
	3. Learning gives me a sense of excitement.
	4. I feel happy when I am learning.
	5. I feel mentally stimulated when I am learning.

Table 3.6 (Continued)

The Items of Five Intrinsic Motivations Constructs

Constructs	Items
Emotional Regulation	1. Learning helps me control my feelings in difficult situations.
	2. Learning helps me understand my own feelings.
	3. Learning helps me have better control over my emotions.
	4. Learning helps me trust my feelings even when others disapprove.
	5. Learning helps me control my feelings when dealing with difficult people.
	6. Learning helps me to obtain meaning in my life.
Generativity	1. Learning enables me to help other people.
	2. Learning enables me to contribute to society.
	3. Learning enables me to teach other people important things.
	4. Learning enables me to help other people find their purposes in life.
	5. Learning enables me to have a better relationship with my family.
	6. Learning enables me to make important contributions to my family.
	7. Learning enables me to have a deeper relationship with my children and grandchildren.

Establish Validity of the Instrument

In order to check the validity of the items for all constructs, the researcher conducted a validity card sorting session for the rewritten items. Card sorting is a participatory, user-centered design activity that has been used as a research tool by psychologists and information designers to gather information or develop the validity of existing structures by drawing out underlying mental models (Nielsen & Sano, 1995).

There are two types of card sortmethods: pre-design and post-design. Pre-design methods are used early in the design process to gather input for creating an information architecture. Post-design methods are used after the information architecture is developed to validate or edit an existing architecture (Paul, 2008).

In this study, the researcher conducted post-design card sorting to develop the validity of the theoretical framework. The researcher prepared eleven validity sort kits. Each kit included directions, five envelopes for five constructs with definitions on them, item cards with random numbers on them, and a big brown envelope. Then, the researcher recruited eleven students, six native English speakers and five Asians, to participate in the validity sorting session. The eleven participants followed the directions for validity sorting (Appendix D) and sorted the items into each envelope according to their understanding of each construct. Last, the researcher created a frequency chart to analyze the results of validity sorting (Appendix E).

Finally, the sorting of ten participants was analyzed (one participant did not complete the sorting), and eight out of ten people sorted in a similar way in line with the framework of this study, but two participants' sorting was deleted because nearly 40% of their sorting was different from the rest of the group. However, there were three items that only a small percentage of participants sorted correctly: I feel happy when I am learning (40%); learning helps me to obtain the meaning of my life (30%); and learning gives me a sense of excitement (70%). The methodologist and researcher rewrote those items in order to strengthen the definition. The items were revised as follows: "learning

makes me feel happy," "learning helps me to understand the meaning in my life, "and "learning makes me feel excited."

Additionally, at this stage of developing the survey, the researcher constructed a response scale that best measured the motivation to learn for older adult learners. Based on the survey items, the researcher selected a four-point Likert scale that measures statement agreement in terms of degrees of agreement: "Strongly Disagree" (1) to "Strongly Agree" (4). The English version of the instrument for this study was developed after this stage (Appendix F).

Translation and Back Translation

At this stage, the English version questionnaire was translated into Mandarin, since the setting for the research context is Taiwan. In order to obtain translation quality, the researcher used Brislin's (1986) cross cultural back-translation process. Brislin's back-translation process was conducted in two phases. First, an original scale was translated into the target language by a bilingual person. Then, the translated version was translated back to the language of the original scale. This procedure was repeated several times. The degree of similarity between the original scale and the back translated version is an indication of the adequacy of the translated version of the scale (Brislin, 1986). Figure 3.2 provides the procedure of translation.

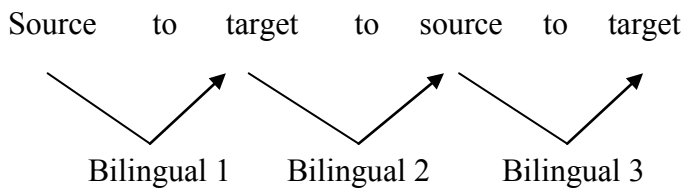


Figure 3.2. Procedure of back-translation. Adapted from "The wording and translation of research instruments," by R.W. Brislin, 1986. In W. J. Lonner and J. W. Berry (Eds.), *Field methods in cross-cultural research*, p137-164. Copyright by Beverly Hills: Sage Publications.

In this study, first, the scale was translated from English into Mandarin by the researcher. Then, the translated version was translated back to English by two bilinguals who are also doctoral students in an aging-related field (Appendix G). After back translation, the researcher worked with her chair and methodologist to examine the degree of similarity between the original English scale and the translated back scales. When the content and language in the back translated scales were consistent with the original scale, we decided to continue the study.

Creating the on-line survey

An online survey instrument was used in this study. The researcher used software from SurveyMonkey (www.surveymonkey.com), which provided controlled access to the survey instrument and enabled the responses to be collected. In the on-line survey, the researcher typed in all the items created previously; also, the researcher provided a welcome message, general information about the study, and the consent form for the participants. Participation in the online survey was completely voluntary. Respondents could refuse to participate in the process or choose to withdraw from participation at any time.

Additionally, cosidering age-related differences in information retrieval performance that have been demonstrated (Pak & Price, 2011; Wagner, Hassanein, & Head, 2010), the researcher drew on the literature about website interfaces for older adults to design the online survey for older adults. The principles included using character sizes between 14pt. and 18pt., using left justification, using pictures or text to design buttons, keeping the website consistent, avoiding scroll bars, making sure that the content was not all in one color, and avoiding blue and green tones (Yeh, 2004; Zaphiris, Ghiawadwala, Mughal, 2005). The one line survey can be seen in Appendix H.

Pilot Study

This was the final step of the instrument development process. The pilot study in a study serves two purposes. The first is to test the data collection procedure; the second is to test the psychometric properties of the instrument. In order to test the data collection procedure, the researcher communicated with officers from the Ministry of Education in Taiwan and instructors in LRCAEs to discover any possible problems and obtain an estimation of how many older adults should complete the survey. Before the pilot study began, an officer in the Ministry of Education sent out an email to each county government to give permission and to support this research. Also, the researcher contacted the instructors in LRCAEs by phone to recruit participants and explained how to complete the questionnaires. To test the psychometric properties of the instrument, the researcher entered the data into SPSS and conducted an analysis in terms of psychometric patterns. Specifically, the study examined whether a statistically desirable amount of

variation occurs for each item. In total, two pilot studies were conducted in the research in order to obtain better psychometric properties of the instrument.

Additionally, before conducting the pilot study, the researcher submitted a written research proposal to seek permission from the Internal Review Board (IRB) of the Graduate Research Office of The University of Georgia. The IRB request was approved on August 10th, 2011(Appendix I).

First pilot study. In the first pilot study, data were collected from 71 older adult learners using a self-completion online survey from SurveyMonkey (www.surveymonkey.com). Participants were comprised of both male and female older adult learners, ranging in age from 50 to 82 and taking classes offered by LRCAEs in Taiwan.

The researcher used a multiple contact strategy—email and phone—to get in touch with the 5 directors of the LRCAE and with LRCAE instructors from approximately August 10 to August 12, 2011. From August 10th to August 23rd, a total of 71 respondents completed the survey in its entirety.

Regarding the instrument used in the first pilot study, the validity of the instrument comes from existing theories and existing instruments as well as expert meetings and back translation. In terms of reliability, the first pilot study used the new re-written survey items with a four-point response scale. The researcher used SPSS to obtain alphas for the scale; also, asked the program to give the value that alpha would become *if that item was deleted from the scale*. The result showed that none of the items

should be deleted in order to gain higher reliability. The reliability for the five constructs ranged from .71~.83, which is *acceptable* (see Table 3.7).

Table 3.7

Reliability Scores for the Five Constructs of Intrinsic Motivation: *First Pilot Study*

Constructs	Learning for new knoweldge	Learning for a sense of accomplishment	Desire for stimulation	Emotional regulation	Generativity
Reliability	.73	.81	.71	.73	.83

In addition to examining validity and reliability, the third criteria that we examined was measurement sensitivity, obtaining the mean, SD, and distribution of each construct using SPSS. The analysis of the data for the first pilot study showed that the sensitivity was not very good, which means that less variance existed and that most respondents used only three or four points. In order to improve the sensitivity, several decisions were made to improve the sensitivity of the instrument, including changing to a five-point scale instead of using a four-point scale, changing the order of questions from random to categorical order (based on the five constructs in the study), and changing the response scale from degrees of agreement to degrees of importance.

The reason for changing the order of the questions in the second pilot study is some participants in the first pilot study (in which items were laid out randomly) mentioned that when they read those items, they felt tired and confused, especially when some items were similar. Weathington, Cunningham, and Pittenger (2010) and Dillman (2000) all mentioned that the order of questions will influence participants' responses. Furthermore, Dillman (2000) suggested that researchers should create different

questionnaires with different sequences of questions when they suspect that the order of questions will influence the participants' responses. For this reason, the researcher changed the order of questions after the first pilot study.

Additionally, in the present study the researcher found an acquiescent response in the first pilot study, and this might have resulted because in a collective society, older adults seldom "disagree" with others. Haberstroh, Oyserman, and Schwarz (2002) also suggested that culture may affect respondent perception and response choices. Taking this into account, in this study, the researcher and methodologist decided to modify the response style in order to avoid acquiescent response.

The sample information and histograms of each scale frequency of the first pilot study can be seen in Appendix J.

Second pilot study. In the second pilot study, data were collected from 105 respondents, yielding 85 usable questionnaires. Participants included both male and female older adult learners, ranging in age from 55 to 87 and taking classes offered by LRCAEs in Taiwan.

The researcher also used a multiple contact strategy to get in touch with 3 directors and instructors of the LRCAEs in mid August, 2011. Since two of the centers were located in rural settings in Taiwan, they asked for paper surveys. The other center used the on-line survey available on SurveyMonkey. For the centers that asked for paper surveys, the researcher sent out the instrument as a PDF to instructors at the LRCAEs, and data were inputed by the volunteers in this study.

Regarding the instrument of the second pilot study, the major changes after the first pilot were changing the response scale from degree of agreement to degree of importance, changing the order of questions, and changing the response scale from a four-point scale to a five-point scale. Analysis of the data showed that reliability and measurement sensitivity of the instrument of this research were improved in the second pilot study (see Table 3.8). The reliability for the five constructs ranged from .82~.91, which is *good* reliability (Coolican, 2009). The reliability of institutional support and family support are .94 and .88, respectively.

Overall, analysis of the data in the second pilot study showed that the measurement sensitivity problems that affected the previous pilot study was reduced as a result of changes made to wording of the items in the survey and the response scale used in the survey. The sample information and histograms of each scale frequency of the second pilot study can be seen in Appendix K. The final Chinese version of instrument was developed after the second pilot study (Appendix L).

Table 3.8

Reliability Scores for Five Constructs of Intrinsic Motivation: Second Pilot Study

Constructs	Learning for new knowledge	Learning for a sense of accomplishment	Desire for stimulation	Emotional regulation	Generativity
Reliability	.82	.83	.86	.91	.89

Population And Sample

The older adult learners in this study were recruited from LRCAEs in Taiwan. LRCAEs were established under the 2006 *White paper of Policies on Education for*

Older Adults and provided by the Ministry of Education. Under this policy, 368 LRCAEs were to have been founded within the following four years. As a result, LRCAEs are now the most organized and multiple educational-oriented settings for older adult learners provided by the Taiwanese government. Specifically, LRCAEs might have the most representative older adult learners quantitatively and qualitatively. LRCAEs are dispersed widely in Taiwan, whether in community centers, libraries, senior centers or schools; therefore, they have large numbers of older adult learners who come from a variety of backgrounds. Thus, the older adult learners in the LRCAEs provided rich data regarding the questions and benefit the representativeness of the samples in this study.

Regarding the sample population of this study, 592,932 participants attended the classes in 210 LRCAEs in 2009 (Ministry of Education, 2010). In this study, the researcher analyzed a large population and collected as much data as possible. A large population was used in this study rather than a scientific sampling for the following reasons: (1) the researcher had no control over whether or not the director or instructors could help recruit older adult learners to complete the questionnaire by on-line survey; (2) the number of participants could not be estimated using an on-line survey. Therefore, the researcher decided to study a large population in this research. Additionally, an on-line survey was used in this study because on-site data collection was beyond the budget available.

Data Collection

The method of data collection is one of the key decisions that affect surveys

(Groves et al., 2004). The data collection plan for the study revolved mainly around a confidential, self-administered, and web-based survey. Considering the large sample size of this research and also considering the advantages of easy access and dynamic interaction, a web-based survey was selected (Dillman, 2000). In this study, the researcher used software from SurveyMonkey (www.surveymonkey.com) to conduct the survey.

However, some older adult learners with special needs did not have access to computers, so they asked the researcher to provide paper questionnaires. However, the paper questionnaires make up less than 1 percent of the total sample size. Overall, there were four steps of data collection in this research:

1. Contacted and gained the permission from the 210 directors of LRCAEs (Appendix M) to conduct the survey by emails and phone calls. Additionally, if they agree to support this research, the directors were asked to provide the instructors' information. A total of 41 directors of LRCAEs agreed to participate in the research and provided the instructors' information.

2. Contacted instructors. After gaining permission and instructors' information from the directors of the LRCAEs, the researcher contacted a total of 61 instructors by emails and phone calls. Those LRCARs located in rural area were best reached by phone call; all others received via email written notification of the purpose, date, time, and location of the administration of the questionnaire (Appendix N). This process, 42 instructors agreed to participate in this research.

3. Sent instructors the on-line survey. The researcher sent out emails to

42 instructors who agreed to participate. The email included video information for participants (Appendix O), a hyperlink to the survey entry page, and a consent form.

4. Sent an electronic thank you letter. This letter was delivered following the close of the survey.

Data preparation

The data preparation in this research involved two steps: data recoding and data screening. Each of them was described below.

Data Recoding

In preparation for future analyses, several variables were re-coded in this study. The purpose of this procedure was to create data that could be analyzed using a multiple regression analytic procedure (Tabachnick & Fidell, 2007), which means that independent variables with more than two categories must be recoded into two binary groups. In the case of this study, three variables were recoded. Marital status was recoded from five categories (married, separated, single, widowed ,and divorced) into two groups (marrried = "1," not married = "2"). Living Arrangement status was recoded from four categories (Living with my spouse or partner only, living with families, living with others, and living alone) into two groups (living with family = "1," not living with family = "2"). Type of courses was recoded from four categories (life skill courses, expressive courses, volunteer-related courses, and spiritual-related courses) into two groups (instrumental courses = "1," expressive courses = "2") based on Londoer (1978)'s taxonomy of adult learners' needs; specifically, life skill courses and expressive courses were grouped as expressive courses; volunteer-related courses and spiritual-related

courses were grouped as instrumental courses. Last, the data entries for fill-in-the-blank questions (for which respondents typed responses other than a number) were standardized. Age was calculated by subtracting the respondents' entries for the year they were born from the current year (2011).

Data screening

Before conducting formal analyses, data screening was conducted. Data screening including several steps, each of them was described below.

Accuracy of the data file. First, the 834 data exported from SurveyMonkey into SPSS; then, the researcher made sure all data were entered correctly.

Missing data. Within the 834 data, eighteen surveys were eliminated from the data set because in those cases, no more than five items were filled out, and the rest of the questionnaire responses were left blank. Other missing data were missing randomly.

Outliers and influential data. In order to identify data value very different from the dataset, the researcher also checked the outliers by using SPSS. An outlier is a data point distinct or deviant from the rest of the data that might have a much higher impact on the outcome of any statistical analysis. First, residuals analysis, specifically, Studentized Deleted Residual scores (SDRESID), was performed to detect possible outliers. According to Pedhazur (1997), SDRESIDs follow a *t* distribution with N-k-1 degree of freedom (N=sample size; k= the number of independent variables). In this study, sample size (N) equals 816, independent variables (k) equals 11, when $p = .05$, $t = 1.646$. The result showed that there were eight data over $t = 1.6$, which mean they might be outliers. However, an outlier does not necessarily influence the results. Therefore, the

researcher performed influential analysis to further check if they were influential data. In order to gain an overall viewpoint, the researcher examining the data using several analyses, leverage (*h*), Cook's D, Difference between BETA estimate(DEBETA), and Standardized DEBETA (DEBETAS) to check if influential data existed, because not only one criterion is the best and absolute analysis to find out the influential observation. According to Belsley (1981), the absolutely cutoff value for DEBETAS is 2. The results showed that there were no data over 2 based on DEBETAS. Therefore, no influential data were found in this data set, and the eight "false" outliers were not deleted from the data set.

Normality. The data need to follow a normal distribution in order for most analyses to work properly. Normality was examined by yielding the histogram for each variable. Figures 3.3 to 3.7 show that each of the main scales approximated a normal distribution, and the means ranged from 19.71 to 27.76.

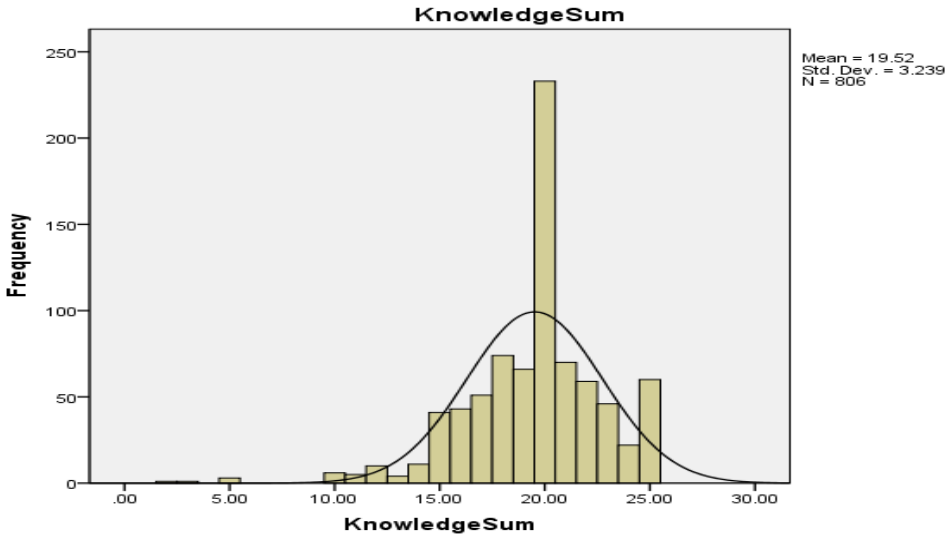


Figure 3.3. **Distribution of Learning for New Knowledge**

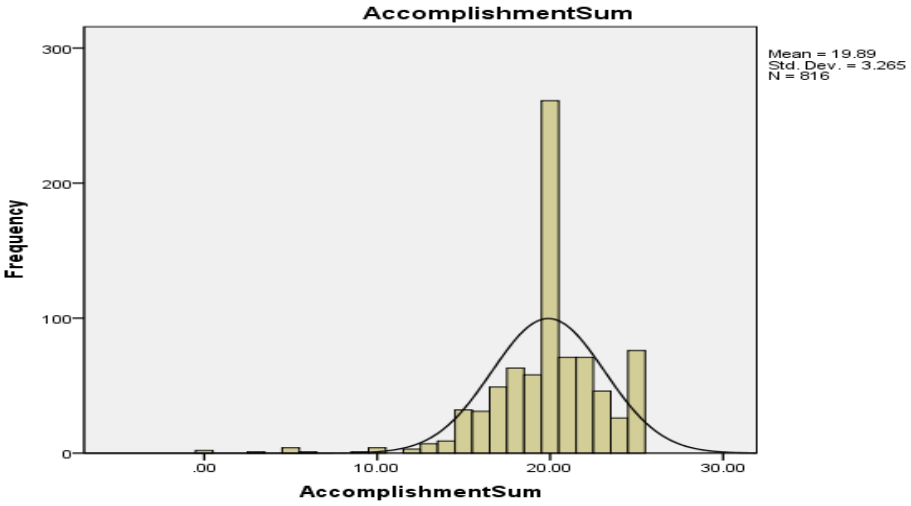


Figure 3.4. **Distribution of Learning for a Sense of Accomplishment**

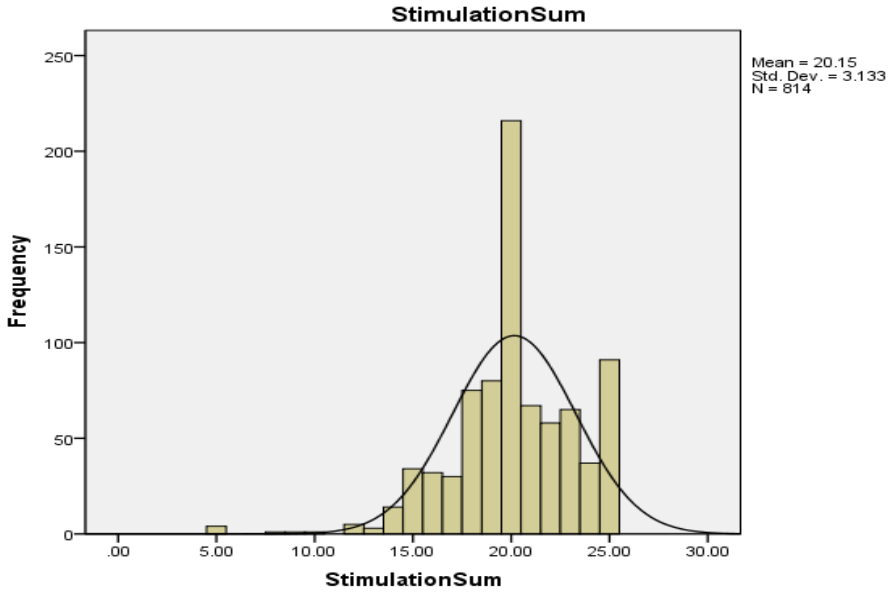


Figure 3.5. **Distribution of Desire for Stimulation**

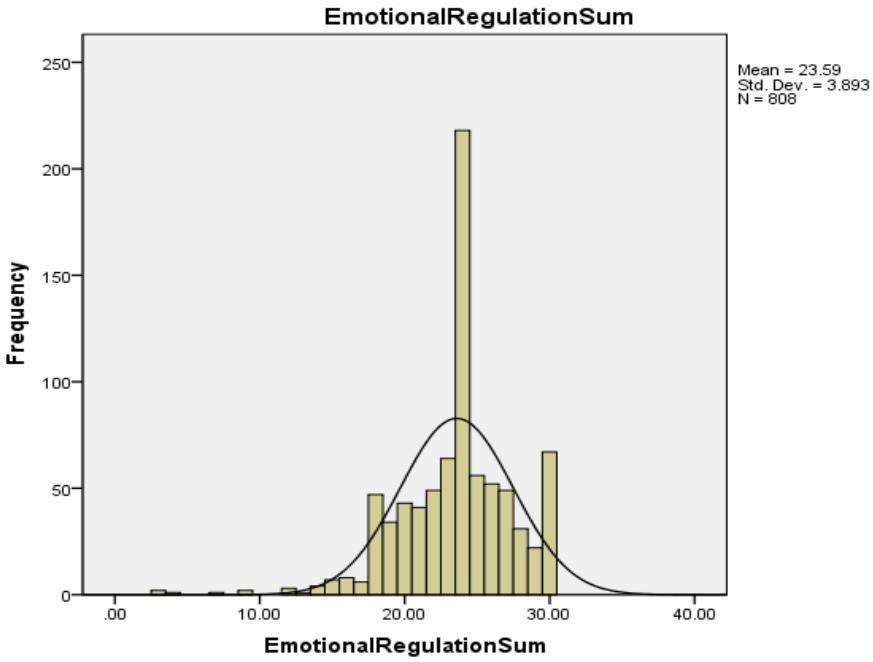


Figure 3.6. **Distribution of Emotional Regulation**

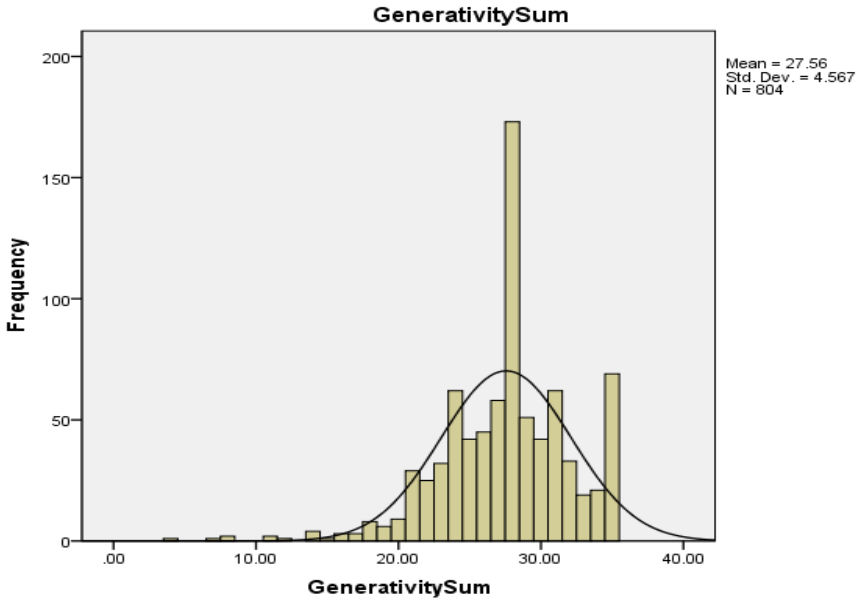


Figure 3.7. **Distribution of Generativity**

Multicollinearity. The collinearity statistics, tolerance, and variance inflation (VIF) were generated to determine if multicollinearity existed between any of the independent variables. According to Tabachnick and Fidell (2007), tolerance levels should begin to arouse suspicion when the value is .2 or less; however, it is generally accepted that a value of .1 or less is cause for greater concern. In this study, none of the tolerance values for the independent variables threatened these parameters. In addition, it is generally accepted that variance inflation should not exceed 4.0, and the variance inflation values for all independent variables in the models of this study did not exceed 2.0 (see Table 3.9).

As a result of data screening, the number of respondents in this study was 816. Therefore, in total, the sample population for this study was 816 older adult learners in Taiwan with an average age of 67.95. The respondents were 32.4% male and 67.6% female. Table 3.10 presents the composition of the respondents.

