Study of Senior Citizens Learning Performance in Taiwan

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Abstract

This research focuses on the plan by this university regarding the senior university programs. Results show that the Ministry of Education's Senior University project is based on the integration of both software and hardware equipment and teachers and learning resources in universities and colleges. Therefore, each school should not only offer introductory or basic courses on topics that fulfill the education needs of "healthy" and "sub-healthy" senior learners, but also endeavor to undertake content development regarding variations in the features of university learning, the individual features of separate schools, and intergenerational learning to subsequently highlight the learning effectiveness of the Senior University project compared to that of other senior learning channels. Since 2009, a total of 137 elderly people have participated in the senior university program at Chaoyang University of Technology. The number of female participants exceeded that of males, with males comprising less than a quarter of the participants.

Keywords: senior citizen learning, learning needs, satisfaction, loneliness

1. Introduction

In 1993 the senior citizen population in Taiwan surpassed 7% of the total population of Taiwan, making Taiwan an aging country, and by the end of 2008 the senior citizen population had surged to 10.43% of the total population. It is estimated that by 2018, the senior citizen population in Taiwan will increase to 14% of the total, officially making Taiwan an aged society, and a fact which illustrates the reality that Taiwan is faced with the problem of an aging population structure. In recent years, due to the fact that members of the baby boom generation after World War II have been entering their old-age period, the signs of population aging in Taiwan have become more and more apparent. The senior citizen population will increase from 2.73 million (11.6%) by 2014 to 3.92 million (16.54%) by 2021, and by 2025, the senior citizen population will reach 20% of the total population of Taiwan—that one out of five Taiwanese will be a senior citizen. Taiwan will at that time become a super-aged country (Council for Economic Planning and Development, Executive Yuan, 2010), and the old-age population will have caught up with those in developed countries such as Britain, the United States, and France (Council for Economic Planning and Development, Executive Yuan, 2010). With aging and declining fertility rates in the population structure, along with shifting societal patterns and family structures, how to take care of senior citizens and maintain their health has currently become an important issue for the Taiwanese government and other concerned authorities. According to the population projection report by Council for Economic Planning and Development, in 2012, one out of 6.7 people in the youth population will have to care for one senior citizen aged over 65. By 2020, one out of 4.4 persons in the youth population will have to care for one senior citizen aged over 65, and by 2060, one out of 1.3 youngsters will have to care for one elderly individual (results of mid-level projection) (Council for Economic Planning and Development, Executive Yuan, 2012).

Other than that, in order to meet the needs of the upcoming aging society, providing meaningful educational learning activities for senior citizens will help them maintain health and live a lifestyle of active aging. The influence of the low fertility rates that bring about the issue of unused campus space can be resolved by providing that space for use by senior citizens, which will not only make schools great spots for children and senior citizens to learn and study but will also make them intergenerational interactive platforms that supply

learning resources and opportunities for different generations. All the while, colleges in Taiwan have been offering academic higher education to nurture the youth, but in other advanced countries, to respond to low fertility rates in the population structure, they have developed colleges that focus on the "grey" members of the population.

2. Theoretical Foundations

2.1 History of the Promotion of Senior Citizen Education in Taiwan

In November 2006, the Ministry of Education, Taiwan, passed the visionary and practical "White Paper on Senior Education in a Society of Senior Citizens," which is aimed at ensuring the right of senior citizens in learning and at ensuring for them the chance of lifelong learning (Ministry of Education, 2006, p. 19). Later on, in 2009, consulting international experiences and overall development trends, the Ministry of the Interior brought up "The Service Program to Care For the Senior," which focuses on the three kernel concepts of making the senior active, befriending the senior, and building a bridge between the junior and the senior so as to plan and develop useful and beneficial policies for the senior (Ministry or the Interior, 2009, p. 6).