Reliability

The coefficient alpha for each of the intrinsic motivation construct scales and other scales was calculated to evaluate the reliability. For the five motivation construct scales, alphas ranged from a high of .91to a low of .88 (Table 3.11). Also, the intercorrelation between every scale of the five construct scales was significant at the level of .05. Table 3.12 presents the findings.

Table 3.9

Multicollinearity Diagnostics for Independent Variables

	LK		LA		DS		ER		GE	
Variables	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
FS	.948	1.055	.711	1.406	.771	1.406	.705	1.419	.704	1.420
AGE	.921	1.086	.905	1.105	.905	1.105	.905	1.105	.905	1.105
GEN	.772	1.295	.740	1.351	.740	1.351	.739	1.354	.736	1.359
HEAL	.943	1.061	.909	1.100	.909	1.100	. 910	1.099	.911	1.098
EDU	.610	1.639	.557	1.797	.557	1.797	.556	1.797	.552	1.810
LIS	.747	1.339	.707	1.415	.707	1.415	.710	1.409	.709	1.410
MAS	.778	1.285	.753	1.328	.753	1.328	.756	1.323	.754	1.326
LIA	.827	1.209	.811	1.232	.811	1.232	.812	1.232	.811	1.233
TYC	.947	1.055	.946	1.057	.946	1.057	.947	1.056	.947	1.056
TES	.575	1.739	.576	1.736	.576	1.736	.575	1.739	.573	1.744
PES	.544	1.838	.544	1.837	.544	1.837	.544	1.837	.546	1.832

Note. LK: learning for new knowledge; LA: learning for a sense of accomplishment; DS: desire for stimulation; ER: emotional regulation; GE: generativity; FS: family support; AGE: age; GEN: gender; HEAL: self-rated health status; EDU: educational background; LIS: living setting; MAS: marital status; LIA: living arrangement; TYC: type of course; TES: teacher support; PES: peer support.

Table 3.10

Personal Characteristics of Study Respondents (n=816)

Background of Study Sample		Frequency N	Frequency %
Gender	Male	259	32.4
	Female	540	67.6
Educational background	Little or no formal education	109	13.7
	Elementary	263	33.0
	Junior high	127	15.9
	High school	158	19.8
	Bachelors	135	16.9
	Master and above	5	6.0
Living setting	Rural	402	51.4
	Suburban	92	11.8
	Urban	288	36.8
Marital	Married	516	64.8
	Separated	66	8.3
	Single (never married)	10	1.3
	Widowed	189	23.7
	Divorced	15	1.8
	Other	0	0
Living arrangement	Living with my spouse or partner only	186	23.6
	Living with families (e.g., children, grandchildren or relatives)	525	66.6
	Living with others (e.g., friends, non-relative roommate)	18	2.3
	Living alone	59	7.5
Health status	Excellent	58	7.2
	Good	336	41.7
	Fair	359	44.6
	Poor	52	6.5
Type of course	Life skill courses	111	18.1
	Expressive courses	336	54.8
	Volunteer-related courses	101	16.5
	Spiritual-related courses	65	10.6

Table 3.11

Reliability of Key Measures

Scale	Number of Items	M	SD	Mean Item Mean	Alpha
Intrinsic motivation					
Knowledge	5	19.71	3.05	3.9	.88
Accomplishment	5	20.07	2.98	4.01	.88
Stimulation	5	20.27	3.02	4.05	.87
Emotional regulation	6	23.76	3.65	3.96	.89
Generativity	7	27.76	4.48	3.97	.91
Overall intrinsic motivation	28	111.28	14.646	3.97	.96
Teacher support	7	27.82	4.32	3.97	.91
Peer support	5	19.87	3.21	3.97	.88
Family support	6	24.02	3.84	4.00	.88

Table 3.12

The Correlation Coefficient Between Every Scale

Scales	LK	LA	DS	ER	GE
Learning for New Knowledge (LK)	1	.627**	.669**	.739**	.677**
Learning for a sense of Accomplishment (LA)		1	.690**	.603**	.611**
Desire for Stimulation (DS)			1	.696**	.647**
Emotional Regulation (ER)				1	.751**
Generativity (GE)					1

Note. $^{*}p < .05$, $^{**}p < .01$; LK: learning for new knowledge; LA: learning for a sense of accomplishment; DS: desire for stimulation; ER: emotional regulation; GE: generativity.

Data Analysis

Data was analyzed using the SPSS 19.0 and Mplus 6.0 statistical package. Statistical analyses procedures included descriptive statistics, bivariate correlation, multiple regression, and path analysis to determine variable relationships.

In order to answer research question #1 (What are the intrinsic motivations to learn of older adult learners in Taiwan?), descriptive statistics was conducted for each of the items of constructs of intrinsic motivations. The mean of each item was calculated and ranked from highest to lowest.

Research question #2 (To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan?) was designed to determine how the personal and institutional predictor variables independently and in combination influence older adult learners' *intrinsic motivation to learn*. To answer this question, a series of bivariate analysis and multiple regression were employed to determine the separate and combine personal predictor variables of the five constructs of *intrinsic motivation to learn*.

In bivariate correlations, the analysis contains only one independent and one dependent variable (Licht, 1995). Multiple regression analysis is a close but more powerful relative of bivariate regression correlation. Multiple regression analysis was developed to be a more robust analysis designed to detect the predicted relationships of more than one independent continuous variable on a single continuous dependent variable (Tabachnick & Fidell, 2007). There are several types of multiple regression

analyses (Field, 2009). These different types all provide for an understanding of predicted relationships but use somewhat different tactics to decipher these relationships (Tabachnick & Fidell, 2007).

In order to answer research question #3 (To what extent are the relationships between personal predictor variables and intrinsic motivation mediated by teacher support, peer support and family support?), path analysis was performed using MPlus 6.0. The third research question was designed to provide a fuller picture of interrelationships among all the variables involved; specifically, it was designed to test whether the mediating effect exist between the variables. In this research, path analysis produced results of interest principally to researchers and to those trying to develop a fuller mapping of relationships; however, it was less useful for utilitarian purpose such as educational design.

Path analysis is a generalization of multiple regression that allows one to estimate the strength and sign of directional relationships for complicated causal schemes with multiple dependent variables (Wright, 1920; Li, 1975). The critical difference between path analysis and multiple regression is that in the former, the analytical model is built around a specific set of causal relationships among traits that determine fitness. However, a multiple regression assumes a simpler causal relationship in which all traits affect fitness directly (Scheiner, Mitchell & Callahan, 2000). In this research question of this study, the researcher used path analysis to further understand and test the direct and indirect effect relationship between variables.

In each path model, the researcher performed the analyses included the paths with a $t \geq 1.5$. The Chi-square difference between the fully recursive and reduced models did not approach statistical significant, indicating that the reduced model provided a more parsimonious fit. However, the Chi-square statistic is quite sensitive to sample size and with a data set as large as in the present study, additional goodness of fit indices need to be used (Cheung & Rensvold, 2001; Hu & Bentler, 1999). For an acceptable model, traditionally some researcher have recommended values for the comparative fit index (CFI) above .90, but more recently, Structure Equation Model (SEM) researchers have advocated a more stringent CFI of around .95 (Hu & Bentler, 1999). Standardized Root Mean Square Residual (SRMR) values around .05 or less and Root Mean Square Error of Approximation (RMSEA) values around or below .05 are considered to indicate a good fit of the model to the data (Hu & Bentler, 1999).

Limitation

The ability to generalize broadly is the main limitation of this study. First, this study only focuses on older adults in Taiwan; therefore, the results of this study cannot generalize to other countries. Second, the samples for this research were all selected from LRCAEs; however, there are other learning institutes or settings that exist in Taiwan. Therefore, these samples still may not represent all older adult learners in Taiwan. Third, the majority of older adult learners in LRCAEs are in good health; however, there are some potential older learners, such as disabled older learners, who cannot participate in LRCAEs and are excluded from this study. Therefore, the results of

the motivations to learn of older adults in this study might not represent all older adults in Taiwan.

Additionally, an on-line survey was the main approach to collect data because of the budget and time limit. This approach resulted in some older adults failing to access the questionnaires. Although paper questionnaires were also provided for some few older adults with special needs, the limitations on access to the questionnaire for older adults still existed.

Chapter Summary

This chapter included a detailed description of the logical framework, instrumentation, study population, data collection, data preparation, reliability, data analysis, and limitations of this study. This descriptive study employed a survey design, and a quantitative survey was used as the method of data collection. Data were collected from older adult learners in Learning Resource Centers in Taiwan. Prior to the analysis, reliability and validity of the measures were examined and the assumptions of multiple regression analysis were checked against the collected data.

CHAPTER 4

FINDINGS

The purpose of this research is to understand the intrinsic motivations of older learners in Taiwan. This chapter presents the results of the statistical analysis described in Chapter III. The findings will be presented separately in relation to the three research questions:

1. What are the *intrinsic motivations to learn* of older adults in Taiwan?
2. To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan?
3. To what extent are the relationship between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support and/or family support?

Findings Related to Research Question #1

The first research question presented was "What are the *intrinsic motivations to learn* of older adult learners in Taiwan?" Table 1 depicts the means of the 28 intrinsic motivations. Overall, the means are comparatively high, and the range is restricted. The item means ranged from 3.90 to 4.05 on a five-point scale arranged as follows: 1 (not important), 2 (less important), 3 (neither), 4 (important), and 5 (very important). A complete rank-order listing of items can be found in Table 4.1. The ten highest ranked motivations included three of the five measures of *desire for stimulation*, three of the

seven measures of *generaivity*, and two of the five measures of *learning for a sense of accomplishment*. The two highest ranking items were measures of *desire for stimulation*. The other items in the top ten include one item for *emotional regulation* and one item for *learning for new knowledge*.

Table 4.1

Rank Order Listing of Intrinsic Motivations Items

Item	Mean	SD	Rank	Motivation Constructs
S14. Learning makes me feel happy	4.21	.664	1	Desire for Stimulation
S11. Learning gives me an opportunity to exercise my brain	4.16	.704	2	Desire for Stimulation
S15. Learning makes me feel mentally Stimulated	4.14	.734	3	Desire for Stimulation
G28. Learning enables me to have a deeper relationship with my children and grandchildren	4.13	.751	4	Generativity
A10. When I am learning, I feel proud of my own personal growth	4.08	.739	5	Learning For A Sense of Accomplishment
G27. Learning enables me to make important contributions to my family	4.07	.768	6	Generativity
A9. When I am learning, I feel proud of my Efforts	4.07	.685	7	Desire for Accomplishment
E16. Learning helps me control my feelings in difficult situations	4.06	.753	8	Emotion Regulation
G26. Learning enables me to have a better relationship with my family	4.04	.748	9	Generativity
K2. I like to acquire new knowledge	4.02	.745	10	Learning for new Knowledge
A7. When I am learning, I feel proud of my increasing abilities	4.01	.703	11	Learning For A Sense of Accomplishment
E17. Learning helps me understand my own Feelings	4.00	.734	12	Emotion Regulation
A8. When I am learning, I feel proud of my mental powers	4.00	.735	13	Learning For A Sense of Accomplishment
K1. I like to make interesting discoveries	3.99	.728	14	Learning for New Knowledge

Table 4.1.1 (continued)

Rank Order Listing of Intrinsic Motivations Items

Item	Mean	SD	Rank	Motivation Constructs
E20. Learning helps me control my feelings when dealing with difficult people	3.97	.759	15	Emotion Regulation
K3. I like to learn interesting new facts	3.95	.737	16	Learning for New Knowledge
A6. When I am learning, I feel proud of the things I can accomplish	3.93	.792	17	Learning For A Sense of Accomplishment
E18. Learning helps me have better control over my emotions	3.92	.765	18	Emotion Regulation
G22. Learning enables me to help other people	3.92	.768	19	Generativity
S13. Learning makes me feel excited	3.91	.787	20	Desire for Stimulation
E22. Learning helps me to understand the meaning of my life	3.91	.801	21	Emotion Regulation
E19. Learning helps me trust my own feelings rather than rely on others	3.91	.762	22	Emotion Regulation
K4. I like to keep up on current events	3.89	.772	23	Learning For A Sense of Accomplishment
G23. Learning enables me to contribute to society	3.88	.785	24	Generativity
G25. Learning enables me to help other people find their purposes in life	3.87	.808	25	Generativity
S12. Learning makes me feel emotionally stimulated	3.84	.827	26	Desire for Stimulation
K5. I like to learn new things even if they are not connected to my everyday life	3.83	.756	27	Learning for New Knowledge
G24. Learning enables me to teach other people important things	3.83	.816	28	Generativity

Note. Based on a five-point scale, with 1=Not important, 2=Less important, 3=Neutral, 4=Important, and 5= Very important.

Additionally, Table 4.2 depicts the mean item means for the five intrinsic motivation construct scales, which ranged from 4.05 to 3.90. As a result of the item means, these mean item means are relatively high and have restricted variation. The

scale reported as having the highest rating was *desire for stimulation*; *learning for new knowledge* received the lowest rating.

Table 4.2

Rank Order List of Intrinsic Motivation Scales

Scale	Number of Items	M	SD	Mean Item Mean	Alpha
Desire for Stimulation	5	20.27	3.02	4.05	.87
Learning for A Sense of Accomplishment	5	20.07	2.98	4.01	.88
Generativity	7	27.76	4.48	3.97	.91
Emotional Regulation	6	23.76	3.65	3.96	.89
Learning for New Knowledge	5	19.71	3.05	3.90	.88
Overall Intrinsic Motivation (Total score)	28	111.28	14.64	3.97	.96

Findings Related to Research Question #2

In order to understand "To what extent the intrinsic *motivation to learn* can be explained by the separated and combined personal predictor variables and institutional predictor variables," the researcher established an exploratory model using a variety of techniques including bivariate analysis and multiple regression analysis to answer this research question.

In the bivariate analysis, Pearson correlation and Spearman correlation were used to overview the bivariate relationships between the predictor variables and the constructs of intrinsic motivations.

In the multiple regressions, simultaneous regression and the forward multiple regression specifically were run as the initial model. The former was run to methodically understand whether a variable or block of variables adds to the model at its point of entry; in the case of this study, simultaneous regression was performed to understand how personal/institutional predictor variables can explain dependent variables. The latter, the forward multiple regression, was run to determine the best predictor variables for learning motivation.

Learning for New Knowledge

In the bivariate analysis, of the eleven predictor variables analyzed, nine were significantly correlated with *learning for new knowledge*. The strongest explanatory variable was teacher support, which explained 41.4% of the observed variance in *learning for new knowledge*. The other statistically significant correlates were: peer support (31.9%), family support (18%), self-rated health (10.7%), marital status (5.3%), educational background (2.3%) and age (1.7%). A summary of the correlations of predictor variables with *learning for new knowledge* is shown in Table 4.3.

Table 4.3

Correlations of Predictor Variables with Learning for New Knowledge

Predictor variables	***R***	r^2	***P***
Family support	.419	.176	.000
Gender	.068	.004	.057
Age	-.131	.017	.003
Self-rated Health status	.165	.107	.000
Educational Background	.150	.023	.000
Living setting	.093	.009	.010
Marital Status	-.073	.053	.009
Living Arrangement	-.014	.0002	.751
Type of courses	.021	.0004	.988
Teacher support	.644	.414	.000
Peer support	.565	.319	.000

Table 4.4 presents the simultaneous regression models, in which *learning for new knowledge* was the dependent variable and personal and institutional predictor variables acted as the independent variables. In Table 4.4, Model 1, all personal predictor variables were independent variables, and *learning for new knowledge* was the dependent variable. The result revealed that the value of R^2 was .19, indicating that all personal predictor variables accounted for 19% of the variation in *learning for new knowledge*. The coefficient value for family support (b = .278, $p \leq .01$), self-rated health (b = .416, $p \leq .05$), and living setting (b = 1.046, $p \leq .05$) revealed a positive relationship with *learning for new knowledge*. The coefficient value for age (b = -.038, $p \leq .05$) indicated a negative relationship between age and *lerning for new knowledge*.

In Table 4.4, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and *learning for new knowledge* was the dependent variable. The result showed that the value of R^2 was .51, indicating that all predictor variables accounted for 51% of the variation in *learning for new knowledge*. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2 = .319, p \leq .01$). The change in R^2 from Model 1 to Model 2 is .319, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 32% of the variance in *learning for new knowledge*. Specifically, the coefficient value for age (b = -.032, $p \leq .05$) indicated a negative relationship with *learning for new knowledge*. The coefficient values for living setting (b = .314, $p \leq .05$), teacher support (b = .301, $p \leq .01$), and peer support (b = .250, $p \leq .01$) indicated a positive relationship between these

variables and *learning for new knowledge*. Family support (b= .044, $p \leq .10$) approached a significant effect on *learning for new knowledge*.

The implication of this analysis is that the inclusion of the institutional predictor variables in the equation significantly improved the explanation of the variance in the *learning for new knowledge*. Specifically, the self-rated health status coefficient is reduced by 62.5% (.416 to .156) to nonsignificance, indicating that the inclusion of institutional predictor variables results in a diminishing of the magnitude of self-rated health status.

Table 4.4

Simultaneous Model: Learning for New Knowledge

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	.278**	.044+
Gender	.020	.014
Age	-.038*	-.032*
Self-rated Health	.416*	.156
Educational Background	.050	.018
Living Setting	.405**	.314**
Marital Status	-.290	-.263
Living Arrangement	1.046*	.492
Institutional predictor variables		
Type of courses		-.292
Teacher support		.301**
Peer support		.250**
ΔR^2	.190	.319
ΔF	17.192**	118.861**
R^2	.190	.509

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, a forward multiple regression stepwise regression was performed. The result showed that the best model for explaining the *learning for new knowledge* of older adult learners included teacher support, peer support, age, and family support. This four-variable model explained 51.1% of the observed variance in the dependent variable, *learning for new knowledge*. The statistics for this model are depicted in Table 4.5.

Table 4.5

Best Model for Learning for New Knowledge

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*p*	R^2 Change
Teacher support	.312	.465	13.450	.000	.453
Peer support	.258	.269	7.506	.000	.048
Age	-.031	-.088	-3.418	.001	.007
Family	.049	.065	2.154	.032	.003

Note. Model Statistic: $R^2 = .511$; $F = 194.009$; $p = .000$

Learning For A Sense of Accomplishment

In the bivariate analysis, of the eleven predictor variables analyzed, five were significantly correlated with *learning for a sense of accomplishment*. The strongest explanatory variable was teacher support, which explained 30.0% of the observed variance in *learning for a sense of accomplishment*. The other statistically significant correlates were: peer support (25.2%), family support (13.4%) and self-rated health (6.7%). A summary of the correlations *learning for a sense of accomplishment* is shown in Table 4.6.

Table 4.6

Correlations of Predictor Variables with Learning for A Sense of Accomplishment

Predictor variables	***R***	r^2	***P***
Family support	.366	.134	.000
Gender	.079	.006	.026
Age	-.088	.008	.014
Self-rated Health status	.146	.067	.000
Educational Background	.061	.004	.086
Living setting	.057	.003	.111
Marital Status	-.056	.003	.114
Living Arrangement	.015	.000	.937
Type of courses	-.011	.000	.884
Teacher support	548	.300	.000
Peer support	502	.252	.000

Table 4.7 presents simultaneous regression models, in which *learning for a sense of accomplishment* was the dependent variable and personal and institutional predictor variables acted as the independent variables. In Table 7, Model 1, all personal predictor variables were the independent variables, and *learning for a sense of accomplishment* was the dependent variable. The result showed that the value of R^2 was .17, indicating that all personal predictor variables accounted 17% of the variance in *learning for a sense of accomplishment*. The coefficient value for age (b = -.038, $p \leq .05$) revealed a negative relationship between age and *learning for a sense of accomplishment*. The coefficient value for family support (b = .247, $p \leq .01$), and self-rated health (b = .598, $p \leq .05$) indicated a positive relationship with *learning for a sense of accomplishment*. Living arrangement approached a significant, positive relationship with *learning for a sense of accomplishment* (b = .782, $p \leq .10$).

In Table 4.7, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and *learning for a sense of accomplishment* was the dependent variable. The result revealed that the value of R^2 was .42, indicating that all predictor variables accounted for 42% of the variance in the *learning for a sense of accomplishment*. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2$ = *.250,* $p \leq .01$). The change in R^2 from Model 1 to Model 2 is .250, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 25% of the variance in the *learning for a sense of accomplishment*. Specifically, the coefficient value for age (b = -.033, $p \leq .05$) indicated a significant, inverse association between age and *learning for a sense of accomplishment*. The coefficient values for family support (b = .057, $p \leq .01$), self-rated health (b = .382, $p \leq .05$), type of courses (b= -.395, $p \leq .05$), teacher support (b = .264, $p \leq .01$), and peer support (b = .190, $p \leq .01$) indicated a significant, positive relationship between these variables and *learning for a sense of accomplishment*.

The implication for this analysis was that the inclusion of the institutional predictor variables in the equation significantly improved the explanation for the variance in the *learning for a sense of accomplishment*. Also, the magnitude of the self-rated health status coefficient is diminished from Model 1 to Model 2(.598 to .382), indicating that the inclusion of institutional predictor variables resulted in a 36-percent decline in the magnitude of the self-rated health status.

Table 4.7

Simultaneous Model: Learning for a Sense of Accomplishment

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	.247**	.057*
Gender	.200	.227
Age	-.038**	-.033**
Self-rated Health	.598**	.382**
Educational Background	-.026	-.047
Living setting	.176	.101
Marital Status	-.206	-.184
Living Arrangement	.782+	.387
Institutional predictor variables		
Type of courses		-.395*
Teacher support		.264**
Peer support		.190**
ΔR^2	.173	.250
ΔF	15.471	80.889
R^2	.173	.423

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, a forward multiple regression was performed. The result showed that the best model for explaining the *learning for a sense of accomplishment* of older adult learners included teacher support, peer support, and family support. This three-variable model explained 34.1% of the observed variance in the dependent variable, *learning for a sense of accomplishment*. The statistics for this model are depicted in Table 4.8.

Table 4.8

Best Model for Learning for A Sense of Accomplishment

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*p*	R^2 *Change*
Teacher support	.256	.381	12.216	.000	.309
Peer support	.190	.203	9.470	.000	.028.
Family support	.056	.075	4.859	.031	.004

Note. Model Statistic: $R^2 = .341$; $F = 136.081$; $p = .000$

Desire for Stimulation

Of the eleven predictor variables analyzed, nine were significantly correlated with *desire for stimulation*. The strongest explanatory variable was teacher support, which explained 31.0% of the observed variance in *desire for stimulation*. The other statistically significant correlates were: peer support (30.0%), family support (22.4%), gender (0.8%), self-rated health (2.9%), marital status (0.7%), and type of courses (1.0%). A summary of the correlations for *desire for stimulation* is shown in Table 4.9.

Table 4.9

Correlations of Predictor Variables with Desire for Stimulation

Predictor variables	*R*	r^2	*P*
Family support	.362	.224	.000
Gender	.090	.008	.000
Age	-.041	.002	.253
Self-rated Health status	.169	.029	.000
Educational Background	.156	.024	.050
Living setting	.099	.010	.006
Marital Status	-.081	.007	.000
Living Arrangement	-.017	.000	.628
Type of courses	.099	.010	.014
Teacher support	.557	.310	.000
Peer support	.544	.300	.000

Table 4.10 presents simultaneous regression models, in which *desire for stimulation* was the dependent variable and personal and institutional predictor variables acted as the independent variables. In Table 4.10, Model 1, all personal predictor variables were the independent variables, and *desire for stimulation* was the dependent variable. The result showed that the value of R^2 was .16, indicating that all personal predictor variables accounted for 16% of the variance in *desire for stimulation*. The coefficient value for family support (b = .235, $p \leq .01$), self-rated health (b = .541, $p \leq .01$), and living setting (b = .438, $p \leq .01$) revealed a significant, positive relationship between these variables and *desire for stimulation*.

In Table 4.10, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and *desire for stimulation* was the dependent variable. The result showed that the value of R^2 was .384, indicating that all predictor variables accounted for 38% of the variance in *desire for stimulation*. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2 = .225$, $p \leq .01$). The change in R^2 from Model 1 to Model 2 is .225, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 22.5% of the variance in *desire for stimulation*. Specifically, the coefficient values for self-rated health (b = .303, $p \leq .05$), teacher support (b = .241, $p \leq .01$), and peer support (b = .202, $p \leq .01$) indicated a positive, significant association between these variables and *desire for stimulation*.

The implication for this analysis was that the inclusion of the institutional predictor variables in the equation significantly improved the explanation for the variance

in *desire for stimulation*. Also, the magnitude of the self-rated health status coefficient is diminished from Model 1 to Model 2 (.541 to .303), indicating that the inclusion of institutional predictor variables resulted in a 44-percent decline in the magnitude of the self-rated health status. Also, the magnitude of the living setting coefficient is also reduced from Model 1 to Model 2 (.438 to .367), indicating that the inclusion of institutional predictor variables resulted in a 16-percent decline in the magnitude of living setting.

Table 4.10

Simultaneous Model: Desire for Stimulation

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	.235**	.048+
Gender	.296	.260
Age	-.015	-.011
Self-rated Health	.541**	.303*
Educational Background	-.036	-.068
Living setting	.438**	.367**
Marital Status	-.398	-.358
Living Arrangement	.756+	.408
Institutional predictor variables		
Type of courses		.116
Teacher support		.241**
Peer support		.202**
ΔR^2	.159	.225
ΔF	14.180	67.796
R^2	.159	.384

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, the forward multiple regression was performed. The result showed that the best model for explaining *desire for stimulation* included teacher support, peer support, self-rated health status and family support. This four-variable model explained 37.8% of the observed variance in the dependent variable, *desire for stimulation*. The statistics for this model are depicted in Table 4.11.

Table 4.11

Best Model for Desire for Stimulation

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*p*	R^2 *Change*
Teacher support	.254	.403	9.290	.000	.333
Peer support	.177	.197	4.404	.000	.032
Self-rated health	.369	.093	2.779	.006	.009
Family support	.054	.077	2.022	.044	.044

*Note***.** Model Statistic: $R^2 = .378$; $F = 88.228$; $p = .000$

Emotional Regulation

In the bivariate analysis, of the eleven predictor variables analyzed, five were significantly correlated with *emotional regulation*. The strongest explanatory variable was peer support, which explained 35.4% of the observed variance in *emotional regulation*. The other statistically significant correlates were: teacher support (34.0%), family support (19.3%), and self-rated health (2.8%). A summary of the correlations for *emotional regulation* is shown in Table 4.12.

Table 4.12

Correlations of Predictor Variables with Emotional Regulation

Predictor variables	***R***	r^2	***p***
Family support	.440	.193	.000
Gender	.035	.001	.320
Age	-.074	.005	.040
Self-rated Health status	.167	.028	.000
Educational Background	.067	.004	.059
Living setting	.066	.004	.068
Marital Status	-.059	.003	.108
Living Arrangement	-.065	.004	.071
Type of courses	.046	.002	.257
Teacher support	.583	.340	.000
Peer support	.597	.354	.000

Table 4.13 presents multiple regression models, in which *emotional regulation* was the dependent variable and personal and institutional predictor variables acted as the independent variables. In Table 9, Model 1, all personal predictor variables were the independent variables, and *emotional regulation* was the dependent variable. The result showed that the value of R^2 was .19, indicating that all personal predictor variables accounted for 19% of the variance in *emotional regulation*. The coefficient value for age (b = -.054, $p \leq .01$) revealed a significant, inverse association between age and *emotional regulation*. The coefficient values for family support (b = .345, $p \leq .01$), self-rated health (b = .557, $p \leq .01$), and living setting (b = .563, $p \leq .01$) indicated a positive relationship between these variables and *emotional regulation*.

In Table 4.13, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and *emotional regulation* was the dependent variable. The result revealed that the value of R^2 was .48, showing that all

predictor variables accounted for 48% of the variance in *emotional regulation*. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2 = .300, p \leq .01$). The change in R^2 from Model 1 to Model 2 is .300, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 30% of the variance in *emotional regulation*. Specifically, the coefficient value for age (b = -.047, $p \leq .01$) indicated a significant, inverse association between age and *emotional regulation*. The coefficient values for living setting (b = .479, $p \leq .01$), teacher support (b = .280, $p \leq .01$), and peer support (b = .407, $p \leq .01$) revealed a significant, positive association between these variables and *emotional regulation*.

The implication for this analysis was that the inclusion of the institutional predictor variables in the equation significantly improved the explanation for the variance in *emotional regulation*. Also, the magnitude of the self-rated health status coefficient is diminished from Model 1 to Model 2 (.557 to .242) to nonsignificance, indicating that the inclusion of institutional predictor variables resulted in a diminishing in the magnitude of the self-rated health status by 57%.

Table 4.13

Simultaneous Model: Emotional Regulation

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	.345**	.062+
Gender	-.203	-.231
Age	-.054**	-.047**
Self-rated Health	.557**	.242
Educational Background	-.172	-.204
Living setting	.563**	.479**
Marital Status	-.038	-.019
Living Arrangement	.197	-.481
Institutional predictor variables		
Type of courses		-.132
Teacher support		.280**
Peer support		.407**
ΔR^2	.186	.289
ΔF	15.605	99.900
R^2	.186	.476

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, a forward multiple regression was performed. The result showed that the best model for explaining *emotional regulation* included peer support, teacher support, and family support. This three-variable model explained 42.8% of the observed variance in the dependent variable, *emotional regulation*. The statistics for this model are depicted in Table 4.14.

Table 4.14

Best Model for Emotional Regulation

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*p*	R^2 *Change*
Peer support	.358	.320	8.146	.000	.358
Teacher support	.251	.312	8.264	.000	.060
Family support	.108	.120	3.696	.000	.010

Note. Model Statistic: $R^2 = .428$; $F = 194.909$; $p = .000$

Generativity

In the bivariate analysis, of the eleven predictor variables analyzed, five were significantly correlated with *generativity*. The strongest explanatory variable was teacher support, which explained 46.3% of the observed variance in *generativity*. The other statistically significant correlates were: peer support (34.2%), family support (23.8%) and self-rated health (2.3%). A summary of the correlations for *generativity* is shown in Table 4.15.

Table 4.15

Correlations of Predictor Variables with Generativity

Predictor variables	*R*	r^2	*P*
Family support	.488	.238	.000
Gender	.038	.001	.292
Age	.038	.001	.295
Self-rated Health status	.150	.023	.000
Educational Background	.031	.001	.385
Living setting	.000	.000	.997
Marital Status	-.045	.002	.211
Living Arrangement	-.086	.007	.017
Type of courses	-.032	.001	.427
Teacher support	.620	.384	.000
Peer support	.585	.342	.000

Table 4.16 presents multiple regression models, in which *generativity* was the dependent variable and personal and institutional predictor variables were the independent variables. In Table 11, Model 1, all personal predictor variables were the independent variables, and *generativity* acted as the dependent variable. The result showed that the value of R^2 was .22, indicating that all personal predictor variables accounted for 22% of the variance in *generativity*. The coefficient value for family support (b = .501, $p \leq .01$) indicated a significant, positive association between family support and *generativity*. The coefficient value for age (b = -.040, $p \leq .10$) and self-rated health status (b = .450, $p \leq .10$) showed that they approached significant impact on *generativity*.

In Table 4.16, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and *generativity* was the dependent variable. The result showed that the value of R^2 was .50, indicating that all predictors accounted for 50% of the variance in *generativity*. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2 = .279, p \leq .01$). The change in R^2 from Model 1 to Model 2 is .279, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 27.9% of the variance in *generativity*. Specifically, the coefficient values for family support (b = .190, $p \leq .01$) and living setting (b= -1.165, $p \leq .01$) indicated a significant, inverse association between the two variables and *generativity*. The coefficient values for type of courses (b = -.983, $p \leq .01$), teacher support (b = .402,

$p \leq .01$), and peer support (b = .339, $p \leq .01$) showed a significant, positive association between these variables and *generativity*.

The implication for this analysis was that the inclusion of the institutional predictor variables in the equation significantly improved the explanation for the variance in *generativity*. Also, the magnitude of the self-rated health status coefficient is decreased from Model 1 to Model 2 (.450 to .134), revealing that institutional predictor variables do diminish the impact between self-rated health status and *generativity*. Additionally, the magnitude of the age coefficient is decreased from Model 1 to Model 2 (-.040 to -.031), indicating that institutional predictor variables might decrease the impact between age and *generativity*.

Table 4.16

Simultaneous Model: Generativity

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	.501**	.190**
Gender	-.110	-.041
Age	-.040+	-.031+
Self-rated Health	.450+	.134
Educational Background	-.167	-.209
Living setting	.275	.173
Marital Status	-.088	-.095
Living Arrangement	-.359	-1.165*
Institutional predictor variables		
Type of courses		-.983**
Teacher support		.402**
Peer support		.339**
ΔR^2	.232	.277
ΔF	20.457	101.496
R^2	.232	.499

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, a forward multiple regression was performed. The result showed that the best model for explaining *generativity* included teacher support, peer support and family support. This three-variable model explained 46.5% of the observed variance in the dependent variable, *generativity*. The statistics for this model are depicted in Table 4.17.

Table 4.17

Best Model for Generativity

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*P*	R^2 *Change*
Teacher support	.347	.370	10.094	.000	.390
Peer support	.326	.249	6.557	.000	.053
Family support	.184	.175	5.555	.000	.022

Note. Model Statistic: $R^2 = .465$; $F = 224.864$; $p = .000$

Total intrinsic motivation

In the bivariate analysis, of the eleven predictor variables analyzed, five were significantly correlated with *total intrinsic motivation*. The strongest explanatory variable was teacher support, which explained 41.5% of the observed variance in total intrinsic motivation. The other statistically significant correlates were: peer support (40.0%), family support (20.1%), and self-rated health (2.8%). A summary of the correlations for *total intrinsic motivation* is shown in Table 4.18.

Table 4.18

Correlations of Predictor Variables with Total Intrinsic Motivation

Predictor variables	***R***	r^2	***P***
Family support	.448	.201	.000
Gender	.069	.005	.051
Age	-.084	.007	.019
Self-rated Health status	.168	.028	.000
Educational Background	.075	.006	.035
Living setting	.049	.002	.171
Marital Status	-.075	.006	.036
Living Arrangement	-.043	.002	.243
Type of courses	.033	.001	.410
Teacher support	.644	.415	.000
Peer support	.632	.400	.000

Table 4.19 presents simultaneous regression models, in which *total intrinsic motivation* was the dependent variable and personal and institutional predictor variables were the independent variables. In Table 12, Model 1, all personal predictor variables were the independent variables and *total intrinsic motivation* acted as the dependent variable. The result showed that the value of R^2 was .20, indicating that all personal predictor variables accounted for 20% of the variance in the total intrinsic motivation. The coefficient value for age (b = -.176, $p \leq .05$) showed a significant, inverse association between age and *total intrinsic motivation*. The coefficient values for family support (b= 1.585, $p \leq .01$) and self-rated health (b= 2.819, $p \leq .01$) indicated a significant, positive relationship between the two variables and *total intrinsic motivation*.

In Table 4.19, Model 2, institutional predictor variables were added on top of personal predictor variables as the independent variables, and total intrinsic motivation was the dependent variable. The result showed that the value of R^2 was .54, indicating

that the all predictor variables accounted for 54% of the variance in the total intrinsic motivation. Additionally, the increment due to adding institutional predictor variables on top of personal predictor variables is significant ($\triangle R^2 = .339, p \leq .01$). The change in R^2 from Model 1 to Model 2 is .339, implying that the inclusion of the institutional predictor variable to the model accounted for an additional 33.9% of the variance in the total intrinsic motivation. Additionally, the coefficient value for age (b = -.141, $p \leq .01$) revealed a significant, negative association between age and total intrinsic motivation. The coefficient values for self-rated health (b = 1.367, $p \leq .01$), teacher support (b = 1.534, $p \leq .01$), and peer support (b = 1.438, $p \leq .01$) indicated a significant, positive relationship between the two variables and *total intrinsic motivation*.

The implication for this analysis was that the inclusion of the institutional predictor variables in the equation significantly improved the explanation for the variance in *total intrinsic motivation*. Also, the magnitude of the self-rated health status coefficient is diminished from Model 1 to Model 3(2. 819 to 1.367), indicating that the inclusion of institutional predictor variables in the model resulted in a 52% decline in the magnitude of the self-rated health status. Additionally, the magnitude of the living setting coefficient is diminished from Model 1 to Model 2 (1.285 to .852) to nonsignificance, indicating that the inclusion of institutional predictor variables resulted in a diminishing in the magnitude of the living setting by 34%.

Total 4.19

Simultaneous Model: Total Intrinsic Motivations

Variables	Model 1	Model 2
	B	B
Personal Predictor variable		
Family support	1.585**	.347
Gender	.719	-.674
Age	-.176*	-.141*
Self-rated Health	2.819**	1.367*
Educational Background	-.301	-.443
Living setting	1.285+	.852
Marital Status	-.495	-.353
Living Arrangement	1.141	-1.339
Institutional predictor variables		
Type of courses		-1.335
Teacher support		1.534**
Peer support		1.438**
ΔR^2	.209	.337
ΔF	18.124	134.959
R^2	.197	.536

Note. **($p \leq .01$), *($p \leq .05$), +($p \leq .10$)

Next, a forward multiple regression was performed. The result showed that the best model for explaining *total intrinsic motivation* included teacher support and peer support. This four-variable model explained 51.7% of the observed variance in the dependent variable, *total intrinsic motivation*. The statistics for this model are depicted in Table 4.20.

Table 4.20

Best Model for Total Intrinsic Motivation

Parameter	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	*t*	*p*	R^2 *Change*
Teacher support	1.419	.398	11.813	.000	.440
Peer support	1.669	.332	9.494	.000	.077
Family support	.407	.101	3.457	.001	.007
Age	-.097	-.05	-2.060	.040	.003

Note. Model Statistic: $R^2 = .526$; $F = 211.808$; $p = .000$

According to the simultaneous regression models, when the institutional predictor variables were added into the regression equation in Model 2, R^2 significantly increased, which means that institutional predictor variables are more important to explain the variance in the outcome variables. Furthermore, after adding the institutional predictor variables, some coefficient values of variables were reduced from Model 1 to Model 2. These results revealed that mediation might be present in the models. Therefore, a test of mediation was undertaken to better understand this potential relationship (Baron & Kenny, 1986).

Findings Related to Research Question #3

In order to answer the question "To what extent are the relationships between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support and/or family support?" the researcher performed path analysis. In each path model, direct effect and indirect effect between personal predictor variables and the five constructs of intrinsic motivation were tested. Teacher support, peer support, and family support acted as the mediators based on the results of the forward multiple

regression and literature. Specifically, to test the indirect effect, a bootstrapping approach for multiple mediator analysis recommended by Preacher and Hayes (2008) was adopted. A total six models were constructed.

Learning for New Knowledge as an Exogenous Variable (dependent variable)

The first proposed model consisted of one exogenous variable (*learning for new knowledge*) and eight endogenous variables (educational background, age, gender, self-rated health, living setting, marital status, living arrangement, and type of courses),with teacher support, peer support and family support as mediating constructs. The path analysis for the mechanism of *learning for new knowledge* is shown in Figure 4.1.

First, the direct effects of all exogenous variables (independent variable) on learning new knowledge were tested. As can be seen, living setting (.106, $p \leq .01$), teacher support (.455, $p \leq .01$), and peer support (.260, $p \leq .01$) have a positive, direct effect on *learning for new knowledge*; age (-.113, $p \leq .01$) has a negative, direct association with *learning for new knowledge*. Family support approaches a significantly positive effect on *learning for new knowledge* (.061, $p \leq .10$). Additionally, the path analysis shows that self-rated health status is positively predictive of teacher support (.169, $p \leq .01$) and peer support (.162, $p \leq .01$). Type of courses (.067, $p \leq .05$) and living setting (-.073, $p \leq .05$) are the significant predictors of peer support.

Next, the researcher tested for the significance of the indirect effects depicted in the path analysis model. The results show that self-rated health status has an indirect positive effect on *learning for new knowledge* through teacher support ($p \leq .01$) and peer support ($p \leq .01$). That is, indirectly, *learning for new knowledge* increases by .077

(.196*.455) for every one unit increase in self-rated health status when teacher support is the mediator; *learning for new knowledge* increases by .043 (.162*.260) for every one unit increase in self-rated health status when peer support is the mediator. Also, type of courses exerts a indirect positive effect on *learning for new knowledge* through peer support ($p \leq .01$), and living setting approaches an negative, indirect effect on *learning for new knowledge* through peer support ($p \leq .10$).

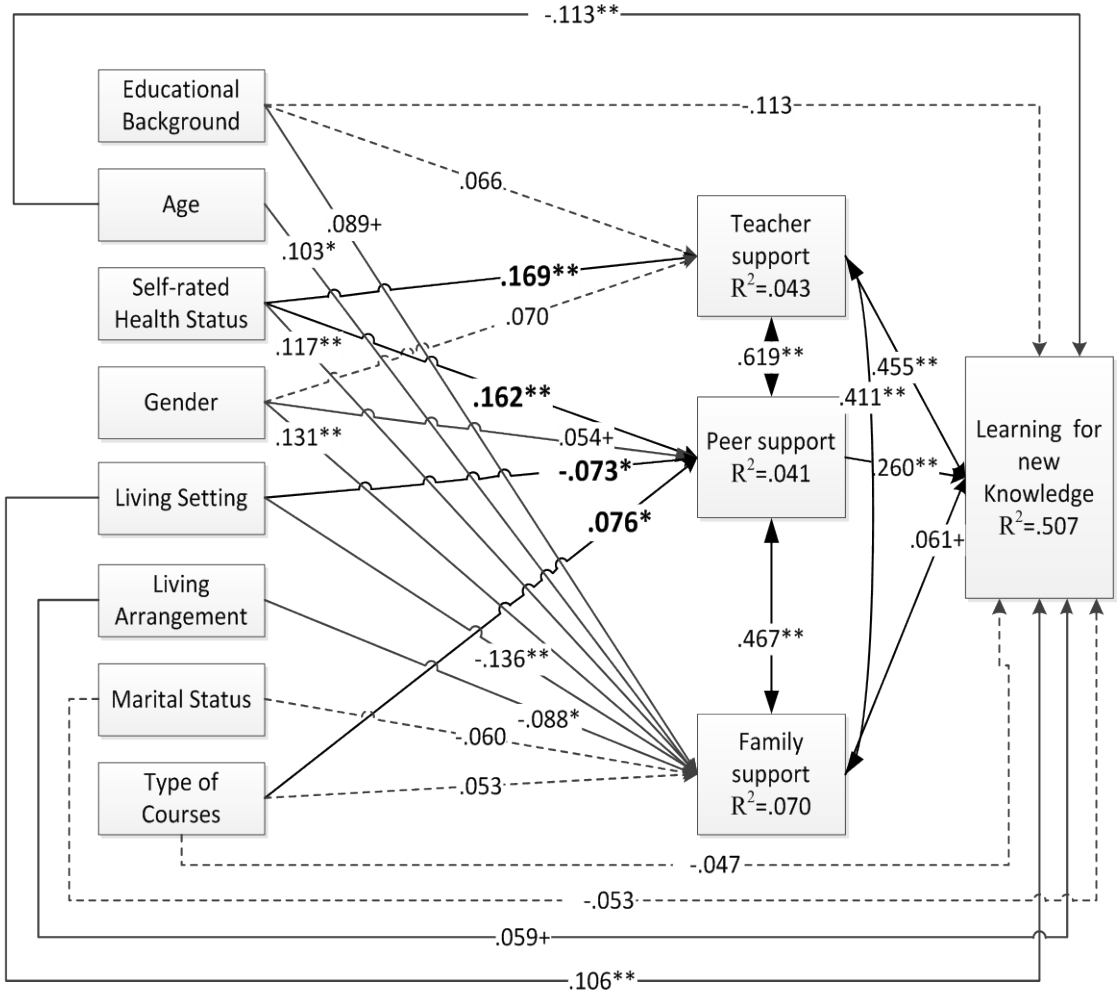


Figure 4.1. The Mechanism of *Learning for New Knowledge*. N=816. **$p \leq .01$,*$p \leq .05$, +$p < .10$ (two-tailed tests). Note: $x^2 = 3.98$, $df = 12$, $p = .98$, RMSEA =.000, CFI = 1.00. The use of boldface indicates that the test of mediating effect is significant.

Learning for a Sense of Accomplishment as an Exogenous Variable (dependent variable)

The second proposed model consisted of one exogenous variable (*learning for a sense of accomplishment*) and eight endogenous variables (educational background, age, gender, self-rated health, living setting, marital status, living arrangement, type of courses),with teacher support, peer support and family support as mediating constructs. The path analysis for the mechanism of *learning for learning for a sense of accomplishment* is shown in Figure 4.2.

First, the direct effects of all exogenous variables on *learning for a sense of accomplishment* were tested. As can be seen, self-rated health status (.106, $p \leq .01$), teacher support (.421, $p \leq .01$), peer support (.201, $p \leq .01$), and family support (.083, $p \leq .05$) have a positive, direct association with *learning for a sense of accomplishment*; age (-.114, $p \leq .01$) has a positive, direct effect on *learning for a sense of accomplishment*. Additionally, the path analysis shows that self-rated health status is a positive predictor of teacher support (.174, $p \leq .01$) and peer support (.167, $p \leq .01$). Type of courses is the positive predictor of peer support (.063, $p \leq .05$), and living setting is the negative predictor of peer support (-.077, $p \leq .05$). Educational background (. 096, $p \leq .05$), age (.109, $p \leq .01$), self-rated health status (.123, $p \leq .01$), living setting (.109, $p \leq .01$), and living arrangement (-.080, $p \leq .05$) are the significant predictors of family support.

Next, the researcher tested for the significance of the indirect effects depicted in the path analysis model. The results showed that self-rated health status has an indirect positive effect on *learning for a sense of accomplishment* through teacher support (*p*

≤ .01) and peer support ($p \leq .01$). Educational background approaches an indirect positive effect on *learning for a sense of accomplishment* through teacher support ($p \leq .1$). Living setting exerts an indirect negative effect on *learning for a sense of accomplishment* through peer support ($p \leq .01$). Type of courses approaches an indirect positive effect on *learning for a sense of accomplishment* through teacher support ($p \leq .10$).

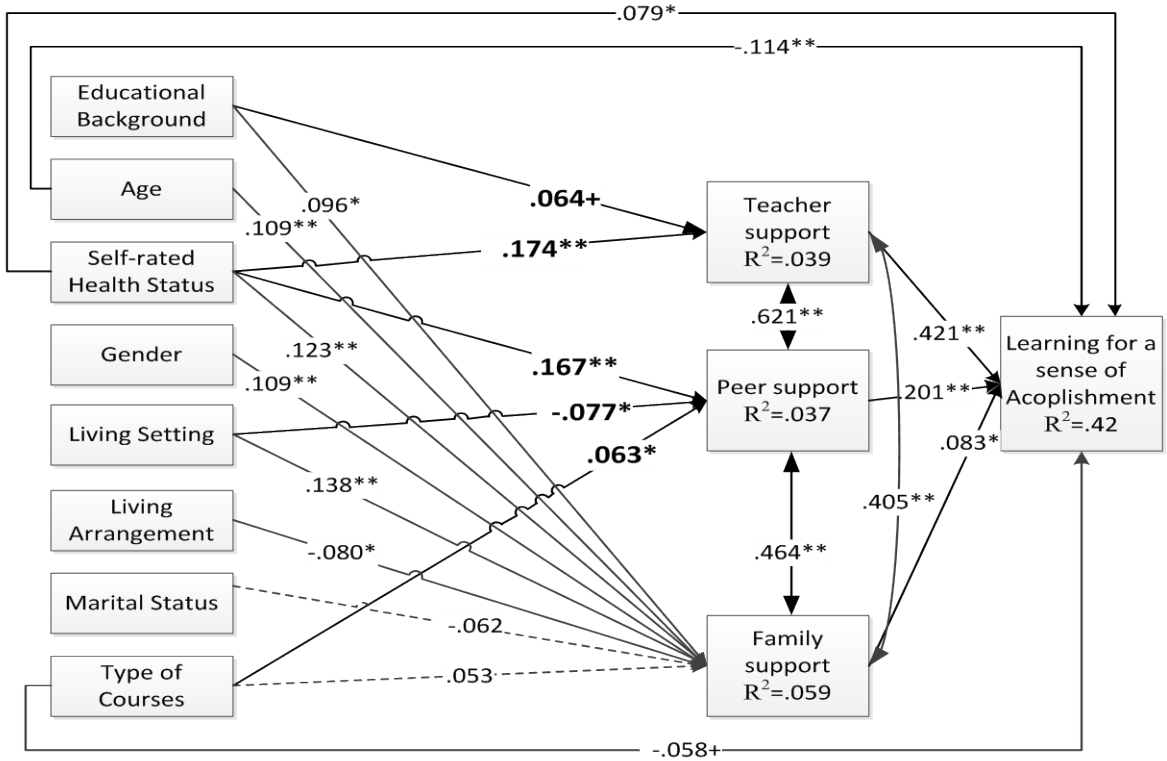


Figure 4.2. The Mechanism of *Learning for A Sense of Accomplishment*. N=816. **$p \leq .01$, **$p \leq .05$, +$p < .10$ (two-tailed tests). Note: $x^2 = 13.36$, $df = 17$, $p = .727$, RMSEA=.000, CFI = 1.00. The use of boldface indicates that the test of mediating effect is significant.

Desire for stimulation as an Exogenous Variable (dependent variable)

The third proposed model consisted of one exogenous variable (*desire for stimulation*) and eight endogenous variables (educational background, age, gender, self-

rated health, living setting, marital status, living arrangement, type of courses),with teacher support, peer support, and family support as mediating constructs. The path analysis for the mechanism of desire stimulation is shown in Figure 4.3.

First, the direct effects of all exogenous variables (independent variable) on *desire for stimulation* were tested. As can be seen, self-rated health status (.235, $p \leq .01$), living setting (.137, $p \leq .01$), teacher support (.379, $p \leq .01$), and peer support (.219, $p \leq .01$) have a positive, direct effect on *desire for stimulation*. Family support approaches a direct positive effect on *desire for stimulation* ($p \leq .1$). Additionally, the path analysis shows that self-rated health status (.174, $p \leq .01$) and educational background (.064, $p \leq .1$) are positive predictors of teacher support. Type of courses (.063, $p \leq .01$) and self-rated health status (.167, $p \leq .01$) are the positive predictors of peer support; living setting (-.077, $p \leq .01$) is the negatively predictor of peer support. Educational background (. 096, $p \leq .05$), age (.109, $p \leq .01$), self-rated health status (.123, $p \leq .01$), and living setting (.109, $p \leq .01$) are the positive predictors of family support; living arrangement (-.080, $p \leq .05$) is the negatively predictor of family support.

Next, the researcher tested for the significance of the indirect effects depicted in the path analysis model. The results showed that self-rated health status has an indirect positive effect on *desire for stimulation* through teacher support ($p \leq .05$) and peer support ($p \leq .05$). Also, living setting approaches a negative indirect effect on *desire for stimulation* through peer support ($p \leq .1$); type of courses approaches a positive indirect effects on *desire for stimulation* through peer support ($p \leq .1$).