The research results on senior learning in recent years (Lin, 2002, 2007; Huang, 2004; Wei & Huang, 2007; Johnson, 1995; Lamdin & Fugate, 1997; Swindell, 1990) all suggest that most senior learners are characterized by strong learning motivations and good health conditions. Deliberating on the senior education and learning activities in many other countries, the learning pattern most welcomed by the senior is the learning pattern in collaboration with colleges. The basic operating model of the learning is to unite with colleges, using the teacher resources and equipment to provide high quality and numerous yet inexpensive forms of education for the senior. Not only does the senior benefit a lot from this, the teachers and students in colleges can also benefit from this by gaining abundant chances to experience intergenerational learning. Considering the positive effect of the "Lifelong Learning for the Senior" policy promoted by the Ministry of Education and in order to cooperate with the "Service Program to Care for the Senior" brought up in 2009 by the Ministry of the Interior, the "Golden Age College Program" has integrated hardware, such as equipment, and software, such as teachers and learning resources, from different colleges to set up the Golden Age College so as to create a great learning atmosphere for the senior. This college has become an important learning channel for the senior in Taiwan and it enables the senior to enjoy the high quality and numerous types of education to attain the goal of "active aging."

2.2 Learning Approaches and Course Types Needed for the Senior

Viewing the overall senior education institutes in Taiwan, Huang (2008, p. 162–166) separated the senior education approaches into four types: Evergreen Academies run by social affairs departments, Senior Citizen Social Colleges or Senior Learning Centers run by the Ministry of Education, Senior Colleges run by private institutes, and Senior Education Institutes run by religious and non-profit organizations. The "White Paper on Senior Education in a Society of Senior Citizens" promulgated by the Ministry of Education in November 2006 is the most concrete, comprehensive and systematic policy aiming to promote senior education in Taiwan, and it advocates for senior education reaching a new milestone. To fulfill the four objectives of this vision—i.e., lifelong learning, health and happiness, independence and dignity, and social participation—11 action plans to advocate senior education policies are established in the White Paper. Among them, "increasing learning spots" for the senior is one of the operation programs.

As the father of educational gerontology, McClusky (1971) believed that education is meant to assist the person who learns to understand, solve, or deal with problems and face challenges happening in daily life. But as far as the learning needs of the senior learner participating in the learning are concerned, they can be divided into five types, as mentioned in his "White House Conference on Aging": coping needs, expressive needs, contribution needs, influence needs, and transcendence needs, which could collectively be deemed to provide the most significant model on senior learning.

As Huang, Lin, and Liang (2008) pointed out in their "Investigation Research Report on the Learning Needs Intention of the Citizens Who Are about to Retire and the Senior Citizens," the learning needs of learners nearing retirement age and senior learners include six aspects such as "Family and Relationships," "Health Care," "Leisure Entertainment," "Society and Politics," "Retirement Planning and Adaptation," and "Self-realization and Life Meaning." The overall learning needs of the business household (i.e., of seniors living in golden age charity institutions) are intermediate, with the learning needs of "Retirement Planning and Adaption" and "Self-realization and Life Meaning" being less important to them than the other issues. Lastly, the learning needs of the single-person household are intermediate-high, but their learning needs for "Self-realization and Life Meaning" and "Leisure Entertainment" are relatively low as compared with other needs. Overall, the three groups of investigated subjects all believe the learning needs of "Family and Relationships" and "Health Care" are more

important to them than the other issues.

Xu (2010) recruited members who participated in the six golden age learning resource center in 2009 in Miaoli County as her study subject, using "the Demand Stratum Questionnaire on McClusky's old-age education" designed by Wei (2009) to discuss the relationship between members' learning needs and participation in golden age learning resource center. The study results indicated that the learning need for the trial subject is intermediate-high and the learning need in the aspect of "Coping Needs" is the highest. Jue (2010) explored the senior learning needs and their participation in the Evergreen Academy in Chiayi City. The study results suggest that seniors in the region have intermediate-high learning needs in terms of "Coping Needs," "Performance Needs," "Influence and transcendence needs," and "Contribution Needs." But in reality, there is lack of courses designed to meet the "Influence and transcendence needs" and "Contribution Needs," and most senior learners tend to choose single learning channel as their life-long learning places.