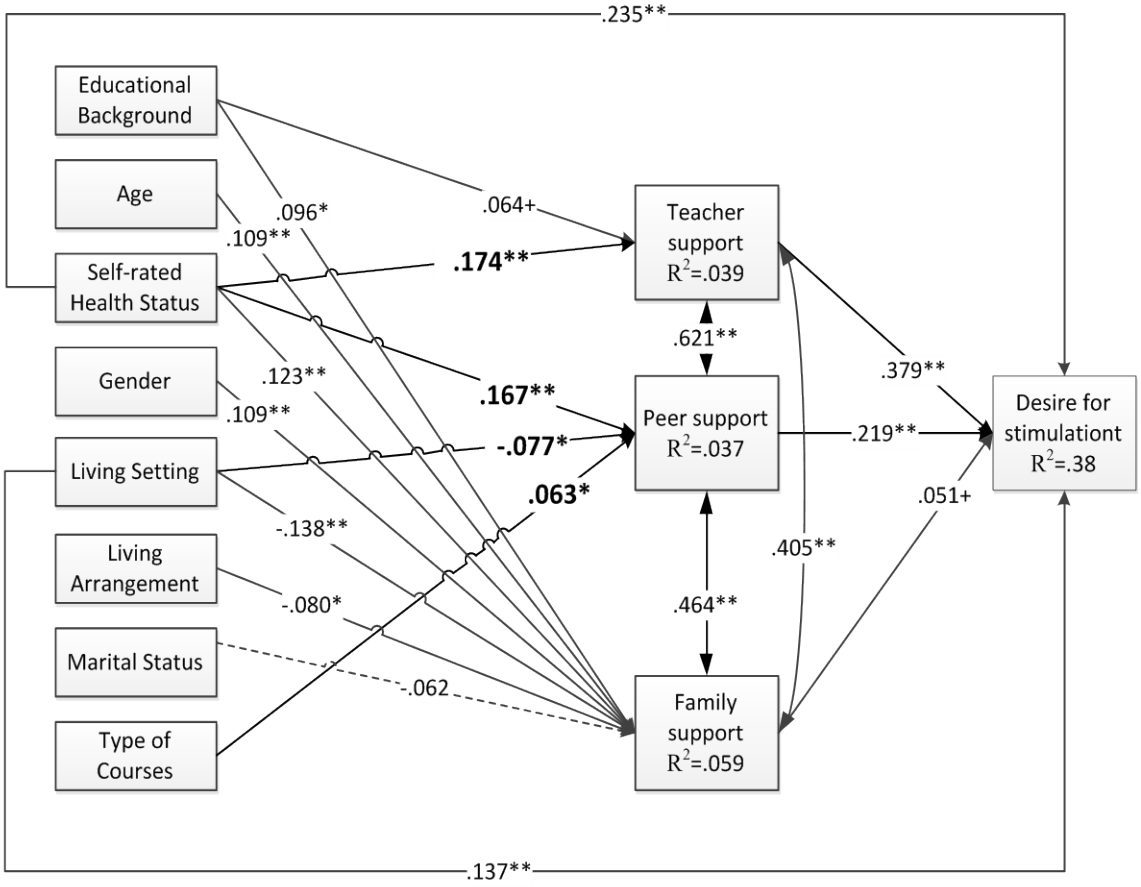


Figure 4.3. The Mechanism of *Desire for Stimulation*. N=816. $^{**}p \leq .01$, $^{**}p \leq .05$, $+p < .10$ (two-tailed tests) Note: $x^2 = 14.85$, $df = 18$, $p = .672$, RMSEA =.000, CFI = 1.00. The use of boldface indicates that the test of mediating effect is significant.

Emotional Regulation as an Exogenous Variable (dependent variable)

The forth proposed model consisted of one exogenous variable (*desire for stimulation*) and eight endogenous variables (educational background, age, gender, self-rated health, living setting, marital status, living arrangement, type of courses),with teacher support, peer support and family support as mediating constructs. The path analysis for the mechanism of *emotional regulation* is shown in Figure 4.4.

First, the direct effects of all exogenous variables (independent variables) on *emotional regulation* were tested. As can be seen, educational background (.087, $p \leq .05$), living setting (.138, $p \leq .01$), teacher support (.341, $p \leq .01$), peer support (.341, $p \leq .01$), and family support (.083, $p \leq .05$) have a direct positive effect on *emotional regulation;* age (-. 130, $p \leq .05$) has a direct negative effect on *emotional regulation*. Additionally, the path analysis shows that self-rated health status (.174, $p \leq .01$) and educational background (.096, $p \leq .05$) are the positive predictors of teacher support; also, gender approaches a significantly positive effect on teacher support (. 077, $p \leq .10$). Living setting (-.083, $p \leq .05$) and self-rated health status (.166, $p \leq .01$) are the positive predictors of peer support; gender approaches a significantly positive effect on peer support (.073, $p \leq .10$). Educational background (. 112, $p \leq .05$), age (.121, $p \leq .01$), self-rated health status (.120, $p \leq .01$), and gender (.137, $p \leq .01$) are the significantly positive predictors of family support; living setting (-.141, $p \leq .01$) and living arrangement (-.088, $p \leq .05$) are the significantly negative predictors of family support.

Next, the researcher tested for the significant of the indirect effects depicted in the path analysis model. The results showed that educational background and self-rated health status have an indirect positive effect on *emotional regulation* through teacher support ($p \leq .05$). Self-rated health status exerts a positive indirect effect on *emotional regulation* through peer support ($p \leq .05$); living setting exerts a negative indirect effect on *emotional regulation* through peer support ($p \leq .05$). Also, self-rated health status and gender approach an indirect positive effect on *emotional regulation* through family

support ($p \leq .10$); living setting approaches an indirect negative effect on *emotional regulation* through family support ($p \leq .10$).

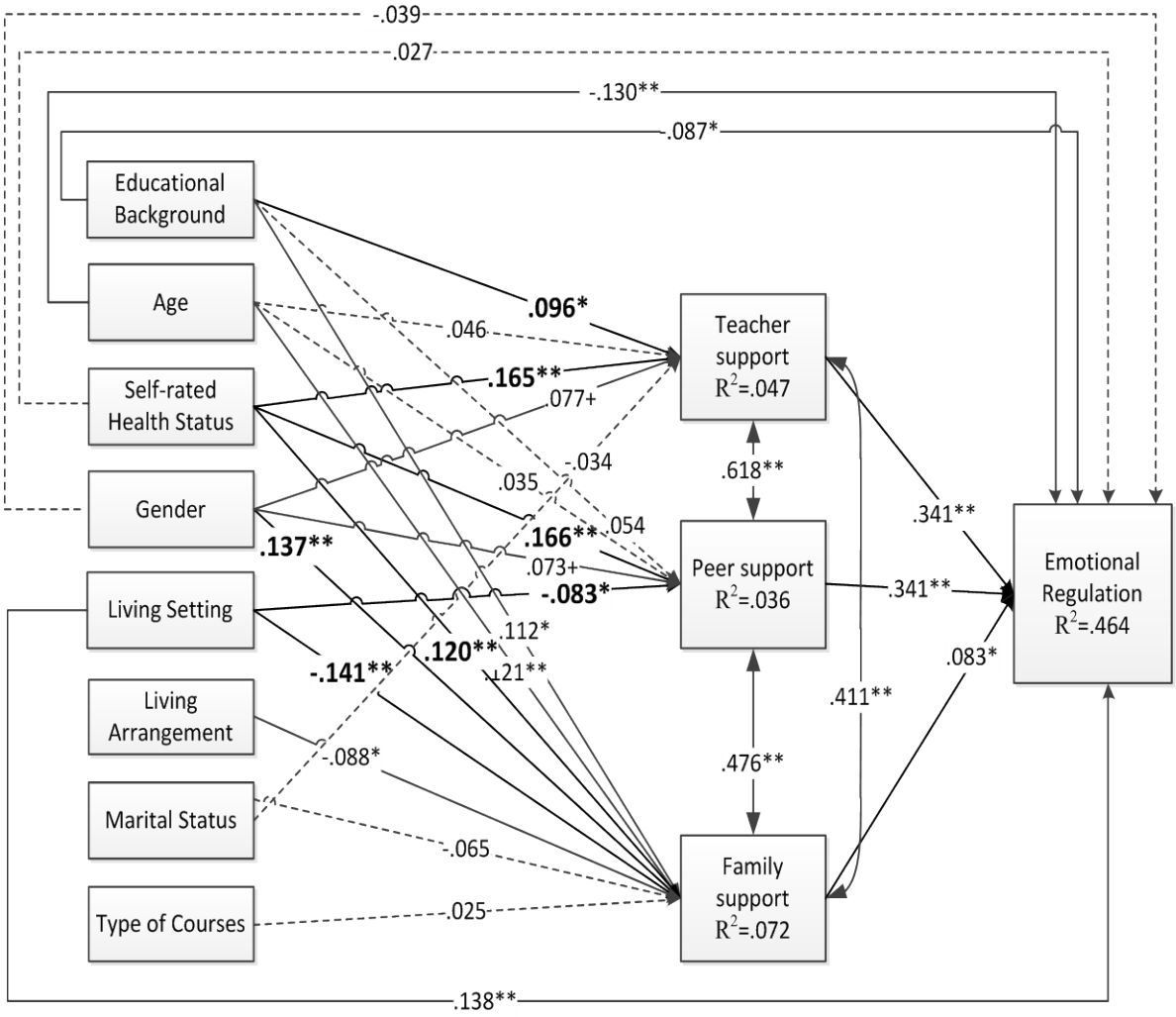


Figure 4.4 The Mechanism of *Emotional Regulation*. N=816. $**p \leq .01$, $*p \leq .05$, $+p < .10$ (two-tailed tests). Note: $x^2 = 6.915$, $df = 9$, $p = .646$, RMSEA =.000, CFI = 1.00. The use of boldface indicates that the test of mediating effect is significant.

Generativity as Exogenous Variable (dependent variable)

The fifth proposed model consisted of one exogenous variable (*generativity*) and eight endogenous variables (educational background, age, gender, self-rated health, living setting, marital status, living arrangement, type of courses),with teacher support, peer

support and family support as mediating constructs. The path analysis for the mechanism of *generativity* is shown in Figure 4.5.

First, the direct effects of all exogenous variables (independent variables) on *generativity* were tested. As can be seen, teacher support (.409, $p \leq .01$), peer support (.240, $p \leq .05$), and family support (.108, $p \leq .05$) have a positive, direct effect on *generativity*; living arrangement (-.062, $p \leq .05$) and type of courses (-.102, $p \leq .01$) have a negative, direct effect on *generativity*. Additionally, the path analysis shows that self-rated health status (.172, $p \leq .01$) and educational background (.066, $p \leq .10$) are the positive predictors of teacher support. Self-rated health status (.163, $p \leq .01$), living setting (-.080, $p \leq .01$), and type of courses (.076, $p \leq .01$) are the positive predictors of peer support. Age (.101, $p \leq .05$), self-rated health status (.116, $p \leq .05$), gender (.098, $p \leq .01$) are the positive predictors of family support; living setting (-.136, $p \leq .05$) and living arrangement (-.087, $p \leq .05$) are the negative predictors of family support.

Next, the researcher tested for the significant of the indirect effects depicted in the path analysis model. The results showed that self-rated health status has a positive indirect effect on *generativity* through teacher support ($p \leq .05$); educational background approaches a positive indirect effect on *generativity* through teacher support ($p \leq .10$). Self-rated health status and type of courses exert a positive indirect effect on *generativity* through peer support ($p \leq .05$); living setting exerts a negative indirect effect on *generativity* through peer support ($p \leq .05$). Last, age, self-rated health status, and gender have an indirect positive effect on *generativity* through family support ($p \leq .05$); living setting has an indirect negative effect on *generativity* through family support ($p \leq .05$).

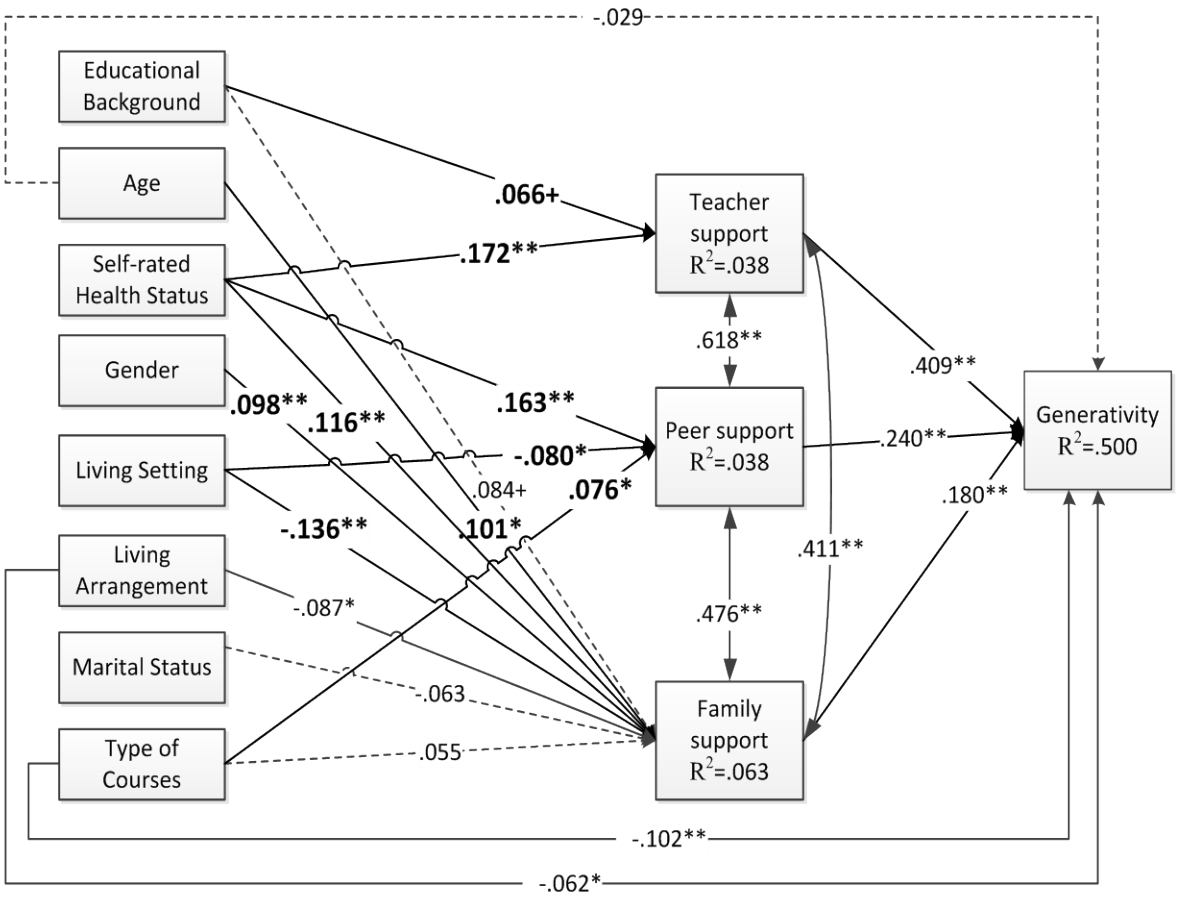


Figure 4.5. The Mechanism of *Generativity*. N=816. **$p \leq .01$, *$p \leq .05$, +$p < .10$ (two-tailed tests). Note: $x^2 = 9.643$, $df = 16$, $p = .884$, RMSEA =.000, CFI = 1.00. The use of boldface indicates that the test of mediating effect is significant.

Total intrinsic motivation as an Exogenous Variable (dependent variable)

The fifth proposed model consisted of one exogenous variable (*total intrinsic motivation*) and eight endogenous variables (educational background, age, gender, self-rated health, living setting, marital status, living arrangement, type of courses),with teacher support, peer support and family support as mediating constructs. The SEM for the mechanism of *total intrinsic motivation* is shown in Figure 4.6.

First, the direct effects of all exogenous variables (independent variables) on *total intrinsic motivation* were tested. As can be seen, living setting (.115, $p \leq .01$), teacher support (.491, $p \leq .01$), peer support (.314, $p \leq .01$), and family support (.110, $p \leq .01$) have a direct positive effect on total intrinsic motivation; age (-.127, $p \leq .05$) has a direct negative effect on *total intrinsic motivation*. Additionally, the SEM analysis shows that self-rated health status is the positive predictor of teacher support (.172, $p \leq .01$) and peer support (.163, $p \leq .01$). Living setting (-.077, $p \leq .01$) is the negative predictor of peer support, and type of courses (.064, $p \leq .05$) is the positive predictor of peer support. Also, age (.102, $p \leq .05$), self-rated health status (.122, $p \leq .01$), and gender (.104, $p \leq .01$) are the positive predictors of family support; living setting (-.136, $p \leq .05$) and living arrangement (-.090, $p \leq .05$) are the negative predictors of family support.

Next, the researcher tested for the significance of the indirect effects depicted in the path analysis model. The results show that self-rated health status has an indirect positive effect on *total intrinsic motivation* through teacher support ($p \leq .01$). Self-rated health status and type of courses exert an indirect positive effect on *total intrinsic motivation* through peer support ($p \leq .01$); living setting has an indirect negative effect on intrinsic motivation through teacher support ($p \leq .05$). Last, gender and self-rated health status have an indirect positive effect on intrinsic motivation through family support ($p \leq .05$). Age approach an indirect positive effect on intrinsic motivation through family support ($P \leq .10$).

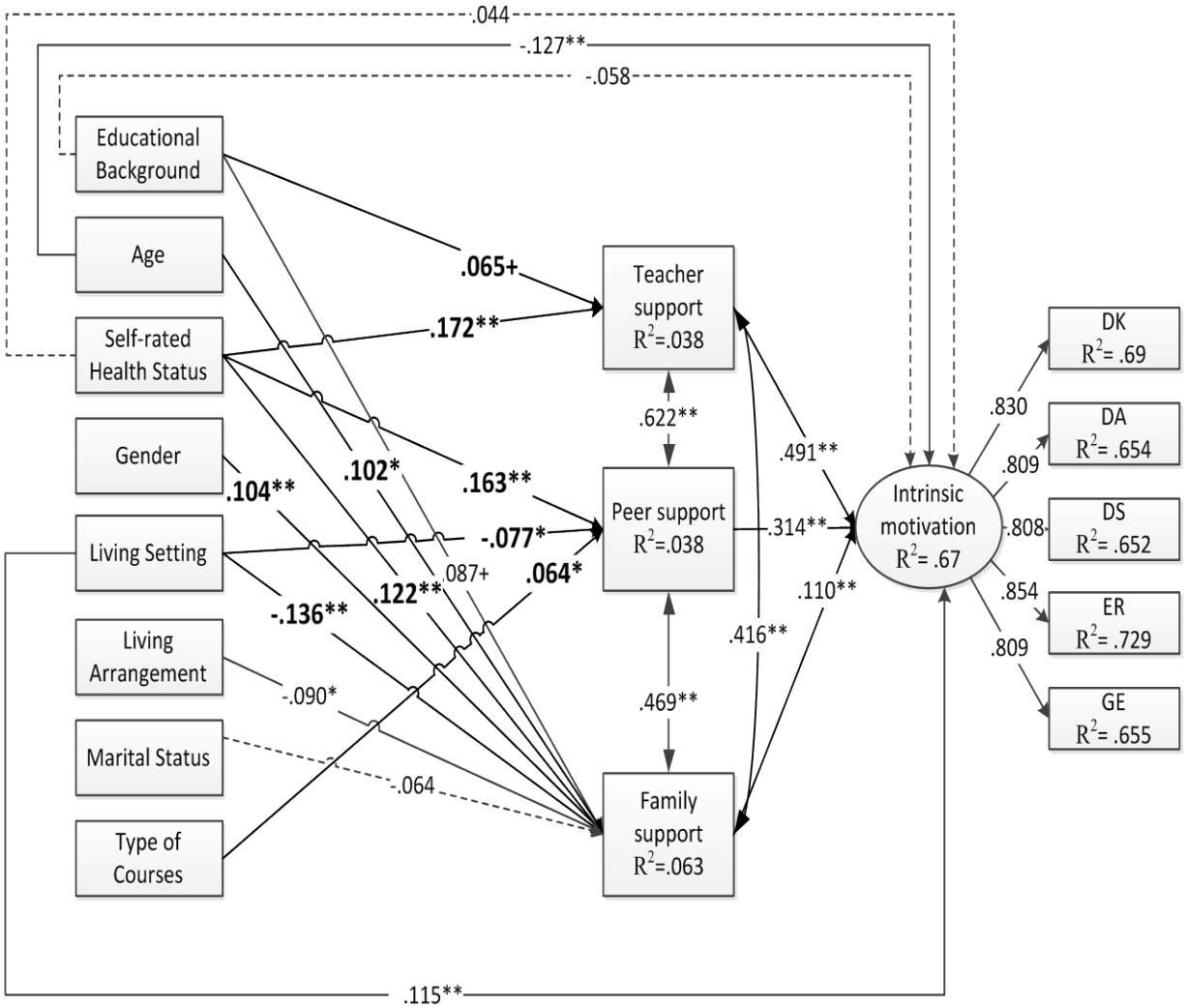


Figure 4.6. The Mechanism of Intrinsic Motivation to Learn. N=816. $^{**}p \leq .01$, $^{**}p \leq .05$, $+p \leq .10$ (two-tailed tests). Note: $x^2 = 168.626$, $df = 65$, $p = .000$, RMSEA = 0.054, CFI = 0.964. The use of boldface indicates that the test of mediating effect is significant.

Chapter Summary

The results from the analysis of the data for the three research questions were presented in this chapter. In summary, the major findings were: (a) older adult learners' scores on the five constructs of intrinsic motivations are high; specifically, the scores for *desire for stimulation* and *generativity* do not significantly decrease with age; (b)

institutional predictor variables, especially teacher support and peer support, are the strongest explanatory variables of the intrinsic motivation of older adult learners; and (c) teacher support, peer support, and family support mediated the relationship between older adult learners' personal predictor variables and intrinsic motivation to learn.

CHAPTER 5

DISCUSSION AND FINDINGS

This chapter provided the discussion and the findings of this study. It is divided into five major sections: overview of the study, summary of findings, conclusion, implications for practice and policy, and recommendations for future research.

Overview of the Study

The purpose of this study was to understand the intrinsic motivation of older adult learners in Taiwan. Older adult learners for this study are defined as learners over 65 years old. The three research questions guiding the study were:

1. What are the *intrinsic motivations to learn* for older adults in Taiwan?
2. To what extent can the *intrinsic motivation to learn* be explained by separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan?
3. To what extent are the relationships between personal predictor variables and *intrinsic motivation to learn* mediated by teacher support, peer support, and/or family support?

An on-line survey instrument was developed by the researcher to specifically address the three research questions by gathering data from older adult learners in Taiwan. The five intrinsic motivation constructs (*learning for new knowledge, learning for a sense of accomplishment, desire for stimulation, emotional regulation,* and *generativity*) comprised a composite theory developed through a review of the literature and

interactions with older adult learners. The questionnaire consisted of twenty eight items to measure the intrinsic motivation of older adult learners, eight items to measure personal predictor variables, seven items to measure teacher support, and five items to measure peer support.

Overall, 816 older adult learners participated in this study. The collection plan included an email survey invitation including a video appeal and the link to the survey, two email follow-up reminders, and an electronically transmitted thank you note. The data from the 816 usable surveys were entered into an SPSS 19.0 database for purposes of statistical analysis. In addition to descriptive statistics, the statistical analysis included (a) mean ranking, (b) bivariate analysis, (c) multiple regression analysis, and (d) path analysis. To address the first research question, the item means were calculated and rank-ordered. The second research question was addressed by multiple regressions to understand separated and combined personal predictor variables and institutional predictor variables of older adult learners in Taiwan. To answer the third research question, path analysis was performed to test the direct and indirect effect between variables.

Summary of Findings

What follows is a summary of the findings described in the previous chapter. It is organized according to the three research questions of this study.

Research Question 1

Research Question 1 of this study was "What are the *intrinsic motivations to learn* for older adults in Taiwan?" Older adult learners who responded to the questionnaire

demonstrated high intrinsic motivation in five constructs, on average; specifically, *desire for stimulation* (20.27) exhibited the highest item mean.

The results showed that the two highest ranking items measuring intrinsic motivation were "learning makes me feel happy" and "learning gives me an opportunity to exercise my brain," which are all measures of *desire for stimulation*. Overall, the ten highest ranked motivations included three of the five measures of *desire for stimulation* (learning makes me feel happy; learning gives me an opportunity to exercise my brain; learning makes me feel mentally stimulated), three of the seven measures for *generativity* (learning enables me to have a deeper relationship with my children and grandchildren; learning enables me to make important contributions to my family; learning enables me to have a better relationship with my family), and two of the five measures for *learning for a sense of accomplishment* (when I am learning, I feel proud of my own personal growth; when I am learning, I feel proud of my efforts). The other items in the top ten include one item for *emotional regulation* (learning helps me control my feelings in difficult situations) and one item for *desire for a new knowledge* (I like to acquire new knowledge).

Research Question 2

Research Question 2 of this study was "To what extent can the *intrinsic motivation to learn* be explained by personal predictor variables and institutional predictor variables separately and jointly?" To address this research question, bivariate analysis and multiple regressions were performed on each dependent variable.

Learning for new knowledge. The findings of the bivariate analyses showed that self-rated health status, age, educational background, family support, teacher support, and peer support are predictors of *learning for new knowledge*. For the multiple regression analysis, simultaneous and forward multiple regressions were performed. The result of simultaneous regression revealed that the inclusion of the institutional predictor variables in the equation improved the explanation of the variance in *learning for new knowledge*. Furthermore, according to the forward multiple regression, the best models for *learning for new knowledge* are teacher support, peer support, age and family support. This four-variable model explained 51.1% of the observed variance in the dependent variable *learning for new knowledge*.

Learning for a sense of accomplishment. The findings of the bivariate analyses showed that health status, family support, teacher support, and peer support are predictors of *learning for a sense of accomplishment*. For the multiple regression analysis, simultaneous and the forward multiple regressions were performed. The result of simultaneous regression revealed that the inclusion of the institutional predictor variables in the equation improved the explanation of the variance in *learning for a sense of accomplishment*. Furthermore, according to the forward multiple regression, the best models for *learning for a sense of accomplishment* of older adult learners are teacher support, peer support, and family support. This three-variable model explained 34.1% of the observed variance in the dependent variable *learning for a sense of accomplishment*.

Desire for stimulation. The findings of the bivariate analyses showed that health status, educational background, family support, teacher support, peer support, gender, and

type of courses are predictors of *desire for stimulation*. For the multiple regressions, simultaneous and the forward multiple regression were performed. The result of simultaneous regression revealed that the inclusion of the institutional predictor variables in the equation improved the explanation of the variance in *desire for stimulation*. Furthermore, according to the forward multiple regression, the best models for *desire for stimulation* are teacher support, peer support, self-rated health status and family support. This four-variable model explained 37.8% of the observed variance in the dependent variable *desire for stimulation*.

Emotional regulation. The findings of the bivariate analyses showed that health status, family support, teacher support, peer support, and type of courses are predictors of *emotional regulation*. For the multiple regressions, simultaneous and the forward multiple regression were performed. The result of simultaneous regression revealed that the inclusion of the institutional predictor variables in the equation improved the explanation of the variance in *emotional regulation*. Furthermore, according to the stepwise regression, the best model for *emotional regulation* included peer support, teacher support, and family support. This three-variable model explained 42.8% of the observed variance in the dependent variable *emotional regulation*.

Generativity. The findings of the bivariate analyses showed that health status, living arrangement, family support, teacher support, peer support, and type of courses are predictors of *generativity*. For the multiple regression analysis, simultaneous and the forward multiple regression were performed. The result of simultaneous regression revealed that the inclusion of the institutional predictor variables in the equation

improved the explanation of the variance in *generativity*. Furthermore, according to the forward multiple regression, the best model for *generativity* included teacher support, peer support, and family support. This three-variable model explained 46.5% of the observed variance in the dependent variable *generativity*.

Overall, the best model for explaining *total intrinsic motivation* included teacher support, peer support, family support and age. This four-variable model explained 52.6% of the observed variance in the dependent variable *total intrinsic motivation*.

Research Question 3

Research Question 3 of this study was "To what extent are the relationships between personal predictor variables and intrinsic motivation mediated by teacher support, peer support, and/or family support?" The researcher performed path analysis to answer this research question. The results of forward multiple regression in Research Question 2 indicated that teacher support, peer support, and family support were the three strongest explanatory variables for five intrinsic motivations. Additionally, the literature indicates the importance of teacher support, peer support, and family support for older adult learners' motivation. Thus, Research Question 3 treated teacher support, peer support, and family support as mediators in the path models.

Although the path analysis used for research question 3, it certainly more complete and more correct then the exploratory model utilized in research question 2. However, it must be noted that the path model is not designed for parsimony. That is, those people who interested in practice would benefit more from the best models that performed in research question 2. However, the scholar who interested in using the

instrument in the future would need to know the complete model that depicted in path analysis. The results of path analyses are as follows.

Learning for new knowledge as an endogenous variable. With regard to direct effect, age, living setting, teacher support, and peer support have a direct association with *learning for new knowledge*; family support approached a significant direct effect on *learning for new knowledge*. With regard to indirect effect, self-rated health status has a significant indirect effect on *learning for new knowledge* through teacher support and peer support; type of courses and living setting exerted a significant indirect effect on *learning for new knowledge* through peer support.

Learning for a sense of accomplishment as an endogenous variable. With regard to direct effect, age, self-rated health status, teacher support, peer support, and family support have a direct association with *learning for a sense of accomplishment*. With regard to indirect effect, self-rated health status has a significant indirect effect on *learning for a sense of accomplishment* through teacher support and peer support; educational background approached an indirect effect on *learning for a sense of accomplishment* through teacher support. Living setting exerted a significant indirect effect on *learning for a sense of accomplishment* through peer support; type of courses approached an indirect effect on *learning for a sense of accomplishment* through teacher support.

Desire for stimulation as an endogenous variable. With regard to direct effect, self-rated health status, living setting, teacher support, and peer support have a direct association with *desire for stimulation*. Family support approached a significant direct

effect on *desire for stimulation*. With regard to indirect effect, self-rated health status had a significant indirect effect on *desire for stimulation* through teacher support and peer support. Education background approached a significant indirect effect for *desire for stimulation* through teacher support. Also, living setting and type of courses approached significant indirect effects on *desire for stimulation* through peer support.

Emotional regulation as an endogenous variable. With regard to direct effect, educational background, age, living setting, teacher support, peer support, and family support have a direct association with *emotional regulation*. With regard to indirect effect, educational background and self-rated health status had a significant indirect effect on *emotional regulation* through teacher support; self-rated health status and living setting exerted significant indirect effects on *emotional regulation* through peer support; self-rated health status, gender, and living setting approach significant indirect effects on *emotional regulation* through family support.

Generativity as an endogenous variable. With regard to direct effect, living arrangement, type of courses, teacher support, peer support, and family support have a direct association with *generativity*. With regard to indirect effect, self-rated health status had a significant indirect effect on *generativity* through teacher support; self-rated health status, living setting, and type of courses exerted significant indirect effects on *generativity* through peer support. Also, gender and living setting had a significant indirect effect on *generativity* through family support; age approached a significant indirect effect on *generativity* through family support.

Total intrinsic motivation. With regard to direct effect, age, living setting, teacher support, peer support, and family support have a direct association with *total intrinsic motivation*. With regard to indirect effect, self-rated health status had a significant indirect effect on *total intrinsic motivation* through teacher support; self-rated health status, living setting, and type of courses exerted a significant indirect effect on *total intrinsic motivation* through peer support. Also, gender and self-rated health status have significant indirect effects on *total intrinsic motivation* through family support; age approached a significant indirect effect on *total intrinsic motivation* through family support.

Conclusions

The conclusions of this study are the result of this study, a thorough review of the relevant literature, and knowledge of the current situation of older adult learners in Taiwan. The following three conclusions will be discussed in this section.

1. The intrinsic motivations of older adult learners are high; the most salient motivations for older adult learners are the desire for stimulation and generativity.
2. Institutional predictor variables, especially teacher support and peer support, are the most important predictors of the intrinsic motivation of Taiwanese older adult learners.
3. Teacher support, peer support, and family support mediated the relationship between older adult learners' personal characteristics and intrinsic motivation to learn.

Conclusion 1-The intrinsic motivations of older adult learners are high; the most salient motivations for older adult learners are the desire for stimulation and generativity.

The strong intrinsic motivation of older adult learners has been confirmed by some research studies (Bynum & Seaman, 1993; Bye, Pushkar & Conway, 2007; Fujita-Stark, 1996; Kim & Merriam, 2004; Scala, 1996). These authors argued that older adult learners learn for the sake of learning. This notion is consistent with the findings of this research as evidenced by the comparatively high means of each item measuring the five constructs in this study. Among the five intrinsic motivations, the rank order of each construct of intrinsic motivation by its mean item mean is as follows: *desire for stimulation*, *learning for a sense of accomplishment*, *generativity*, *emotional regulation*, and *learning for new knowledge*.

Also, the strong intrinsic motivation of older adult learners might be explained by the cultural context because this study was conducted in Taiwan, which is rooted in Chinese culture. Li (2002) created the Chinese learning model to explain why Chinese people love to learn. Though the sample of Li's study was college students, the author found that Confucianism apparently shaped Chinese people's thinking and behavior during learning. In particular, she argued that under the influence of this established Confucian way of thinking, Chinese learners viewed learning as a lifelong process and continued to learn all their lives. This idea causes Chinese learners to cultivate a strong and stable inner desire and disposition for learning. They are motivated to improve

themselves continually. Therefore, the cultural context provides insight that allows us to better understand Taiwanese older adult learners' strong intrinsic motivation.

However, it is worthwhile to consider one important aspect regarding the development of the instrument used in this study. Although the items measuring the main constructs were all ranked high in this study, they were not marked uniformly, and there was some variation among the items. The high scores could be attributed to one or both of the following reasons. First, in the instrument development process, we successfully identified the important motivators. Second, social desirability might have elevated the scores of some items.

Furthermore, this study found that among the five intrinsic motivations, *desire for stimulation* and *generativity* are the most salient motivations for older adult learners. According to the findings of this study, age does not have a direct effect on either *desire for stimulation* or *generativity*. That is, the two intrinsic motivations did not decline with age in the learning context for older adult learns in this study. This finding is also supported by the literature. With regard to *desire for stimulation*, research has shown that cognitive interest provides the primary motivation for old adult learners, whether in nonformal learning settings (Brady & Fowler, 1988; Bynum & Seaman, 1993; Chiu, 1987; Furst & Steele, 1986; Kao, 2005; Kim & Merriam, 2004; Scala, 1996; Tasy, 2007; Tsu, 2004; Wei et al., 2006; Wolfgang & Dowling, 1981) or in formal educational settings (mostly at the college level) (Daniel, Templim, & Shearon, 1977; Dellmann-Jemkins & Papalia-Finlay, 1983; Kingston, 1982a; Morstain & Smart, 1974; Mulenga & Liang, 2008; Romaniuk & Romaniul, 1982). In this study, "learning makes me feel

happy, " "learning gives me an opportunity to exercise my brain," and "learning makes me feel mentally stimulated" are the three highest rating items, all of which belong to the construct *desire for stimulation* in this study.

Another salient motivation for older adult learners in this study is *generativity*, which was also supported by the literature of older adult development. In Erikson's (1950, 1986) and Vaillant's (2002) theories of psychosocial development, generativity is the main life task for older adults. More recently, Lang and Carstensen (2002) argued that in old age, the two subtypes of the category emotionally meaningful goals, regulation of emotions and generativity, rise from later adulthood into old age. Specifically, generativity goals have been found to be the most prominent in later adulthood (McADams, Harts, & Maruna, 1998). Similarly, in this study, *generativity* was found to be a salient motivation for older adult learners. However, the relationship between age and *emotional regulation* was not positive, as expected; that is, age had a negative relationship with *emotional regulation* in this study, perhaps due to culture differences. *Emotional regulation* refers to self-regulatory goals such as seeking to be in control over one's emotions, which is rooted in Western culture. However, in Asian cultures, where cultural collectivism is the norm, the motivation for older adults for self-regulation might not be strong compared to older adults in the West.

Last, this study found that *learning for new knowledge* declines significantly with age, a result that was not surprising. According to Carstensen's (1992) socioemotional theory, the knowledge trajectory of motivation starts high from the early years of life and declines gradually over the life course. This decreasing motivation to expand one's

horizons occurs because older adults are focused on the here and now, a valuable commodity in the face of limited time (Carstensen, 1992; Carstensen, & Jacobs, 1993; Carstensen, 1995; Carstensen, Isaacowitz, & Charles, 1999; Carstensen, Fung, & Charles, 2003; Fung & Carstensen, 2004).

Overall, that the Taiwanese older adult learners' intrinsic motivations are strong was demonstrated in this study. This trend not only confirmed that older adults have strong learning motivation but also suggests that Chinese learners cultivate a strong and stable inner desire and dispositions for learning. Furthermore, among the main five constructs of intrinsic motivations, *learning for new knowledge* declined with age, but *generativity* and *desire for stimulation* did not statistically decline in old age but remained stable. This motivation trend is specific to older adult learners compared to other age groups according to the studies by Carstensen and her colleagues, which argued that age is associated with increasing motivation to derive emotional meaning from life and decreasing motivation to expand one's horizons (Carstensen, 1992; Carstensen, & Jacobs, 1993; Carstensen, 1995; Carstensen, Isaacowitz, & Charles, 1999; Carstensen, Fung, & Charles, 2003; Fung & Carstensen, 2004).

Conclusion 2- Institutional predictor variables, especially teacher support and peer support, are the most important predictors of the intrinsic motivation of Taiwanese older adult learners.

A unique contribution of this study was the contextual influence on older adult learners. In particular, the importance of teacher support and peer support in supporting older adults' learning environments was demonstrated by this study. In fact, the benefits

of supports in learning settings for older adult learners was documented. Chappell, Hawke, Rhodes, and Soloman (2003) and Fry (1992) indicated that a climate that is safe, nonthreatening, and less formal, as provided by facilitators, is beneficial to older adult learners. Also, Delahaye and Ehrich (2008) and Donaldson (1999) mentioned that older learners report peer support, mentoring, and tutoring as being helpful. However, not many studies consider the further influence of types of support on different motivations. In this study, teacher support is the strongest explanatory variable for all intrinsic motivation except *emotional regulation*. That is, when teacher support is at a high level, the motivations of older adult learners increase. For *emotional regulation*, peer support is the strongest explanatory variable, which suggests that if we want to increase *emotional regulation* in older adults, providing peer support is the most effective strategy.

Furthermore, except for the supports in learning settings, family support was also found to be one of the important factors in facilitating intrinsic motivation for older adult learners, following teacher support and peer support in this study. Specifically, this study found that family support has a significant, positive association with age in terms of *generativity* and total intrinsic motivation. In other words, the older a Taiwanese adult learner is, the more important the family support. Actually, this notion could be supported by the research of social contact in aging. According to studies, as people get older, individuals gradually interact with fewer people as they deliberately withdraw from social contact in peripheral relationships, while maintaining or increasing involvement in relationships with close friends and family (Fingerman, Miller, & Charles, 2008; Fung et al., 2001; Ha, 2008; Lansford & Sherman, 1998; Potts, 1997; Yeung, Fung, & Lang, 2007).

By doing so, they can experience emotionally meaningful lives and gain more supportive relationships.

Overall, teacher support, peer support, and family support are important to Taiwanese older adult learners; however, this relationship in learning settings might be specific to Eastern culture. Li (2003) examined U.S. and Chinese concepts of learning using learning-related terms that were collected from U.S. and Chinese college students. She found that Chinese students mentioned the relationship between teacher and learner, but in Western culture, the relationship is mentioned less often. Additionally, Li (2002) clearly described how the setting for learning in Chinese is profoundly social. That is, Chinese learners are motivated by achieving happiness for themselves, but they feel gratitude toward their families' nurturing of good learning. Although Li focused on young students, this research found that interpersonal relationships are also important in older adult learning setting.

Conclusion 3-Teacher support, peer support, and family support mediated the relationships between older adult learners' personal characteristics and their intrinsic motivation to learn.

In this study, the indirect relationship of personal predictor variables with intrinsic motivation was tested. Some indirect relationships are worthy of discussion. First, although age has a directly negative effect on *learning for new knowledge*, *learning for a sense of accomplishment*, and *emotional regulation*, age also has an positive indirect effect on *total intrinsic motivation* and *generativity* through family support. That is, family support partially mediated the relationship between age and intrinsic motivation to

learn, including *total score of intrinsic motivation* as well as *generativity*. In other words, age did not necessarily cause intrinsic motivation to decrease. There is still a chance that with increased age, the intrinsic motivation of older learners can also increase if these learners receive family support.

Actually, some studies recognized that social support can help to older learners, but few studies use it to predict motivation to learn or treat it as mediator to predict motivation to learn. Leung, Chi, and Chiang (2008) studied seventeen Chinese retirees to explore their learning interests after retirement. They found that for Chinese older adult learners, their close relatives, such as children and spouses, could affect their learning decisions. Also, Chu (2010) studied Taiwanese older learners and found that emotional family support had both direct and indirect influence on older adults' perceived effects of e-learning. Socioemotional selective theory might provide a possible explanation as to why family support is so important to older adults. The authors of SST argued that those adults over 65 years of age had a tendency to turn toward close social relationships, specifically their family members or close friends, since they could provide emotionally meaningful and supportive relationships and experiences (Carstensen, Fung, & Charles, 2003; Fung, Carstensen, & Lang, 2001; Osborne, 2007). Therefore, emotional family support is important for older adults, and this support should cause older adult learners' intrinsic motivation to learn to increase. More importantly, family support for learners could be vital in Chinese culture. Li's (2004) study of Chinese young adults was directed at building a Chinese learning model. She found that relationships with family members were important to these learners; the importance of these relationships was clearly

evident in the gratitude of students toward their families' nurturing of their educational progress.

Second, in most situations in this study, the relationship between the living setting and intrinsic motivation to learn was partially mediated by peer support. On one hand, the living setting did have a positive direct relationship with intrinsic motivation; that is, the older adults who lived in densely populated areas (urban areas) had higher intrinsic motivation in comparison to those older adult learners who lived in rural areas. In the other hand, peer support partially medicated the relationship between living setting and intrinsic motivation to learn. Especially, the older adult learners in rural areas tended to receive more peer support, and when they had more peer support, they had higher intrinsic motivation. Older learners in urban areas tended to have less peer support; as a result, they tended to have lower intrinsic motivation to learn.

The importance of peer support for older adult learners was confirmed. Chu's (2010) study of Taiwanese adults found that peer support can predict individual internet self-efficacy and individual e-learning outcomes for people aged over 45. Li (2003) interviewed 122 Chinese college seniors to establish the Chinese leaning model. Also, Li indicated that ideal learners' learning-related affect is highly social and is shaped by and oriented toward the interrelations among themselves, their families, and their peers. Therefore, the relationship between peer support and motivation is clear. However, the question of who is more affected by peer support remains. Few studies treated peer support as a mediator to understand in what situations peer support can increase the motivation of older adults to learn. This study provided evidence for this gap and found

that peer support could influence older adults' motivation to learn in accordance to their different living areas (urban/rural).

Also, many studies demonstrated that teachers play an important role for older adult learners. As previously noted, a climate that is safe, nonthreatening, and less formal, as provided by facilitators, would be beneficial for older adult learners (Chappell, Hawke, Rhodes, & Soloman, 2003; Fry, 1992). Additionally, the importance of teacher support in educational settings was especially true in Chinese culture and was demonstrated by some researchers. Jin (2004) examined U.S. and Chinese concepts of learning using learning-related terms collected from U.S. and Chinese college students. She found that Chinese students mentioned the relationship between teacher and leaner prominently, but in Western culture, that relationship tends to be less prominent.

However, teacher support as a mediator has been rarely studied. In this study, teacher support fully mediated the relationship between self-rated health status and intrinsic motivation to learn. As a result, older adults who reported better health status were more likely to have higher teacher support, which led to the result of intrinsic motivation. Conversely, those who have poor self-rated health status had less teacher support, which resulted in lower intrinsic motivation. Therefore, teacher support played a vital role for those older adult learners who rated themselves as having poor health status. By increasing the teacher support, those unhealthy older adults might experience an increase in their intrinsic motivation.

Teacher support, peer support, and family support are all important for older adult learners; however, of these three supports, only age had a significantly positive

relationship with family support. This relationship means that the importance of family support increases as the age of older adult learners increases. Actually, teacher and peer support of older adult learners are not significantly related to age. SST provides the support for this notion; the author argued that the size of the social network of older adults diminishes as these adults grow older. That is, with age, individuals gradually interact with fewer people and tend to withdraw from social contact in peripheral relationships while they maintain or increase involvement in relationships with close friends and family (Fingerman, Miller, & Charles, 2008; Fung et al., 2001; Ha, 2008; Lansford & Sherman, 1998; Potts, 1997; Yeung, Fung, & Lang, 2007).

Implications for Practice and Policy

There are some practice and policy implications of this study for those seeking to enhance the intrinsic motivation of older adult learners.

Implication for Practice

This study confirmed that older adult learners have strong intrinsic motivation, particularly with regard to *desire for stimulation* and *generativity*, which remained stable as their age increased. Although *learning for new knowledge*, which was examined in this study, declined with age, this showed that older adults' motivation to learn might differ from the motivation of young older adults. The item mean in response to the statement "learning makes me happy" was the highest item mean of any item measuring intrinsic motivation in this study. Therefore, the acquisition of new knowledge may not be the primary motivation for older adult learners; the personally important motivations for them reside in the experiences that carry mental stimulation or emotional feeling.

Perhaps the notion that learning cannot occur in a vacuum might be more true for older adult learners. Based on the results of this study, the best strategy for adult educators who wish to enhance the motivation of older adults is to design programs or courses in which learning experiences can bring mental stimulation or emotional feeling, as well as to provide opportunities for older adults to connect to their family and society during the learning process.

Another key to enhancing older adult learners' motivation to learn is the utility of teacher support, peer support, and family support to foster older adults' motivation to learn. Based on Taiwanese culture, the social psychological development of older adults, and the findings of this study, we can say that older adults' learning is more effective with support and is less likely to occur without support. Without teacher, peer, or family support, unfortunately, older adult learners' motivation to learn might diminish. Adult educators and designers should provide these different supports for older adult learners to improve their motivation to learn.

Most importantly, the low intrinsic motivation of older adult learners who are disadvantaged could be improved through the support of teachers, peers, and family members. Here, *disadvantaged* refers specifically to those adult learners who are at the older-old or oldest-old age, live in rural areas, and whose self-rated health status is poor. According to the situation of a particular older learner, the degree to which these three sources of support could help would likely vary. For those older or oldest adult learners in this study, family support could help them to enhance their motivation to learn. According to the results of path analysis, as the age of older learners increases, family

support becomes more important; thus, with an increase in family support, their motivation might significantly increase. Therefore, adult educators should integrate family support into the learning program to enhance older adults' motivation to learn, encourage family members to support older adults, and allow family members to join the program. These support strategies will likely enhance older/oldest old learners' motivation.

For those older adults who live in rural areas in particular, peer support may be the best strategy to increase their motivation to learn. The results of this study showed that the more rural the area in which an older adult lived, the easier obtaining peer support was, and when older adult learners had more peer support, they had higher intrinsic motivations. Therefore, these data suggest that adult educators and program designers should be encouraged to utilize and even facilitate peer support during the learning process as an effective strategy for teaching older adult learners.

For those older adults who have poor self-rated health status, the results of this study suggest that this group of older adults perceived lower teacher and peer support, and the lower the support they perceived, the lower their motivation to learn. Therefore, providing teacher and peer support is the key that can increase the lower intrinsic motivation of older adults in the poor self-rated health category. Becoming knowledgeable about this relationship would encourage adult educators and program designers to pay more attention to those older adult learners in poor health.

Implication for Policy

According to the results of this study, older adult learners have high intrinsic motivation, and "learning makes me happy" is the first representative item for them. The results provide strong evidence that older adult learners desire to learn and that they feel happy when they are learning. Given the importance of older adults' well-being and health, it is necessary for the government to keep supporting older adults' learning in Taiwan. However, in order to encourage more older adults to enjoy leaning and to keep leaning, it is important to provide learning programs that are interesting, supportive, appropriate in the Taiwanese cultural context, and suitable for disadvantaged older adults. Specifically, an adequate number of well-trained teachers with strategies to enhance older adult learners' motivation is crucial. For example, the training could focus on highlighting the teacher-learner relationship in learning settings; building the teacher-learner, learner-learner relationship and even the relationship with the families of older adult learners; and establishing collaborative learning, which would give strong support to the continuity of learning for older adults.

Last, as a matter of social justice, disadvantaged older adults should receive greater attention with regard to educational policy. Specifically, developing a support system for disadvantaged older adult learners may be an effective way to enhance their motivation to learn. Based on the results of this study, if we can provide more supports for older adults who have lower intrinsic motivations—poor self-rated health status, living in rural areas, older or oldest old learners—their lower intrinsic motivation would be significantly improved.

Recommendations for Future Study

In this section, recommendations for future study are presented with particular focus on the following three aspects: (1) theoretical framework, (2) research context, and (3) study sample.

Theoretical Framework

The theoretical framework of this research was an integration of self-determination theory and socioemotional theory, with the purpose of building on previous research and more deeply understanding older adult learners' intrinsic motivation. However, some research also argued that older adults' instrumental or external motivations were important. Therefore, future research should include extrinsic motivation in contrast with intrinsic motivation of older adults in order to obtain a comprehensive understanding of older adult learners' motivation.

Furthermore, the relationship between interpersonal support and motivation needs further study. Though this study found that teacher, peer, and family support are important for enhancing older adult learners' motivation, it would be helpful if future studies could fully investigate how different functions of supports (e.g., informational support or emotional support) relate to each motivation. For example, Kim and Park (2006) suggested that for adult learning, emotional support is more important than information support.

Research Context

This research studied the motivation to learn in Taiwanese older adult learners and found that Taiwanese older adult learners' intrinsic motivations are high. Part of the

reasons for this trend may be due to the influence of Eastern culture, especially Confucianism. Therefore, it would also be important to investigate older adult learners in Western culture to see if the results are similar or if there are differences in older adult learners' motivation in Eastern and Western cultures. Actually, some psychological research has found that differences in concepts of learning exist in Western and Eastern cultures because the mental structures of learning and knowledge are different (Li, 2004). Chinese people, in particular, place a high value on learning (Biggs, 1996; Chao, 1996; Cheng, 1996; Fuligni, 1997; Li, 2001; D.Y.H. Wu & Tseng, 1985). Therefore, it would be meaningful if future research could compare the differences in older adult learners' motivation between Western and Eastern cultures.

Additionally, this study found that the relationship between social support and motivation is very important for older adult learners. However, some research has demonstrated that the relationship between social support and motivation in the U.S. context and the Chinese context is different because of different beliefs about learning, especially because the relationship between teacher and learner is not as strong in Western culture (Li, 2002). Therefore, it would be interesting to compare the relationship between social support and motivation to learn about differences between Eastern and Western cultures in future research.

Study Sample

This study found that older adult learners' motivations are high; also, previous studies demonstrated the strong intrinsic motivation of older adult learners. However, in order to study the trend of motivation to learn throughout life, future studies should

include different age groups to compare their motivations to obtain a comprehensive view of the motivation to learn.

Chapter Summary

This chapter included the summary and discussion of key findings. Specifically, three conclusion of this research are: (a) The intrinsic motivations of older adult learners are high; the most salient motivations for older adult learners are the *desire for stimulation* and *generativity*. (b) Institutional predictor variables, especially teacher support and peer support, are the most important predictors of the intrinsic motivation of Taiwanese older adult learners. (c) Teacher support, peer support, and family support mediated the relationship between older adult learners' personal characteristics and intrinsic motivation to learn.

Additionally, this study also has implications for practice and policy. First of all, an adequate number of well-trained teachers with strategies to enhance older adult learners' motivation is crucial. For example, the training could focus on highlighting the teacher-learner relationship in learning settings; building the teacher-learner, learner-learner relationship and even the relationship with the family of older adult learners; and establishing collaborative learning, which would give strong support to the continuity of learning for older adults. Most importantly, as a matter of social justice, disadvantaged older adults should receive greater attention in terms of educational policy. According to the result of this study, if we can provide more supports for older adults who have lower intrinsic motivations—poor self-rated health status, living in rural areas, older or oldest

old learners—their lower intrinsic motivation would be significantly improved. Last, the suggestions for future research were discussed in this chapter.