Jiang (2013) recruited 15 females who were born in the baby boom generation and who hold college diploma as her study subject. Investigating on their active aging cognition and learning needs by using in-depth interview and questionnaire, it is found that females with high diploma born in the baby boom generation have good cognition in active aging; females with high diploma born in the early baby boom generation have the most learning needs on "Exercise Coursed Related to Health Care" and "Courses Related to Spiritual Growth," while females with high diploma born in the late baby boom generation have the most learning needs on "Courses Related to Contribution and Services."

2.3 Learning Satisfaction

Learning satisfaction refers to the feeling or attitudes the learners have towards hardware such as facilities and software such as services, which are cognitions that occur when the learners compare their "expectation" and the "actual condition." Knowles (1970) proposed that satisfaction is a feeling a student has towards his/her learning activities. Feelings such as positiveness, optimism, and happiness are considered indicators of satisfaction, while negative, pessimistic, and unhappy feelings are considered indicators of dissatisfaction. Huang (2002) took six variables such as "Learning Environment," "School Administration," "Teacher's Teaching Quality," "Course Materials," "Teacher-Student Relationship" "Peer Relationship," to measure satisfaction. Yu (2010) took adult learners in English cram schools as her study subjects, discussing the product value of informal education institutes and the current situation of teachers' teaching quality and students' learning satisfaction. The study constructs the structure of life-long learning key capacity and develops a learning satisfaction demand marketing strategy, and she took four variables such as "teaching content," "skills upgrading," "self-development," and "participation support" to analyze learning satisfaction.

Koopman-Boyden & Reid (2009) investigated the gender differences among seniors using the Internet and e-mail and pointed out that, as compared with the female users, more male users would contact and communicate with others via information and communication technology (ICT). Through the above research, we can see that there is a positive influence in terms of life quality satisfaction and happiness when the senior experiences the process of using information technology techniques (Adams, Stubbs, & Woods, 2005; Blazun, Saranto, & Rissanen, 2012; White, McConnell, Clipp, Branch, Sloane, & Pieper, 2002).

Li (2007) recruited senior learners aged over 55, who learned in the Evergreen Academy, National Open University, and Night School of the junior high, as his study subject and applied questionnaire and semi-structural interview methods to discuss their learning preferences and the relationship between social support and the sense of happiness. The research results indicated that if more than two learning preferences are not excluded, most old age learners would choose more than two preferences in learning. If more than two learning preferences are excluded and category's mutually exclusive factor are taken into consideration, preference of self-learning accounts for the highest proportion. Other than that, old age learners gain good social support, with academic support taking up the most percentage and the category of the performance of old age learners learn through self-learning to enhance the sense of happiness shows "good."

2.4 Loneliness

The senior will be faced with changes in various physical, psychological, and social regards as they age. Such changes can include outlook changes, gradually reduced health condition, insecure economic status, repositioning in role-playing, the deaths of relatives and good friends, and so on, that force them to experience multiple forms of loss in life (Blazun, Saranto, & Rissanen, 2012; Follema & Knipscheer, 2007), and these factors are key elements that cause the senior to have a sense of loneliness (Zhang & Yang, 1999). Loneliness is a subjective feeling when a person feels lacking ties with the society, and it is a negative emotional status in which the person senses detachment from others, or has the feelings such as void, unhappiness, and meaninglessness (Zhang & Yang,

1999).