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APPENDICIES

APPENDIX A

INTRODUCTION of LRCAE

In 2008, the Educational Division of Taiwan's Ministry of Education established LRCAE as the primary education-oriented learning organization providing older adult learners opportunities for continued education. As a result, there are now thousands of learning activities provided by community centers, libraries, senior centers, and schools throughout Taiwan. LRCAE's history, organization, and curriculum are as follows.

History

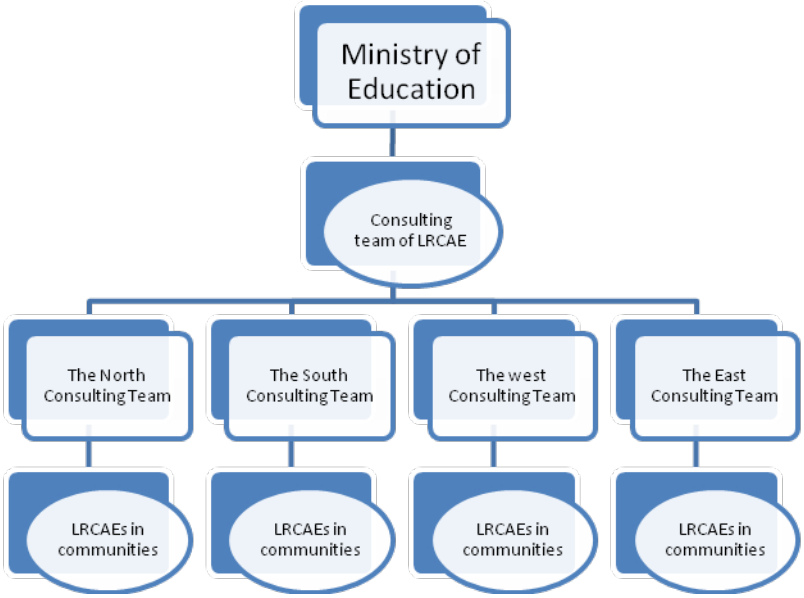
The Chinese name of LRCAE (Learning Resource Center for Active Elderly) is "樂齡", which derives from a respectful name given to older adults in Singapore and means "learning for happiness to forget the age".

The establishment of LRCAEs is based on the eighth action plan of the white paper entitled *Toward aged society: Policies on Education for Older Adults,* released by the Ministry of Education. In this action plan, to encourage more older adults to participate in learning activities, the government initiative, called One Town, called for the establishment of 368 LRCAEs in every town in Taiwan over a three-year span: 100 LRCAEs in 2008, 98 LRCAEs in 2009, and 100 LRCAEs in 2010. Under this policy, each LRCAE would be funded in the amount of US$15,151 annually. According to the Ministry of Education's document (2010), there were 104 LRCAEs founded during the initial year, 2008, and as of now, there are 205 LRCAE centers in Taiwan (Ministry of Education, 2010), most of them located in community centers, libraries, elderly centers,

and schools. Elementary and secondary schools were also encouraged, by local educational authorities, to transform their classrooms—vacant owing to the declining birth rate—into LRCAEs. About 20 schools responded to this policy (Huang, 2010; Ministry of Education, 2010).

Administration

In order to promote older adult education in Taiwan, the Ministry of Education made a systematic effort to implement the action plan based on the White Paper. Under the direction of Taiwan's Ministry of Education, a consulting team of experts was established and administered by the Department of Adult and Continuing Education at National Chung Cheng University to provide development, training, consultation, coordination, and evaluation for the LRCAEs. Furthermore, overseen by this team of experts, four regional consulting teams were also assembled to integrate the LRCAEs in every town. There is a hierarchy in place to implement the endeavors of older adult education by the Ministry of Education.

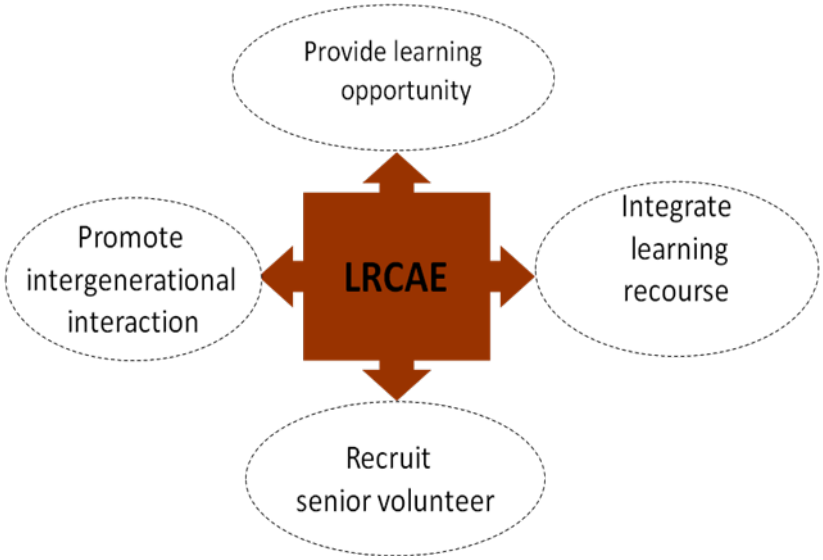


Hierarchy of Implementation of LRCAE by the Ministry of Education

Function

An LRCAE is a community-based resource center that not only provides multiple learning opportunities for older adults but also integrates the learning resources of a community to offer an informative social center for older adults. Specifically, the functions of an LRCAE are as follows:

- To provide learning opportunities for older adults, especially in art, travel learning, health and medical information, family relationships, leisure activities, life review, and computer courses.
- To recruit senior volunteers and tutors from the community to provide opportunities for engagement in the community, e.g., oral historian and cultural volunteer.
- To gather and integrate the variable learning resources for older adult learners in the community including senior center, community learning center for seniors, Toy Clinic Shop for seniors, social welfare unit, community college, and non-profit organization.



The Functions of LRCAE

Setting

The settings of LRCAEs are varied and are usually combined with existing units, including senior centers, non-profit organizations, community development associations, schools, etc., which were evaluated as offering high-quality learning opportunities and space for older adults by the government. Overall, LRCAEs are an expansion of existing services and provide integrated and multiple learning-related resources for older adults. Specifically, for some rural areas that are deficient in resources and facilities, schools and religious and social welfare facilities are selected as the settings for LRCAEs by the local government.

Curriculum/Course

The curriculum of an LRCAE is community-based and responds to local needs. Therefore, every LRCAE offers its own contributions to learning activities—one LRCAE,

one approach. Overall, the curriculums in an LRCAE are divided into four categories with opportunities for multiple and local-drive focusing.

- Political advocacy curriculum: includes policy explanation and the general assembly.
- Basic curriculum: includes language, health promotion, financial management, law, and tech classes.
- Special interest curriculum: includes specialty products, community culture, arts and crafts, and health promotion classes.
- Society contribution curriculum: includes volunteer training, leadership classes, educational issues, and life history.

APPENDIX B

THE ORIGINAL ITEMS, NEW ITEMS AND THE RATIONALE OF THE FIVE CONSTRUCTS

The Original Items, New items, and the Rationale of Learning for New Knowledge

Old item	New item	Rationale
In general, I do things because I like making interesting discoveries.	I like to make interesting discoveries.	(Reworded) In order to fit the learning context.
In general, I do things for the pleasure of acquiring new knowledge.	I like to acquire new knowledge.	(Reworded) In order to fit the learning context.
In general, I do things for the pleasure of learning different interesting facts.	I like to learn interesting new facts.	(Reworded) In order to fit the learning context.
	I like to learn new things even if they are not connected to my everyday life.	(Added) From older adult learners' experiences
	I like to keep up on current events.	(Added) From older adult learners' experiences.

The Original Items, New items, and the Rationale of Learning for a Sense of Accomplishment

Old items	New item	Rationale
In general, I do things because of the pleasure I feel as I become more and more skilled.	When I am learning, I feel proud of the things I can accomplish.	(Reworded) In order to fit the learning context.
In general, I do things for the pleasure I feel mastering what I am doing.	When I am learning, I feel proud of my increasing abilities.	(Reworded) In order to fit the learning context.
In general, I do things because of the satisfaction I feel in trying to excel in what I do.	When I am learning, I feel proud of my mental powers.	(Reworded) In order to fit the learning context.
In general, I do things because of the pleasure I feel from outdoing myself.	When I am learning, I feel proud of my efforts.	(Reworded) In order to fit the learning context.
	I like to learn because I experience personal growth.	(Added) Based on older adult learners' experiences and the literature on older adult learners.

The Original Items, New items, and the Rationale of Desire for Stimulation

Old items	New item	Rationale
In general, I do things in order to feel pleasant emotions.	Learning makes me feel emotionally stimulated.	(Reworded) In order to fit the learning context.
In general, I do things because of the sense of well-being I feel while I am doing them.	Learning makes me feel happy.	(Reworded) In order to fit the learning context.
In general, I do things for the enjoyable feelings I experience.	Learning makes me feel mentally stimulated.	(Reworded) In order to fit the learning context.
	Learning makes me feel excited.	(Added) Based on older adult learners' experiences and the literature on older adult learners.
	Learning gives me an opportunity to exercise my brain.	(Added) Based on older adult learners' experiences and the literature on older adult learners.

The Original Items, New items, and the Rationale of Emotional- Oriented Motivation: Emotional regulation

Old items	New item	Rationale
Be autonomous in my feelings.	Learning helps me control my feelings in difficult situations.	(Reworded) In order to fit the learning context.
Know more about myself and my feelings.	Learning helps me understand my own feelings.	(Reworded) In order to fit the learning context.
Have control over my feelings.	Learning helps me have better control over my emotions.	(Reworded) In order to fit in the learning context.
Not depend on someone else's feelings.	Learning helps me trust my own feelings rather than rely on others.	(Reworded) In order to fit in the learning context.
	Learning helps me control my feelings when dealing with difficult people.	(Added) Based on the theory.
	Learning helps me to understand the meaning in my life.	(Added) Fits with older adult learners' literature.

The Original Items, New items, and the Rationale of Generativity

Old items	New item	Rationale
Be available to others who need to be comforted.	Learning enables me to help other people.	(Reworded) In order to fit in the learning context.
Leave my mark on the world.	Learning enables me to contribute to society.	(Reworded) In order to fit in the learning context.
Share my knowledge and experience with others.	Learning enables me to teach other people important things.	(Reworded) In order to fit the learning context.
Help others to find their purpose in life.	Learning enables me to help other people find their purposes in life.	(Reworded) In order to fit the learning context.
	Learning enables me to have a better relationship with my family.	(Added) Drawn from the literature on older adult development and the experiences of older adult learners.
	Learning enables me to make important contributions to my family.	(Added) Drawn from the literature on older adult development and the experiences of older adult learners.
	Learning enables me to have a deeper relationship with my children and grandchildren.	(Added) Drawn from the literature on older adult development and the experiences of older adult learners.

APPENDIX C

CULTURE CRITIQUE SESSION

Learning for New Knowledge	
Definition: Engaging in learning in order to experience pleasure and satisfaction in researching or understanding something new and previously unknown.	
Item	**Correction Note**
1. I like to learn because I like making interesting discoveries.	
2. I like to learn for the pleasure of acquiring new knowledge.	
3. I like to learn for the pleasure of learning new and interesting things.	
4. I like to learn for the pleasure of learning various interesting facts.	
5. I like to learn new things that may not even be relevant to me.	
6. I like to learn for the pleasure that I experience in broadening my knowledge about subjects that appeal or are relevant to me.	
7. Continuing to learn allows me to remain current.	
8. I like to learn for the pleasure of acquiring new knowledge after joining in the learning activities.	

Learning for a sense of accomplishment	
Definition: Engaging in learning in order to experience pleasure and satisfaction in the process of achieving rather than through the outcome.	
Item	**Correction Note**
1. I like to learn because of the pleasure I feel as I become more and more adept at things.	
2. I like to learn for the pleasure I feel when I master a new skill.	
3. I like to learn because of the satisfaction I feel when I excel.	
4. I like to learn because of the pleasure I feel when I overachieve.	
5. I like to learn because it makes me feel enriched.	
6. I like to learn because I experience personal growth.	
7. Joining in learning activities helps me to achieve personal growth through learning.	

Desire for stimulation	
Definition: Engaging in learning in order to experience stimulating sensations (e.g., sensory pleasure, aesthetic experience, fun and excitement).	
Item	**Correction Note**
1. I feel pleasant emotions when I learn something.	
2. I like to learn because of the sense of well-being I feel as a result.	
3. I like to learn for the pleasant sensations I feel when I am learning.	
4. I like to learn for the enjoyable feelings I experience.	
5. I like to learn because learning is fun for me.	
6. I like to learn for the pleasure of being completely absorbed in something new.	
7. I like to learn for "a sense of well-being" that I experience while learning about interesting subjects.	
8. I like to learn because of the feelings I experience when I am discussing my ideas with others.	
9. I like to learn because it keeps the brain alive.	
10. I found that I like to learn for the pleasant sensations I feel when I am learning after I join in the learning activities.	

Emotional regulation	
Definition: Engaging in learning in order to seek control over one's emotions or seek meaningful emotional experiences.	
Item	**Correction Note**
1. When I am learning, I feel like I am autonomous.	
2. When I am learning, I feel like I can know more about myself and my feelings.	
3. When I am learning, I feel like I have better control over my feelings.	
4. When I am learning, I feel that I am not dependent on someone else's feelings.	
5. When I am learning, I feel a sense of accomplishment that I can still learn.	
6. I feel good when I am learning.	
7. Learning gives my life meaning.	
8. After joining the learning activities, I found that learning helps me find the meaning of life.	

Generativity	
Definition: Engaging in learning in order to experience being or becoming a keeper of meaning and taking responsibility for future generations.	
Item	**Correction Note**
1. Through learning, I am available to others who need to be comforted.	
2. Through learning, I feel I can leave my mark on the world.	
3. Through learning, I can share my knowledge and experience with others.	
4. Through learning, I can help others find their purpose in life.	
5. Through learning, I can experience more of life.	
6. In a class, I can be with people who value my opinion.	
7. I like to learn things related to my family.	
8. During the learning, I think of how I can share what I learned with my children and grandchildren.	
9. In a class, I like to learn things related to my children and grandchildren so that I can share with them after the class.	
10. After joining the learning activities, I found that I consider how I can share what I learned with my children and grandchildren.	

APPENDIX D

DIRECTIONS FOR VALIDITY SORT

STEP 1: LEARNING THE CATEGORIES. Study the five constructs on the envelopes. Spead the envelopes out on the table in front of you.

STEP 2: LEARNING THE ITEMS. Read each item (on the slips of paper).

STEP 3: SORT THE ITEMS INTO THE CATEGORIES. Sort each slip of paper into the appropriate category. Different categories can contain different numbers of items.
Don't place the item slips into the envelopes until all items are sorted. Group the slips by category, spreading them out so that you can see them all. Move items around among the categories until you think you have them all in the best place. Most items should fit into one of the four categories. However, if you cannot place an item into a category with confidence, place it in the "Unable to Sort" envelope. When you are done sorting, place the item slips into the appropriate envelopes.

STEP 4: PLACE EVERYTHING INTO THE LARGE ENVELOPE AND WRITE YOUR NAME AND DATE ON THE OUTSIDE.

THANKS FOR HELPING US WITH THIS IMPORTANT RESEARCH

-Yi-Yin Lin

APPENDIX E

VALIDITY SORTING ANALYSIS

Items	Construct 1 Learning for new knowledge	Construct 2 Learning for a sense of accomplishment	Construct 3 Desire for stimulation	Construct 4 Emotional regulation	Construct 5 Generativity	
12	795063218		4			9/10
18	795046318		2			9/10
10	7950463218					10/10
27	79504631		2			9/10
8	7950463218					9/10
9		7950463218				10/10
17	6	795043218				9/10
5		79546321	08			8/10
1		7950463218				10/10
16		79546321			0	9/10
22			7950463218			10/10
26			75046318	92		8/10
2		0	7563218	94		7/10*
21		0628	7531	94		4/10*
28			7950463218			10/10

13				7950463218		10/10
3			9	750463218		9/10
20				7950463218		10/10
15		5		790463218		9/10
7				795046318	2	9/10
6	3	54	62	791	0	3/10*
24					7950463218	10/10
14					7950463218	10/10
25					7950463218	10/10
4					7950463218	10/10
19				5	790463218	9/10
23					7950463218	10/10
11					7950463218	10/10

APPENDIX F

ENGLISH VERSION OF INSTRUMENT

The University of Georgia
College of Education
Lifelong Education, Administration, and Policy Department
Program in Adult Education

INTRINSIC MOTIVATION TO LEARN

Directions:

You are one of the lifelong learners, one who enjoys learning. Therefore, I invite you to participate in this study as your input is important and helpful. The knowledge gained from this study will hopefully improve the instructional design of learning activities for other older learners. Try to think of how you feel when you are learning. Then, look at the sentence below and decide how important each one is in your feeling when you are learning.

	Would you please tell us what classes are you taking this semester?	1. Life skill courses (e.g. adult basic class, math, health, financial plan et al.) 2. Expressive courses (language, singing, dance, exercise, art, computer et al.) 3. Volunteer related courses (volunteering, social service et al.) 4. Spiritual related courses (e.g. community affair, intergenerational activities, spiritual, career plan, meaning life et al.)

SECTION I: MOTIVATION TO LEARN

BELOW YOU WILL FIND STATEMENTS DESCRIBING THE MOTIVATION TO LEARN PLEASE READ EACH STATEMENT THAT DESCRIBES THE MOTIVATION TO LEARN AND CLICK ON THE BUTTON TO DECIDE HOW IMPORTANT TO YOU FOR THE EACH ONE OF THE MOTIVATIONS?

	(Please circle the number)	***Very Important Important Neutral Less Important Not Important***
1.	I like to make interesting discoveries.	□ □ □ □ □
2.	I like to acquire new knowledge.	□ □ □ □ □
3.	I like to learn interesting new facts.	□ □ □ □ □
4.	I like to keep up on current events.	□ □ □ □ □
5.	I like to learn new things even if they are not connected to my everyday life.	□ □ □ □ □
	(Please circle the number)	***Very Important Important Neutral Less Important Not Important***
6.	When I am learning, I feel proud of the things I can accomplish.	□ □ □ □ □
7.	When I am learning, I feel proud of my increasing abilities.	□ □ □ □ □
8.	When I am learning, I feel proud of my mental powers.	□ □ □ □ □
9.	When I am learning, I feel proud of my efforts.	□ □ □ □ □
10.	When I am learning, I feel proud of my own personal growth.	□ □ □ □ □

	(Please circle the number)	***Very Important Important Neurtal Less Importanty Not Important***
11.	Learning gives me an opportunity to exercise my brain.	□ □ □ □ □
12.	Learning makes me feel emotionally stimulated.	□ □ □ □ □
13.	Learning makes me feel excited.	□ □ □ □ □
14.	Learning makes me feel happy.	□ □ □ □ □
15.	Learning makes me feel mentally stimulated.	□ □ □ □ □

	(Please circle the number)	***Very Important Important Neurtal Less Importanty Not Important***
16.	Learning helps me control my feelings in difficult situations.	□ □ □ □ □
17.	Learning helps me understand my own feelings.	□ □ □ □ □
18.	Learning helps me have better control over my emotions.	□ □ □ □ □
19.	Learning helps me trust my own feelings rather than rely on others.	□ □ □ □ □
20.	Learning helps me control my feelings when dealing with difficult people.	□ □ □ □ □
21.	Learning helps me to understand the meaning in my life.	□ □ □ □ □

	(Please circle the number)	***Very Important Important Neurtal Less Important Not Important***
22.	Learning enables me to help other people.	☐ ☐ ☐ ☐ ☐
23.	Learning enables me to contribute to society.	☐ ☐ ☐ ☐ ☐
24.	Learning enables me to teach other people important things.	☐ ☐ ☐ ☐ ☐
25.	Learning enables me to help other people find their purposes in life.	☐ ☐ ☐ ☐ ☐
26.	Learning enables me to have a better relationship with my family.	☐ ☐ ☐ ☐ ☐
27.	Learning enables me to make important contributions to my family.	☐ ☐ ☐ ☐ ☐
28.	Learning enables me to have a deeper relationship with my children and grandchildren.	☐ ☐ ☐ ☐ ☐

SECTION II: INSTITUTIONAL PREDICTOR VARIABLES

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT INSTITUTIONAL INFORMATION. REMEMBER THAT YOUR ANSWERS ARE *COMPLETELY CONFIDENTIAL*.

	(Rating following)	***Very Important Important Neurtal Less Important Not Important***
1.	My instructor provides me choices and options.	□ □ □ □ □
2.	My instructor conveys confidence in my ability to do well during the learning.	□ □ □ □ □
3.	My instructor makes sure I understand the goals of the course and what I needed to do.	□ □ □ □ □
4.	My instructor encouraged me to ask questions.	□ □ □ □ □
5.	My instructor answers my questions fully and carefully.	□ □ □ □ □
6.	My instructor cares about me as a person.	□ □ □ □ □
7.	My instructor tries to understand how I see things before suggesting a new way to do things.	□ □ □ □ □
8.	My peers always support me during the learning process.	□ □ □ □ □
9.	My peers and I often discuss the class materials.	□ □ □ □ □
10.	My peers always give me positive feedback.	□ □ □ □ □
11.	My peers and I meet outside of the class.	□ □ □ □ □
12.	I like to interact with my peer during the learning process.	□ □ □ □ □

SECTION III: PERSONAL PREDICTOR VARIABLES

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOUR PERSONAL INFORMATION. REMEMBER THAT YOUR ANSWERS ARE COMPLETELY CONFIDENTIAL.

FAMILY SUPPORT		
Read each statement and click on the button that best describes your viewpoint		***Very Important Important Neurtal Less Important Not Important***
1.	My family members (grandchildren, son/daughter, spouse) support my learning.	☐ ☐ ☐ ☐ ☐
2.	My family and I talk about my learning experiences.	☐ ☐ ☐ ☐ ☐
3.	My family members are willing to listen to me share my learning experiences from class.	☐ ☐ ☐ ☐ ☐
4.	My family has given information to me about learning opportunities.	☐ ☐ ☐ ☐ ☐
5.	My family provides financial resources for my class.	☐ ☐ ☐ ☐ ☐
6.	My family provides transportation for me to attend the class.	☐ ☐ ☐ ☐ ☐

PERSONAL INFORMATION		
7.	What is your sex? (circle one number)	1. Female 2. Male
8.	What is your age? (write in number of years)	___years
9.	What is the highest educational degree you have attained?	1. Literate 2. Elementary 3. Junior high 4. Senior high 5. Bachelors 6. Master and above
10.	Which term best describes your home setting? (circle one number)	1. Rural 2.Suburban 3. Urban
11.	What is your current employment status? (circle one number)	1. Married 2. Separated 3. Single(never married) 4. Widowed 5. Divorced
12.	Which statement best describes your living arrangement?	1. Living with my spouse or partner only 2. Living with families (e.g. children, grandchildren or relatives) 3.Living with others (e.g., friends, non-relative roommate) 4. Living alone
13.	Which term best describes your health status?	1. Poor 2. Fair 3. Good 4. Excellent

THANK YOU FOR TAKING THE TIME TO COMPLETE THE SURVEY. YOUR INPUT IS GREATLY APPRECIATED.

APPENDIX G

BACK TRANSLATION

Learning for new knowledge			
Item	**Chinese**	**Translator 1**	**Translator 2**
1. I like to make interesting discoveries.	我喜歡探索及發現有趣的事物	I like to discover interesting things.	I like to explore and discover interesting things.
2. I like to acquire new knowledge.	我喜歡獲取新的知識	I like to gain new knowledge.	I like to acquire new knowledge.
3. I like to learn interesting new facts.	我喜歡學習有趣的新事物	I like to learn interesting new stuffs.	I like to learn interesting new things.
4. I like to keep up on current events.	我喜歡瞭解當前的時事	I like to know the updated news.	I like to learn current events.
5. I like to learn new things even if they are not connected to my everyday life.	我喜歡學習新的事物，即使它們跟我的日常生活沒有相關	I like to learn new things, even though these new things are not related to my daily life.	I like to learn new things even though I seldom use them in my everyday life.

Learning for a sense of accomplishment			
Item	**Chinese**	**Translator 1**	**Translator 2**
6. When I am learning, I feel proud of the things I can accomplish.	學習時，我對於自己所完成的工作或事項感到驕傲	I am proud of myself when I finished the things during learning.	When learning, I am proud of the jobs or items I completed.
7. When I am learning, I feel proud of my increasing abilities.	學習時，我對於自己逐漸進步的能力感到驕傲	I am proud of myself for making progress during learning.	When learning, I am proud of the ability of my gradually progressing.
8. When I am learning, I feel proud of my mental powers.	學習時，我對於自己的心智能力感到驕傲	I am proud of myself for having mental ability during learning.	When learning, I am proud of my mental ability.
9. When I am learning, I feel proud of my efforts.	學習時，我對於自己的努力感到驕傲	I am proud of myself for making the efforts during learning.	When learning, I am proud of my striving.
10. When I am learning, I feel proud of my own personal growth.	學習時，我對於自我的成長感到驕傲	I am proud of myself for making self-improvement during learning.	When learning, I am proud of my self-growth.