Recently, many studies have focused merely on how to assist seniors to raise their quality of living and increase their happiness, and the definitions of health and happiness are too many to be named. One definition of health speaks to the individual physical health (body condition, infection rate of epidemics) or individual spiritual, emotional, and psychological health (Danna & Griffin, 1999). The senior's cognitions about the positive and negative life quality mostly come from inner subjective emotional expressions, but some come from objective life experiences (Blazun, Saranto, & Rissanen, 2012; Xavier, Ferraz, Marc, Escosteguy, & Moriguchi, 2003). "Loneliness" is one of the elements that may affect life quality, and it is a subjective feeling when a person senses his/her intimacy and social needs are not being met. Furthermore, according to the gender differences in the research of seniors using Internet and e-mail, males tend to use Information and Communication Technology (ICT) more frequently than females do (Koopman-Boyden & Reid, 2009). From the above researches, it is inferred that positive influence in life quality satisfaction and happiness yielding do exist when the senior experience the process of using the information technology techniques (Adams, Stubbs, & Woods, 2005; Blazun, Saranto, & Rissanen, 2012; White, McConnell, Clipp, Branch, Sloane, & Pieper, 2002). Besides, senior who uses information technology tools can enhance family relationship, society participation and motivation, and self-confidence and dignity.

Blazun, Saranto and Rissanen (2012) began their quasi-experimental research on seniors who used computer-training courses to reduce their sense of loneliness. They recruited their subjects by applying Internet World State's statistics (2011) that mentioned Internet penetration in Finland is 83.5% (ranking the 9th among the 58 countries investigated), while Internet penetration in Slovenia is 64.8% (ranking the 42nd among the 58 countries investigated). Statistic Finland (2010) also pointed out that 43% of the Internet users in Finland are seniors aged from 65 to 74, which far outweighed the 2.1% of senior Internet users in Slovenia (Statistical Office of the Republic of Slovenia, 2011).

Huang (2012) investigated the current conditions of seniors in terms of their feelings towards social support, their characteristics, their participation in leisure activities, and their sense of loneliness in six villages and townships along the coasts of Changhua County. The results indicated that the sense of loneliness among seniors is intermediate-low, with their sense of social loneliness being higher than their sense of emotional loneliness, and that the differences can be seen in different types of loneliness in light of marital status, residential status, disposable amount of money, and self-awareness about their own health. And the leisure activities participation purpose types can range from pastime, hobbies, bodybuilding, and learning in the order of highest frequency to the lowest. Each type of leisure activity and each type of sense of loneliness are negatively correlated. Zheng (2012) proposed that the senior may reduce their sense of loneliness and increase their satisfaction about living by participating in the reminiscence therapy courses.

2.5 The Content and Feature of the "Golden Age College" Run by Chaoyang University of Technology

1) Program Content

"What's it like growing younger?" is the most classic line in the movie "the Curious Case of Benjamin Button," and it is also a medium used by the Program to help those senior learners experience and feel the wondrous journey and gain wonderful memory by joining the activities arranged in the Program…

The Program adopts the concept as used in the college course planning main model, separating courses into three types such as basic courses, kernel courses, and leisure and sports courses. As far as the course teachers are concerned, professional teachers of the university are chosen and lecturers with expertise outside but allied with this university are invited to give lectures. Among them, the basic courses are established based on senior's phsical and psychological change, and therefore the conceptual and know-how courses may be created. The basic course contents can range from health promotion, old-age education, to senior life planning and interrelationship buildup; kernel courses planning extends the course model design in this department and professional teacher structure so as to create distinct courses that have experiential and professional features, and the kernel courses include grey hair industry visits, coloring for golden memory and sculpting for eternalty, and group therpy application; and the last are leisure and sports courses that include humanity art cultivation and senior sports that could help increase interaction chances between the college students and the senior, and the courses are expected to help students apply and put what they have learn in class into practice in their real life.

2) Program Features

The implementation details and design concept of the program all refer to the duties and obligations rules regulated in the student university course. Commencement ceremony, SID, interschool games or Christmas dinner party

participation, off campus visits, bachelor of art photo shooting, end of semester ceremony, certificate of courses completion, and graduation class yearbook and so on are important incidents and unforgettable inscriptions in different stages for college students in college life to be remembered. This program uses the concept of "instant moment for eternity" to connect the educated experiences of the senior learning in the college, hoping to help the senior participating in the courses not only enjoy the colorful college life but also gain knowledge and skills to manage their lives in a healthy way in their old age periods. Besides, it is hoped that the senior can explore the world that they have not been to and experienced so that they can have more precious memories in their lives and so help them to achieve the goal of healthy aging.