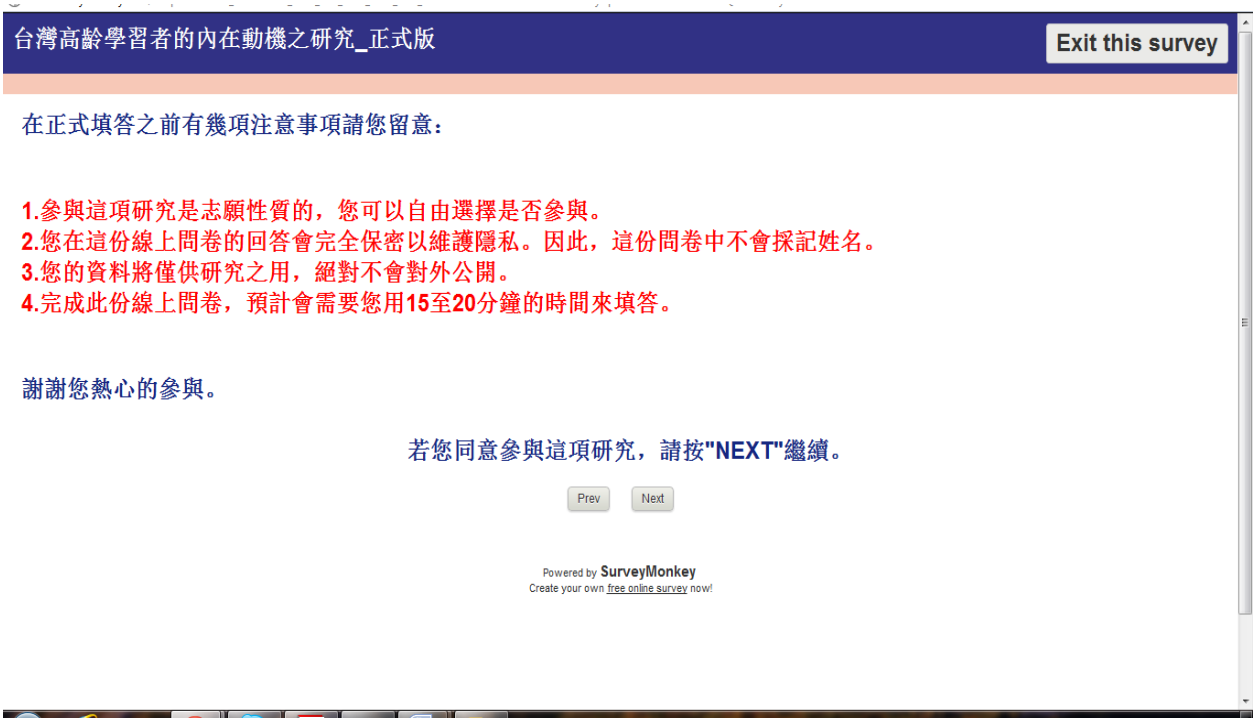
Desire for stimulation			
Items	**Chinese**	**Translator 1**	**Translator 2**
11. Learning gives me an opportunity to exercise my brain.	學習時，可以讓我有鍛鍊腦力的機會	I can train my brain during learning.	When learning, I obtain the opportunity of exercise my mental ability.
12. Learning makes me feel emotionally stimulated.	學習時，可以讓我有情緒上的感受與刺激	I can have emotional stimulation during learning.	When learning, I am provided with emotional perception and excitement.
13. Learning makes me feel exciting.	學習時，我有興奮的感覺	I feel excited during learning.	When learning, I have exciting feelings.
14. Learning makes me feel happy.	學習時，可以讓我感受到快樂	I feel happy when learning.	When learning, I feel happy.
15. Learning makes me feel mentally stimulated.	學習時，可以提供我心理上的感受與刺激	I can have mental stimulation during learning.	When learning, I am provided with psychological perception and excitement.

Emotional regulation			
Items	**Chinese**	**Translator 1**	**Translator 2**
16. Learning helps me control my feelings in difficult situations.	學習，能幫助我在面對困難時，控制自己的情緒	Learning can help me control my emotions when facing the difficulties.	Learning can help me control my emotions when I face difficulties.
17. Learning helps me understand my own feelings.	學習，能幫助我了解自己的感受	Learning can help me understand my feelings.	Learning can help me understand my own feelings.
18. Learning helps me have better control over my emotions.	學習，能幫助我控制自己的情緒	Learning can help me control my emotions.	Learning can help me control my own emotions.
19. Learning helps me trust my own feelings rather than rely on others.	學習，能幫助我相信自己的感受，並且不受他人影響	Learning can help me trust my own feelings without affecting by others.	Learning can help me trust my own feelings and keep me from being influenced by others.
20. Learning helps me control my feelings when dealing with difficult people.	學習，能幫助我在面對困難的人事時，仍能控制自己的情緒	Learning can help me control my emotions when dealing with difficult people.	Learning can help me control my emotions when I deal with difficult people.
21. Learning helps me to understand the meaning in my life.	學習，能幫助我認識與追尋生命的意義	Learning can help me know and search for the meaning of life.	Learning can help me recognize and pursue my life meanings.

Generativity			
Items	**Chinese**	**Translator 1**	**Translator 2**
22. Learning enables me to help other people.	學習，讓我感受到自己有能力幫助別人	Learning makes me feel that I can help people.	Learning allows me to feel I am able to help others.
23. Learning enables me to contribute to society.	學習，讓我感受到自己對社會有所貢獻	Learning makes me feel that I contribute to society.	Learning allows me to feel I can contribute myself to society.
24. Learning enables me to teach other people important things.	學習，讓我感受到自己有能力教導別人一些重要的事	Learning makes me feel that I can teach something important to others.	Learning allows me to feel I have ability to teach others some important things.
25. Learning enables me to help other people find their purposes in life.	學習，讓我感受到自己能幫助別人尋求生命的目標	Learning makes me feel that I can help others find their goal in life.	Learning allows me to feel I can help others to seek their life objectives.
26. Learning enables me to have a better relationship with my family.	學習，讓我感受到自己與家人的關係更親近	Learning makes me feel that I am closer to my family.	Learning allows me to feel the relationship between my family and me is closer.
27. Learning enables me to make important contributions to my family.	學習，讓我感受到自己對家人有重要的貢獻	Learning makes me feel that I can contribute something important to my family.	Learning allows me to feel I can contribution to my family is important.
28. Learning enables me to have a deeper relationship with my children and grandchildren.	學習，讓我感受到自己與孩子、孫子的關係更親近、更有意義	Learning makes me feel that I have closer and more meaningful parent (grandparent)-child relationship.	Learning allows me to feel that the relationships between my children and me and between my grandchildren and me are closer and more meaningful.

APPENDIX H

ONLINE SURVEY


台灣高齡學習者的內在動機之研究_正式版
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在正式填答之前有幾項注意事項請您留意：
1.參與這項研究是志願性質的，您可以自由選擇是否參與。
2.您在這份線上問卷的回答會完全保密以維護隱私。因此，這份問卷中不會採記姓名。
3.您的資料將僅供研究之用，絕對不會對外公開。
4.完成此份線上問卷，預計會需要您用15至20分鐘的時間來填答。
謝謝您熱心的參與。
若您同意參與這項研究，請按"NEXT"繼續。
Prev
Next
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台灣高齡學習者的內在動機之研究_正式版
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1. 首先，請問您目前所參與的課程主要是哪一類呢？(請選擇一類您經常參與的)
生活應用類課程(例如，識字班、法律常識、理財規劃、飲食與養生、健康與老化等課程)
情意類課程(例如，語言、唱歌、樂器演奏、運動、舞蹈、氣功、瑜珈、繪畫、手工藝品、電腦學習等課程)
志願服務與公共事務參與類課程(例如，志工活動、社區參與、社區營造等課程)
生命關懷類課程(例如，家庭與人際的相處、代間活動、人生哲學與宗教、生命意義與關懷等課程)
其他情形，請說明
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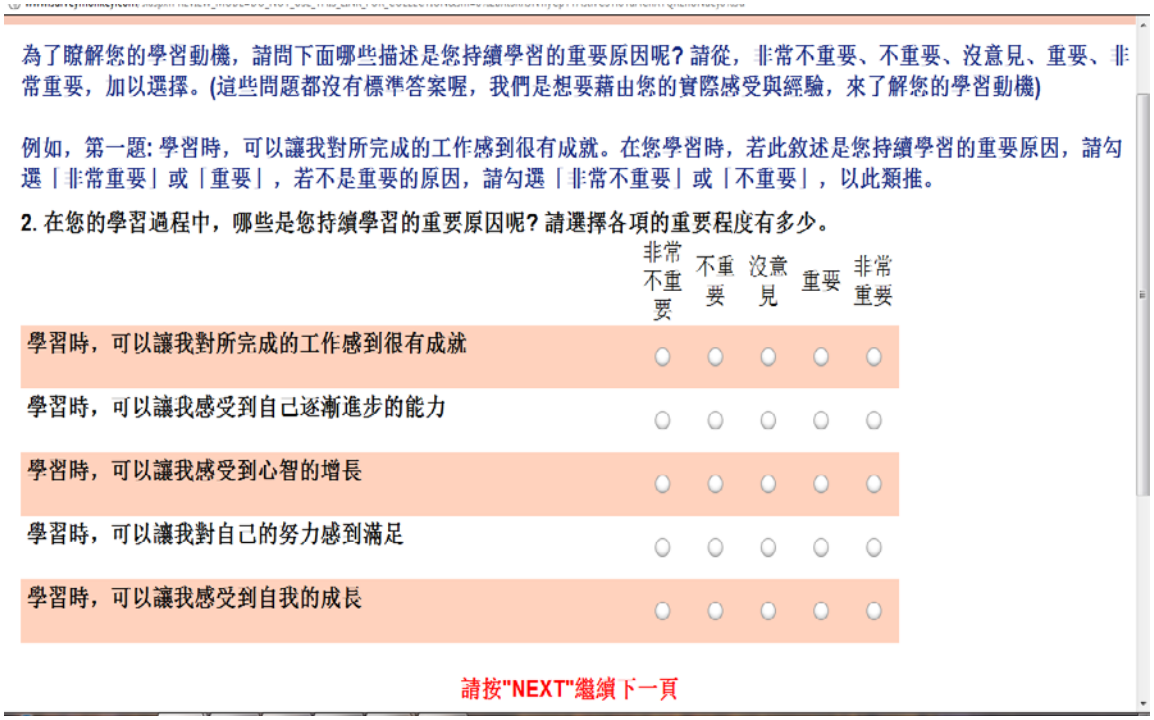

為了瞭解您的學習動機，請問下面哪些描述是您持續學習的重要原因呢? 請從，非常不重要、不重要、沒意見、重要、非常重要，加以選擇。(這些問題都沒有標準答案喔，我們是想要藉由您的實際感受與經驗，來了解您的學習動機)

例如，第一題: 學習時，可以讓我對所完成的工作感到很有成就。在您學習時，若此敘述是您持續學習的重要原因，請勾選「非常重要」或「重要」，若不是重要的原因，請勾選「非常不重要」或「不重要」，以此類推。

2. 在您的學習過程中，哪些是您持續學習的重要原因呢? 請選擇各項的重要程度有多少。

	非常不重要	不重要	沒意見	重要	非常重要
學習時，可以讓我對所完成的工作感到很有成就	○	○	○	○	○
學習時，可以讓我感受到自己逐漸進步的能力	○	○	○	○	○
學習時，可以讓我感受到心智的增長	○	○	○	○	○
學習時，可以讓我對自己的努力感到滿足	○	○	○	○	○
學習時，可以讓我感受到自我的成長	○	○	○	○	○

請按"NEXT"繼續下一頁

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台灣高齡學習者的內在動機之研究_正式版 Exit this survey

第一部分: 學習動機

3. 在您的學習過程中，哪些是您持續學習的重要原因呢? 請選擇各項的重要程度有多少。

	非常不重要	不重要	無意見	重要	非常重要
學習時，能讓我有動腦的機會	○	○	○	○	○
學習時，能讓我獲得情感上的經驗與刺激	○	○	○	○	○
學習時，能讓我有振奮的感覺	○	○	○	○	○
學習時，能讓我感受到快樂	○	○	○	○	○
學習時，能刺激與訓練我的腦力	○	○	○	○	○

請按"NEXT"繼續下一頁

Prev Next

台灣高齡學習者的內在動機之研究_正式版

Exit this survey

第一部分: 學習動機

4. 在您的學習過程中，哪些是您持續學習的重要原因呢? 請選擇各項的重要程度有多少。

	非常不重要	不重要	無意見	重要	非常重要
學習時，能讓我探索與發現新的知識	○	○	○	○	○
學習時，能讓我吸收新穎的、以前沒有學過的知識	○	○	○	○	○
學習時，能讓我接觸較時尚的、有趣的知識	○	○	○	○	○
學習時，能讓我瞭解當前的時事與趨勢	○	○	○	○	○
學習時，能讓我學習新奇的事物，即使與我的生活沒有關連。	○	○	○	○	○

請按"NEXT"繼續下一頁

Prev Next

台灣高齡學習者的內在動機之研究_正式版

Exit this survey

第一部分: 學習動機

5. 在您的學習過程中，哪些是您持續學習的重要原因呢? 請選擇各項的重要程度有多少。

	非常不重要	不重要	無意見	重要	非常重要
經由學習，能幫助我在有煩惱時，可以紓解與調適自己的情緒	○	○	○	○	○
學習時，能幫助我更了解自己的感受	○	○	○	○	○
學習時，能幫助我抒發與控制自己的情緒	○	○	○	○	○
學習時，能幫助我更相信自己的感受，並且不受他人影響	○	○	○	○	○
經由學習，能幫助我在面對憂慮不安的情況時，可以紓解與調整自己的情緒	○	○	○	○	○
學習時，能幫助我認識與探尋生命的意義	○	○	○	○	○

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6. 在您的學習過程中，哪些是讓您持續學習的重要因素呢? 請選擇各項的重要程度有多少。

	非常不重要	不重要	無意見	重要	非常重要
經由學習，讓我感受到自己有能力幫助別人	○	○	○	○	○
經由學習，讓我感覺有能力服務社會	○	○	○	○	○
經由學習，讓我感覺有能力教導別人一些事	○	○	○	○	○
經由學習，讓我感覺有機會協助他人尋求生命的目標	○	○	○	○	○
經由學習，讓我感受到與家人更加親近	○	○	○	○	○
經由學習，讓我感受到自己對家人的重要	○	○	○	○	○
經由學習，能讓我感受到自己與孩子、孫子女的關係更加和諧與有意義	○	○	○	○	○

請按"NEXT"繼續下一頁

第二部分：影響學習動機的機構因素

為了幫助我們了解影響您學習動機的機構因素，請閱讀以下的句子，然後依據您的實際情況來回答。

7. 教師的支持是影響學習動機的因素之一。請閱讀以下的句子：

若句子「非常符合」您的情況時，請勾選「非常重要」；
若句子「大致符合」您的情況時，請勾選「重要」；
若句子「不太符合」您的情況時，請勾選「不重要」；
若句子「完全不符合」您的情況時，請勾選「非常不重要」。

	非常不重要	不重要	無意見	重要	非常重要
在學習過程中，老師能彈性的提供不同的選擇。	○	○	○	○	○
在學習過程中，老師對我的學習能力是否充滿信心。	○	○	○	○	○
在學習過程中，老師會確認我是否了解課程的目標與學習的內容。	○	○	○	○	○

在學習過程中，老師會鼓勵我發問。	○	○	○	○	○
在學習過程中，老師會完整且謹慎的回答我的問題。	○	○	○	○	○
在學習過程中，老師會尊重每個人。	○	○	○	○	○
在學習過程中，老師會事先了解我對事物的看法，再給予新的建議。	○	○	○	○	○

請按"NEXT"繼續下一頁

Prev Next

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第二部分：影響學習動機的機構因素

8. 同儕的支持是影響學習動機的因素之一。請閱讀以下的句子，並依據您的情況加以回答：

	非常不重要	不重要	無意見	重要	非常重要
在學習過程中，同學們會互相的支持和幫助。	○	○	○	○	○
同學們之間能互相討論課堂中的學習內容。	○	○	○	○	○
在學習過程中，同學們能提供正面的回饋。	○	○	○	○	○
同學們會在課堂以外的地方見面或聚會。	○	○	○	○	○
在學習過程中，同學們之間會有互動與交流。	○	○	○	○	○

請按"NEXT"繼續下一頁

以下有幾項問題是關於您的個人背景資料。請您放心作答，本研究會對您的資料完全保密以維護隱私。

9. 以下是有關「家庭支持」的敘述，請閱讀以下的句子：

若句子「非常符合」您的經驗時，請勾選「非常同意」；
若句子「大致符合」您的經驗時，請勾選「同意」；
若句子「不太符合」您的經驗時，請勾選「不同意」；
若句子「完全不符合」您的經驗時，請勾選「非常不同意」。

	非常不同意	不同意	無意見	同意	非常同意
我的家人(配偶、子女與孫子女)支持我參與學習。	○	○	○	○	○
我的家人會與我談起我的學習經驗。	○	○	○	○	○
我的家人願意聽我分享在課堂中的學習經驗。	○	○	○	○	○
我的家人會提供我學習活動的訊息。	○	○	○	○	○
我的家人會提供經費以支持我的學習。	○	○	○	○	○
我的家人會提供交通工具讓我參加學習活動。	○	○	○	○	○

請按"NEXT"繼續下一頁

Prev Next

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第三部分：影響學習動機的個人因素

10. 請問您的性別是?

○ 男性
○ 女性

11. 請問您出生於民國幾年?

12. 請問您的教育程度是?

○ 不識字
○ 國小(含)以下
○ 國(初)中
○ 高中(職)
○ 大學/大專
○ 研究所(含)以上

請按"NEXT"繼續下一頁

13. 請問您目前所居住的區域是?

- ○ 鄉村
- ○ 郊區
- ○ 都會區

14. 請問您的婚姻狀態是?

- ○ 已婚，與配偶同住
- ○ 已婚，但與配偶沒住在一起
- ○ 單身(從未結過婚)
- ○ 配偶已過逝
- ○ 離婚
- ○ 其他情形，請說明

16. 您認為您目前的健康狀況是?

- ○ 欠佳
- ○ 普通
- ○ 良好
- ○ 非常良好

請按"NEXT"繼續下一頁

Prev Next

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台灣高齡學習者的內在動機之研究_正式版 Exit this survey

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因為有您的熱情參與，本研究得以對高齡學習者的內在動機有更進一步的了解，並有助於日後高齡學習課程與活動的設計與發展。

再次感謝！ 喬治亞大學終身教育、行政與政策系研究生 林宜穎敬上

完成時，請按"Done" 謝謝!

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APPENDIX I

IRB

PROJECT NUMBER: 2012-10054-0
TITLE OF STUDY: Intrinsic motivations of older adult learners in Taiwan
PRINCIPAL INVESTIGATOR: Dr. Lorilee R. Sandmann

Dear Dr. Sandmann,

Please be informed that the University of Georgia Institutional Review Board (IRB) reviewed and initially approved your above-titled proposal through the exempt (administrative) review procedure authorized by 45 CFR 46.101(b)(2) - Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, /unless:/ (i). the information obtained is recorded in such a manner that human participants can be identified, directly or through identifiers linked to the participants; /and /(ii). any disclosure of the human participants' responses outside the research could reasonably place the participants at risk of criminal or civil liability or be damaging to the participants' financial standing, employability, or reputation.

Please note there may still be revisions requested via email during the final approval process. Final approval will be granted by the IRB Chairperson and sent via campus mail.

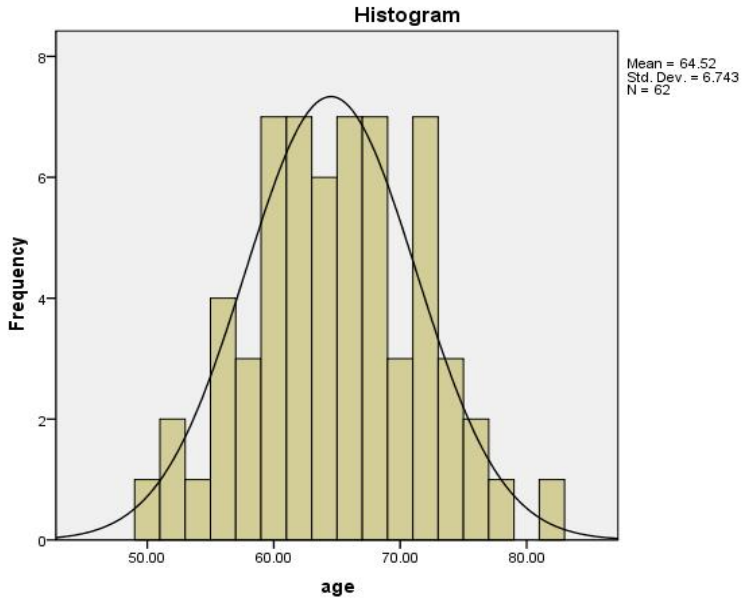
Please remember that no change in this research proposal can be initiated without prior review by the IRB. Any adverse events or unanticipated problems must be reported to the IRB immediately. The principal investigator is also responsible for maintaining all applicable protocol records (regardless of media type) for at least three (3) years after completion of the study (i.e., copy of approved protocol, raw data, amendments, correspondence, and other pertinent documents). You are requested to notify the Human Subjects Office if your study is completed or terminated.

Good luck with your study, and please feel free to contact us if you have any questions. Please use the IRB number and title in all communications regarding this study.

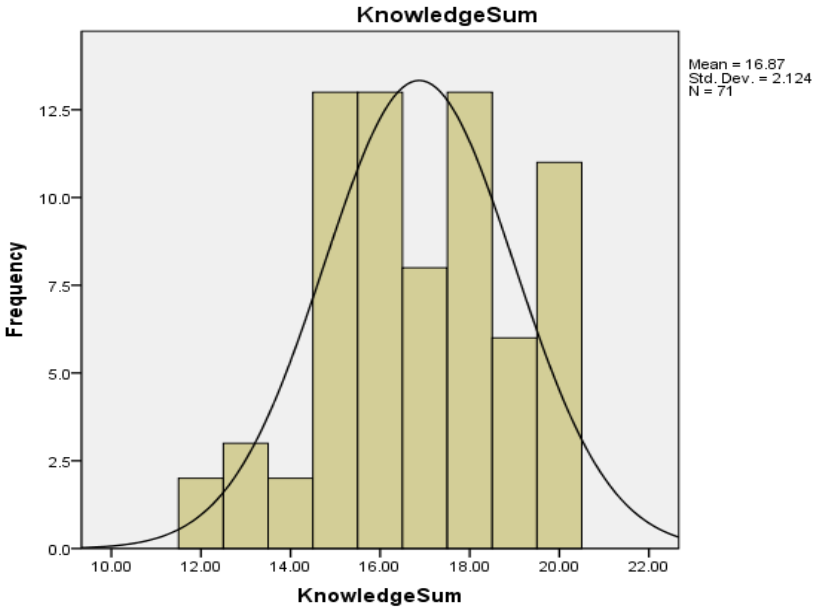
Sincerely,
LaRie Sylte
Human Subjects

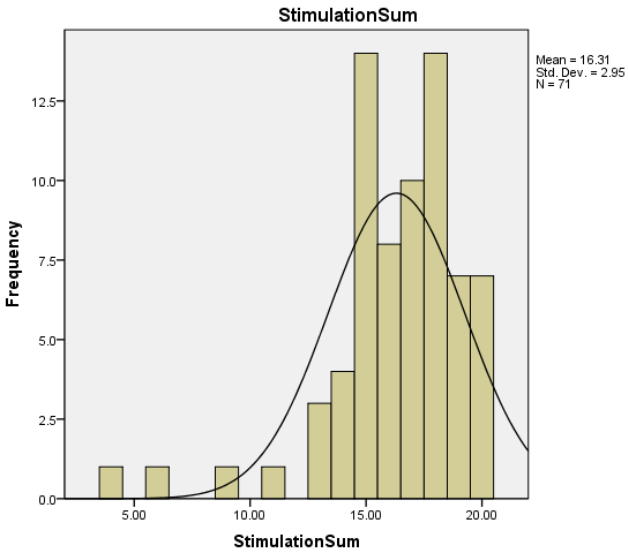
APPENDIX J

THE RESULT OF FIRST PILOT STUDY



The Age Distribution of Samples for the First Pilot Study

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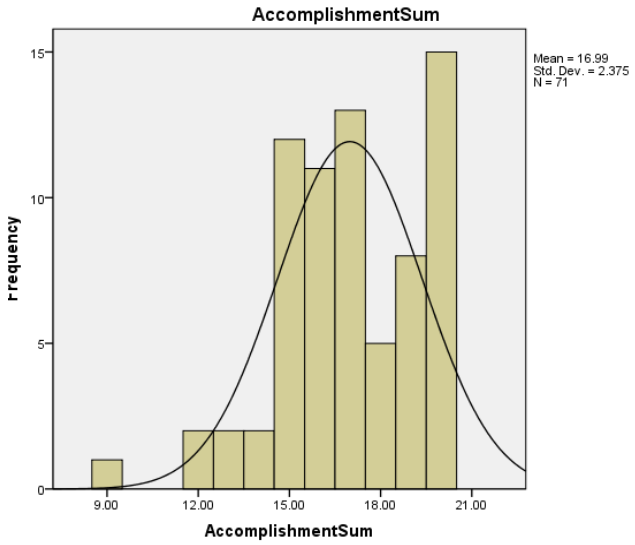
Std. Dev. = 2.95
N = 71
Frequency
StimulationSum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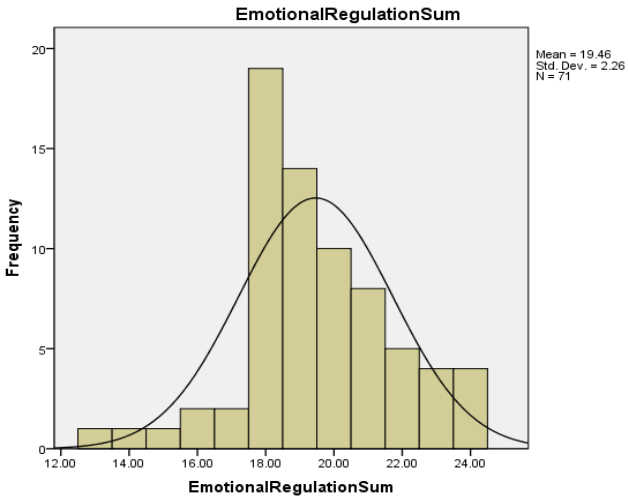
Std. Dev. = 2.375
N = 71
Frequency
AccomplishmentSum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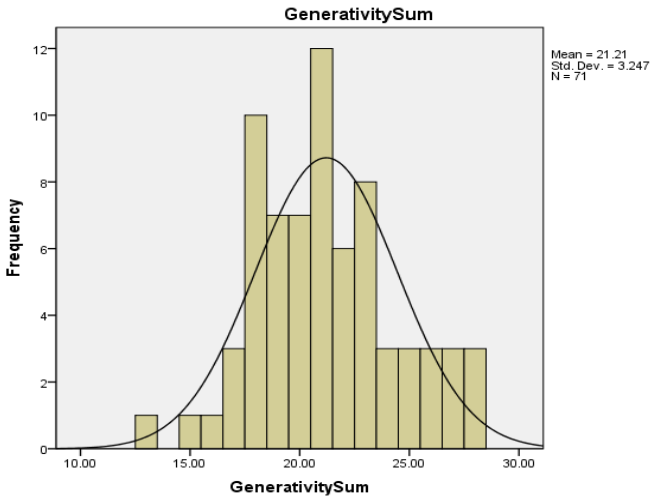
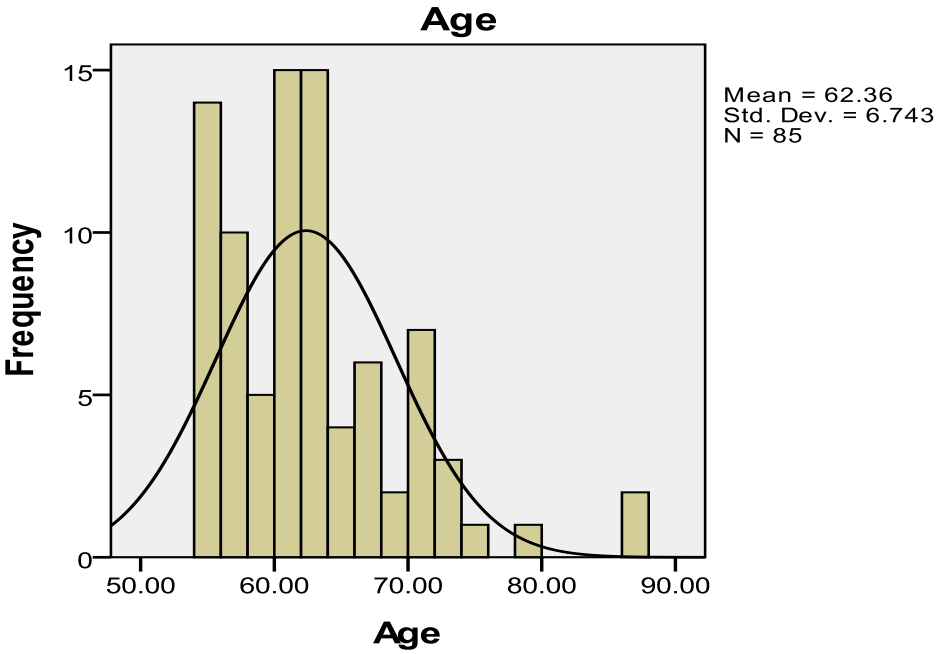
N = 71
Frequency
EmotionalRegulationSum