3. Method

3.1 Study Subject

This study conducts surveys on senior learners participating in "Golden Age Colleges". A total of 137 senior learners participated in the program (69 in the first year, 32 in the second year, and 36 in the third year).

Group interviews were conducted and questionnaires were used to collect data regarding the learning needs of senior learners and to understand their perception and opinion of learning satisfaction. Group interviews were conducted at the end of each stage of learning. Seminars were organized, emphasizing particularly on 2 major topics of "Recommendations on Golden Age College Course Planning and Level of Satisfaction" and "Effects of Golden Age College on Quality of Life of Senior Citizens (Reduction of Sense of Loneliness)." Questionnaires were to be filled up by senior learners upon completion of a certain stage of learning at the Golden Age Colleges.

In this program, in order to ensure that the senior learners understand the contents/meaning of group interviews, questionnaires, or questions, and were able to answer the questions based on their first instincts, training was given to students conducting the surveys. In addition to their ability to explain and illustrate the contents/meaning of the questions, the command of Mandarin Chinese and Taiwanese of the students and their communication skills were also enhanced.

3.2 Research Objective

This study explored the needs of elderly learners and their learning satisfaction, in addition to investigating how differences in background affect their learning. Descriptions of basic personal information, learning needs and the learning satisfaction measurement scale are as follows:

1) Basic personal information. The first part of the survey was about "basic personal information." This study sought to better understand the background distribution of elderly learners participating in the "elder classroom" or "elder university," including 6 different variables: gender, age, education level, occupation before retirement, marital status, and health condition.

2) Learning needs. The learning needs concept of this study was based on the needs of the elderly learners regarding the curriculum, and on investigations of the theoretical basis results and references from studies and surveys conducted by domestic and international scholars including Lai (1990), Lin (2007, 2011), Lin & Liang (2009), and Lamdin & Fugate (1997). The curriculum was an adaptation of the above results, containing 6 course demand levels: health promotion courses, assistive therapy courses, spiritual communication courses, life applications courses, experimental education programs and intergenerational interaction courses. For each level, there were 2 to 3 questions, and the total number of questions was 16, all of which helped us to better understand the learning needs of the elderly.

3) Learning Satisfaction. Learning satisfaction represents the overall experience of senior learners participating in the elder learning program. This experience relates to the subjective feelings of satisfaction from tangible and intangible hardware and software interactions during the learning process. The measurement scale is an adaptation of research investigations and reference surveys by Chen (2000), Lee (2002) and Yen (2009), as well as the loneliness scale developed by De Jong Gierveld & Kamphais which is translated by Lin and Lin (2007). It includes five learning satisfaction levels: curriculum, teaching, administrative support, loneliness and learning outcomes, with a total of 30 questions.

4. Results

Since the commencement of this study in 2009, a total of 137 senior learners have participated in the Golden Age College Program. The participants are mostly female (109, or 79.6%), with less than a quarter of the total participants being male (20.4%). Most of the participants are married and feel that they are in better health (Table 1).

Table 1. Senior learner basic information compiled chart (n=137)

Background variables	Classification	N	%
Gender	male	28	20.4%
	female	109	79.6%
Age	55 ~59	5	3.6%
	60 ~64	23	16.8%
	65 ~69	31	22.6%
	70 ~74	31	22.6%
	75 ~79	27	19.7%
	Above 80	20	14.6%
Education	Illiterate	9	5.3%
	elementary (and below)	41	30.0%
	middle school	6	4.4%
	high school/vocational school	23	16.8%
	college/university	24	17.5%
Occupation Before Retirement	military/public servants/teachers	35	25.5%
	agriculture/fishery/forestry/farming Business	29	21.2%
	Housekeeper	18	13.1%
		55	40.1%
Marital status	Married	125	91.2%
	Widowed	12	8.8%
Health Condition	very healthy	63	46.0%
	well	56	40.9%
	good	12	8.8%
	ordinary	6	4.4%