GenerativitySum
Mean = 21.21
Std. Dev. = 3.247
N = 71
Frequency
GenerativitySum

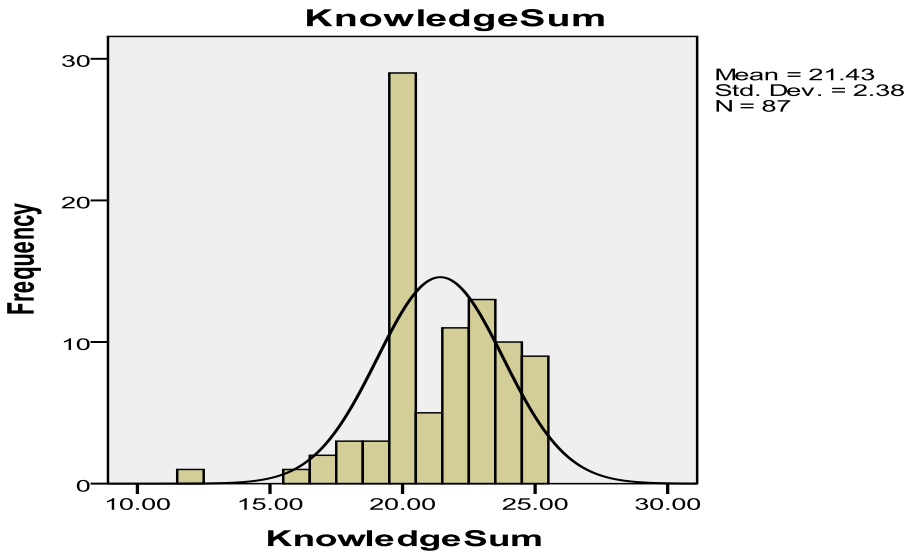
Background of first pilot Study Sample		Frequency	
		N	%
Educational background			
	Literate	2	2.9
	Elementary	14	20.6
	Junior high	7	10.3
	High school	22	32.4
	Bachelors	19	27.9
	Master and above	4	5.9
Living setting			
	Rural	13	19.1
	Suburban	11	16.2
	Urban	44	64.7
Marital			
	Married	50	73.5
	Separated	0	0
	Single(never married)	6	8.8
	Widowed	10	14.7
	Divorced	2	2.9
	Other	0	
Living arrangement	Living with my spouse or partner only	9	12.7
	Living with families (e.g. children, grandchildren or relatives)	43	60.6
	Living with others (e.g., friends, non-relative roommate)	4	5.6
	Living alone	9	12.7
	Other_____	2	2.8
Health status	Excellent	17	23.9
	Good	37	52.1
	Fair	13	18.3
	Poor	1	1.4

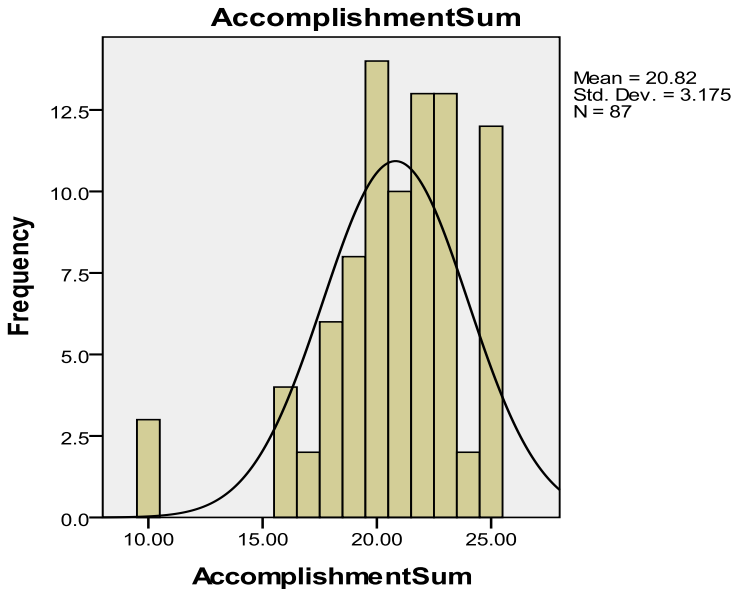
APPENDIX K

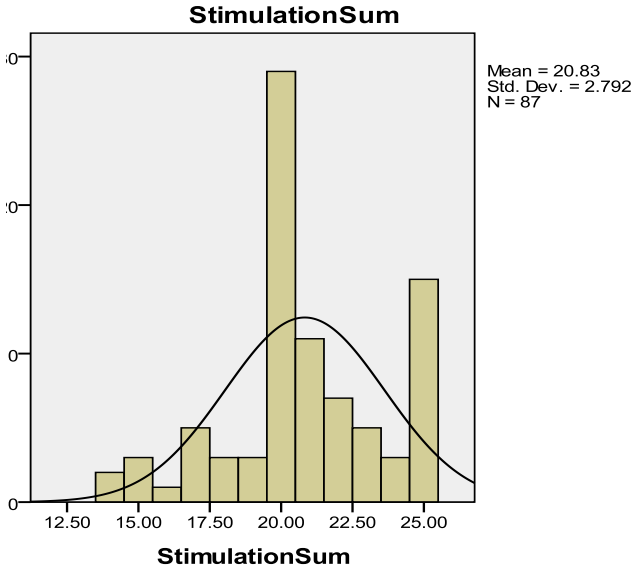
THE RESULT OF SECOND PILOT STUDY

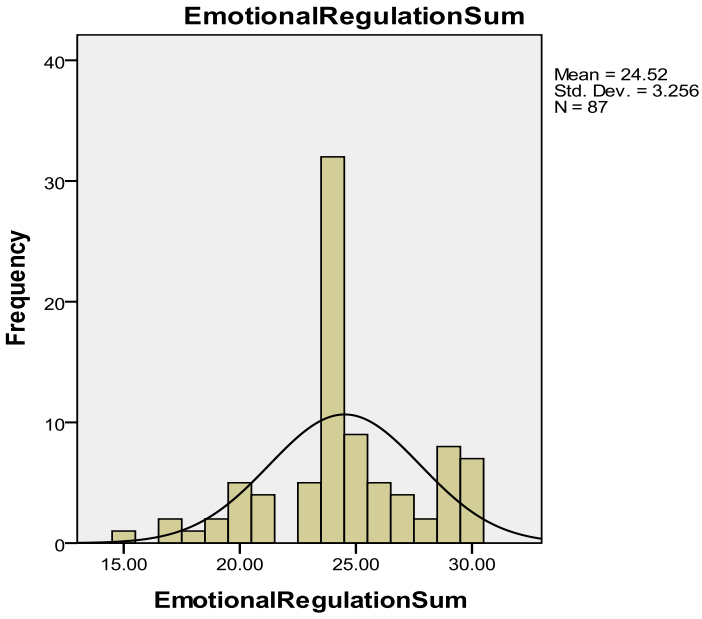


The Age Distribution of the Sample for the Second Pilot Study


KnowledgeSum
Mean = 21.43
Std. Dev. = 2.38
N = 87
Frequency
30
20
10
0
10.00
15.00
20.00
25.00
30.00
KnowledgeSum


AccomplishmentSum
Mean = 20.82
Std. Dev. = 3.175
N = 87
Frequency
AccomplishmentSum


StimulationSum
Mean = 20.83
Std. Dev. = 2.792
N = 87
StimulationSum


EmotionalRegulationSum
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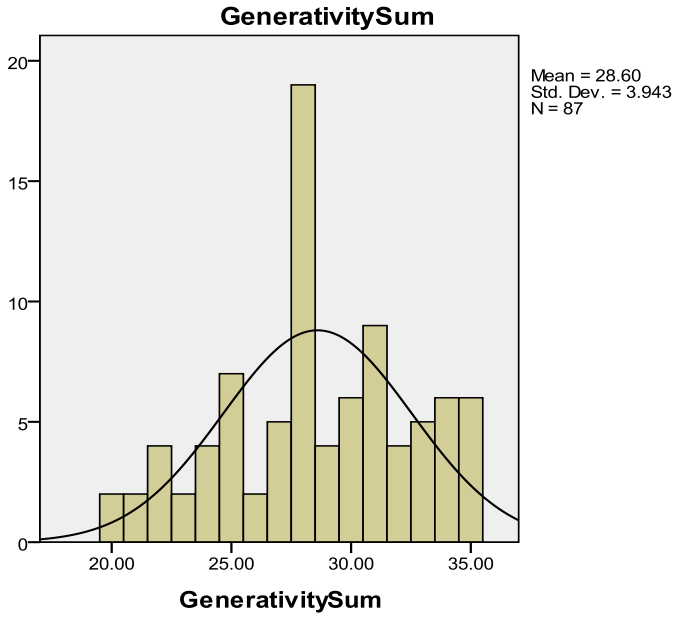
Std. Dev. = 3.256
N = 87
Frequency
EmotionalRegulationSum


GenerativitySum
Mean = 28.60
Std. Dev. = 3.943
N = 87
GenerativitySum

Background of second pilot study Sample		Frequency	
		N	%
Educational background			
	Literate	3	3.4
	Elementary	5	5.7
	Junior high	13	14.9
	High school	40	46.0
	Bachelors	25	28.7
	Master and above	1	1.1
Living setting			
	Rural	1	1.1
	Suburban	5	5.7
	Urban	81	93.1
Marital			
	Married	70	80.5
	Separated	5	5.7
	Single(never married)	11	12.6
	Widowed	1	1.1
	Divorced	4	3.4
Living arrangement	Living with my spouse or partner only	13	14.9
	Living with families (e.g. children, grandchildren or relatives)	72	82.8
	Living with others (e.g., friends, non-relative roommate)	2	2.3
	Living alone	0	0
Health status	Excellent	4	4.6
	Good	48	55.2
	Fair	33	37.9
	Poor	2	2.3

APPENDIX L

THE CHINESE VERSION OF INSTRUMENT

台灣高齡學習者的內在動機之研究

您好:

這份問卷的目的在於了解您學習時的內在動機。本問卷內容區分成以下三個部份：

第一部份是要了解您的學習動機；

第二部份是要了解影響學習動機的機構因素；

第三部份是要了解影響學習動機的個人因素。

以下各題沒有標準答案，請您盡可能回答每一個題目。本問卷是採不計名的方式實施，您的資料將僅供學術研究之用，絕對不會對外公開，所以請放心作答。感謝您撥空填答本問卷！

喬治亞大學終身教育、行政與政策系

研究生 林宜穎敬啟

在正式的題目開始之前，請先告訴我們您目前所參與的課程，主要是哪一類的呢? 請從下列四個選項中，勾選一項您所參與的課程類型。

(單選題)

□**生活應用類課程**(例如，識字班、法律常識、理財規劃、飲食與養生、健康與老化等課程)

□**情意類課程**(例如，語言、唱歌、樂器演奏、運動、舞蹈、氣功、瑜珈、繪畫、手工藝品、電腦學習等課程)

□**志願服務與公共事務參與類課程**(例如，志工活動、社區參與、社區營造等課程)

□**生命關懷類課程**(例如，家庭與人際的相處、代間活動、人生哲學與宗教、生命意義與關懷等課程)

第一部分: 學習動機

為了瞭解您的學習動機，請問下列有關學習動機的敘述，哪些是您持續學習的重要因素呢? 請勾選，非常不重要、不重要、沒有意見、重要、非常重要，來加以表示。**(這些問題都沒有標準答案喔，我們是想要了解您的實際感受與經驗)**

例如，第一題: *學習時，可以讓我對所完成的工作感到很有成就。*若此敘述是您持續學習的重要原因，請勾選「非常重要」或「重要」；若不是重要的原因，請勾選「非常不重要」或「不重要」，以此類推。

在您的學習過程中，哪些是讓您持續學習的重要因素呢? 請選擇各項的重要程度有多少。	**非常不重要**	**不重要**	**沒有意見**	**重要**	**非常重要**
1.學習時，可以讓我對所完成的工作感到很有成就	□	□	□	□	□
2.學習時，可以讓我感受到自己逐漸進步的能力	□	□	□	□	□
3.學習時，可以讓我感受到心智的增長	□	□	□	□	□
4.學習時，可以讓我對自己的努力感到滿足	□	□	□	□	□
5.學習時，可以讓我感受到自我的成長	□	□	□	□	□
6.學習時，能讓我有動腦的機會	□	□	□	□	□
7.學習時，能讓我獲得情感上的經驗與刺激	□	□	□	□	□
8.學習時，能讓我有振奮的感覺	□	□	□	□	□
9.學習時，能讓我感受到快樂	□	□	□	□	□
10.學習時，能刺激與訓練我的腦力	□	□	□	□	□

(後面還有題目喔，謝謝您)

（承上頁）

在您的學習過程中，哪些是讓您持續學習的重要因素呢? 請選擇各項的重要程度有多少。	非常不重要	不重要	沒有意見	重要	非常重要
11. 學習時，能讓我探索與發現新的知識	□	□	□	□	□
12. 學習時，能讓我吸收新穎的、以前沒有學過的知識	□	□	□	□	□
13. 學習時，能讓我接觸時尚的、有趣的知識	□	□	□	□	□
14. 學習時，能讓我瞭解當前的時事與趨勢	□	□	□	□	□
15. 學習時，能讓我學習新奇的事物，即使與我的生活沒有關連	□	□	□	□	□
16. 經由學習，能幫助我在有煩惱時，可以紓解與調適自己的情緒	□	□	□	□	□
17. 學習時，能幫助我更了解自己的感受	□	□	□	□	□
18. 學習時，能幫助我抒發與控制自己的情緒	□	□	□	□	□
19. 學習時，能幫助我更相信自己的感受，並且不受他人影響	□	□	□	□	□
20. 經由學習，能幫助我在面對憂慮不安的情況時，可以紓解與調整自己的情緒	□	□	□	□	□
21. 學習時，能幫助我認識與探尋生命的意義	□	□	□	□	□

（後面還有題目喔，謝謝您

（承上頁）

在您的學習過程中，哪些是讓您持續學習的重要因素呢? 請選擇各項的重要程度有多少。	非常不重要	不重要	沒有意見	重要	非常重要
22.經由學習，能讓我感受到自己有能力幫助別人	□	□	□	□	□
23.經由學習，能讓我感覺有能力服務社會	□	□	□	□	□
24.經由學習，能讓我感覺有能力教導別人一些事	□	□	□	□	□
25.經由學習，能讓我感覺有機會協助他人尋求生命的目標	□	□	□	□	□
26.經由學習，能讓我感受到與家人更加親近	□	□	□	□	□
27.經由學習，能讓我感受到自己對家人的重要	□	□	□	□	□
28.經由學習，能讓我感受到自己與孩子、孫子女的關係更加和諧與有意義	□	□	□	□	□

(後面還有題目喔，謝謝您)

第二部分: 影響學習動機的機構因素

教師/同儕的支持是影響學習動機的因素之一。請閱讀以下的句子：

對您而言，哪些教師/同儕的支持是重要的呢? 請選擇各項的重要程度有多少。	非常不重要	不重要	沒有意見	重要	非常重要
29. 在學習過程中，老師能彈性的提供不同的選擇	☐	☐	☐	☐	☐
30. 在學習過程中，老師對我的學習能力充滿信心	☐	☐	☐	☐	☐
31. 在學習過程中，老師會確認我是否了解課程的目標與學習的內容	☐	☐	☐	☐	☐
32. 在學習過程中，老師會鼓勵我發問	☐	☐	☐	☐	☐
33. 在學習過程中，老師會完整且謹慎的回答我的問題	☐	☐	☐	☐	☐
34. 在學習過程中，老師會尊重每個人	☐	☐	☐	☐	☐
35. 在學習過程中，老師會事先了解我對事物的看法，再給予新的建議	☐	☐	☐	☐	☐
36. 在學習過程中，同學們會互相的支持和幫助	☐	☐	☐	☐	☐
37. 在學習過程中，同學們之間能互相討論課堂中的學習內容	☐	☐	☐	☐	☐
38. 在學習過程中，同學們能提供正面的回饋	☐	☐	☐	☐	☐
39. 同學們會在課堂以外的地方見面或聚會	☐	☐	☐	☐	☐
40. 在學習過程中，同學們之間會有互動與交流	☐	☐	☐	☐	☐

第三部分：影響學習動機的個人因素

個人的背景與特質也會影響學習的動機。以下有幾項問題是關於您的個人背景資料。請您放心作答，本研究會對您的資料完全保密以維護隱私。

以下是有關「家庭支持」的敘述，請閱讀以下的句子：

若句子「非常符合」您的經驗時，請勾選「非常同意」；若句子「大致符合」您的經驗時，請勾選「同意」；若句子「不太符合」您的經驗時，請勾選「不同意」；若句子「完全不符合」您的經驗時，請勾選「非常不同意」。	**非常不同意**	**不同意**	**沒有意見**	**同意**	**非常同意**
41. 我的家人(配偶、子女與孫子女)支持我參與學習	□	□	□	□	□
42.我的家人會與我談起我的學習經驗	□	□	□	□	□
43.我的家人願意聽我分享在課堂中的學習經驗	□	□	□	□	□
44.我的家人會提供我學習活動的訊息	□	□	□	□	□
45.我的家人會提供經費以支持我的學習	□	□	□	□	□
46.我的家人會提供交通工具讓我參加學習活動	□	□	□	□	□

47. 請問您的性別是? 男□ 女□

48. 請問您出生於民國幾年? **民國□□年**

49. 請問您的教育程度是?

(1)□不識字 (2)□國小(含)以下 (3)□國(初)中

(4)□高中(職) (5)□大學/大專 (6)□研究所(含)以上

50. 請問您目前所居住的區域是?

(1)□鄉村 (2)□郊區 (3)□都會區

51. 請問您目前的婚姻狀態是?

(1)□已婚，與配偶同住 (2)□已婚，與配偶沒住在一起

(3)□單身(從未結過婚) (4)□配偶已過逝 (5)□離婚

(6)□其他情形，請說明:

52. 請問您目前的居住安排是?

(1)□僅與配偶或同居人同住

(2)□與家人同住(包括子女、孫子女或其他親人等)

(3)□與其他人同住(包括朋友、非親屬關係的室友等)

(4)□獨居

(5)□其它情形。請說明:

53. 您認為您目前的健康狀況是?

(1)□ 欠佳 (2)□ 普通 (3)□ 良好 (4)□ 非常良好

問卷到此結束，感謝您寶貴的時間！

因為有您的熱心參與，本研究得以對高齡學習者的內在動機有更進一步的了解，並有助於日後高齡學習課程與活動的設計與發展。

再次感謝！

喬治亞大學終身教育、行政與政策系

研究生 林宜穎敬啟

APPENDIX M

LETTER TO DIRECTOR OF LRCAE

To whom it may concern,

Currently, Taiwan is facing the fastest aging pace in the world and we need to learn about this phenomenon in order to better address this challenge. Both in Taiwan and in many developed countries, older adult learners' motivation is an important topic that we need to understand in order to provide more elder-friendly learning programs.

My name is Yi-Yin Lin. I am a Taiwanese woman who is studying in a doctoral program in Adult Education at the University of Georgia in the United States under the supervision of Professor Lorilee R. Sandmann. My research interest is to investigate older adults' intrinsic motivation to learn in Taiwan. Therefore, I sincerely request your support in this research. I am reaching the point where I am ready to collect data for my dissertation study and need to identify suitable research participants. I expect to begin by research in july 2011. I am writing to you to request permission to collect data in LRCAE and to seek your assistance in informing the instructors of the class that might join in this study. Participants in this study are no limitation in terms of religion, previous education, socioeconomic status.

Please reply this mail to me (yiyin@uga.edu) if you agree to support this study.

Thanks again for your support!
Sincerely,

Yi-Yin Lin
Ph.D. student, Program in Adult Education,
Department of Lifelong Education, Administration, and Policy
University of Georgia, USA

APPENDIX N

LETTER TO INSTRUCTOR OF LRCAE

Dear XXX,

My name is Yi-Yin, Lin. I am a Taiwanese woman who is studying in a doctoral program in Adult Education at the University of Georgia in the United States. Currently, Taiwan is facing the fastest aging pace in the world and we need to learn about this phenomenon in order to better address this challenge. Both in Taiwan and in many developed countries, older adult learners' motivation is an important topic that we need to understand in order to provide more elder-friendly learning programs. Therefore, my research interest is to investigate older adults' motivation to learn in Taiwan. I sincerely need your support to this research and survey process.

I have now reached the point where I am ready to collect data for my dissertation and I am very interested in surveying the students in your class. Also, I would like to know what dates and times would be best to survey your students. Be assured that the university and my advisor in particular have reviewed my survey instrument for sensitivity and correctness as regards this particular population of older citizens. The survey will take twenty minutes to complete.

The link to this survey is:

Please let me know if you need paper questionnaires instead of on-line survey.

Thanks again for your support!
Sincerely,

Yi-Yin Lin
Doctoral Candidate, Adult Education
Department of Lifelong Education, Administration, and Policy
University of Georgia, USA

APPENDIX O

VIDEO SCRIPT

Hello everyone! My name is Yi-Yin Lin from Taiwan and I am now studying in a doctoral program in Adult Education at the University of Georgia in the United States. Currently, I am doing my dissertation and I am so glad that I can focus on Taiwanese older adults as my research subjects. I know you are all lifelong learners and enjoy learning. Today, I need your opinions to help me to understand your motivation to learn by completing a questionnaire. My research topic is to investigate older adults' intrinsic motivation to learn in Taiwan.

Before telling you how to complete this survey, there are some concerns that I should let you know. First, your participation in this study is strictly voluntary. If you agree to participate, you are asked to complete a questionnaire which should take less than twenty minutes to complete. As you will see, you are not asked to provide your name or any personally identifiable information on this questionnaire, so your answers are anonymous. Second, we hope that you will complete the entire questionnaire; however, you may skip any questions that makes you feel uncomfortable. Third, participating in this study may be beneficial to you. Because this research aims to investigate older adult learners' intrinsic motivation, it will provide implication for elder-friendly programs in the future.

Now, I will introduce how to complete this survey, if you have any questions, feel free to ask the instructor at anytime. First, everyone should receive a link to the on-line survey. Second, the first section of the questionnaire is demographic background. Everyone just

fill out the items according to your real situation. Third, the second section of the questionnaire is asking your motivation to learn. Please circle the number from 1 to 4 to express the degree of your agreement with each item. For example, the first item is "I like to make interesting discoveries." If you totally agree with this sentence, please select 4 as strongly agree. However, if you are absolutely not agree with this sentence, please select 1 as strongly disagree. Forth, when you complete the questionnaire, please submit it on-line.

I really appreciate your time and work. However, should you be uncomfortable about completing the questionnaire, simply leave. If you have any questions about this research-now or in the future- please contact me via telephone (706-461-4046) or by email at yiyin@uga.edu. Also, my major Professor for this study, Dr. Sandmann, can be contacted at the Department of Adult Education, 407 River's Crossing, The University of Georgia, Athens, GA 30602 or by email at sandmann@uga.edu.

Please note: Completion and return of this questionnaire implies that you have read this information and consent to participate in the research.

Thank you for your help with this important research.

Sincerely,

Yi-Yin Lin
Ph.D. student, Program in Adult Education,
Department of Lifelong Education, Administration, and Policy
University of Georgia, USA