Statistical analysis found that: Senior learners were satisfied with the curriculum (M=4.15). They found the three courses "Intergnerational Learning," "Complementary Therapy," and "Experiential Education Curriculum" most interesting. They were also quite satisfied with the hardware, software, and services provided (M=4.17). However, the results indicated that the ability of the teachers or servicing students to communicate in Taiwanese should be strengthened. It is also recommended to separate students into different classes based on their background and needs. After attending Golden Age College, senior learners develop positive thoughts about their future and golden age living. Their sense of loneliness has reduced following regular interactions with other people (including their peers, the servicing students, and the teachers). Lastly, senior learners generally expressed their willingness to continue participating in life-long learning activities. They were also willing to encourage their peers to participate in such activities (Tables 2 and 3).

Findings demonstrated that age of the learner has rather equal influence on both learning needs and post-curriculum satisfaction. This is inconsistent with the study results of Marcus (1978) which indicated that "age" is a significant predictive tool for learning preference of senior learners. This difference in study outcome could be caused by differences in time, space, social development, and advancement in information technology which have enabled senior citizens to learn aging-related knowledge and experience real-time learning. Government institutions in Taiwan are proactively developing a complete and diverse program to build a "senior-friendly city" to enhance learner autonomy of senior learners so that they can "proactively" choose their preferred course and measure their level of satisfaction.

Table 2. Analysis of elderly learners' personal data for learning needs

Personal data	Learning needs	health improvement course	Complementary Therapy	spiritual communication course	life application course	Experiential Education Curriculum	Intergnerational Learning
Gender	male	4.00（6）	4.04（5）	4.05（4）	4.10（3）	4.30（1）	4.36（2）
	female	4.06（5）	4.14（3）	4.11（4）	4.00（6）	4.36（1）	4.22（2）
Age	55-59	4.08（5）	4.11（3）	4.10（4）	3.96（6）	4.38（1）	4.33（2）
	60-64	4.09（4）	4.10（3）	4.09（4）	4.04（6）	4.28（1）	4.26（2）
	65-69	4.05（6）	4.12（3）	4.06（4）	4.06（4）	4.28（1）	4.25（2）
	70-74	4.01（6）	4.09（4）	4.10（3）	4.05（5）	4.34（1）	4.29（2）
	75-79	4.01（6）	4.02（5）	4.06（4）	4.08（3）	4.34（1）	4.31（2）
	Above 80	3.94（6）	4.10（4）	4.07（5）	4.11（3）	4.36（1）	4.30（2）
Education	Illiterate	3.98（6）	4.05（3）	4.02（4）	4.01（5）	4.35（1）	4.32（2）
	elementary (and below)	3.99（6）	4.11（3）	4.04（5）	4.07（4）	4.36（1）	4.33（2）
	middle school	4.06（5）	4.05（6）	4.07（4）	4.10（3）	4.32（1）	4.29（2）
	high school/vocational school	4.05（5）	4.13（4）	4.16（3）	4.04（6）	4.26（1）	4.25（2）
	college/university	4.07（5）	4.11（3）	4.11（3）	4.03（6）	4.36（1）	4.26（2）
Occupation Before Retirement	military/public servants/teachers	4.07（6）	4.11（4）	4.09（5）	4.13（3）	4.29（1）	4.14（2）
	agriculture/fishery/forestry/farming	4.02（5）	4.06（3）	4.02（5）	4.06（3）	4.25（1）	4.23（2）
	Business	4.05（6）	4.10（3）	4.07（5）	4.09（4）	4.20（1）	4.13（2）
	Housekeeper	3.98（6）	4.05（4）	4.02（5）	4.12（3）	4.30（1）	4.22（2）
Marital status	Married	4.03（5）	4.14（3）	4.11（4）	4.01（6）	4.31（1）	4.26（2）
	Widowed	4.03（6）	4.07（4）	4.05（5）	4.09（3）	4.35（1）	4.32（2）
Health Condition	very healthy	4.07（5）	4.12（3）	4.10（4）	4.04（6）	4.30（1）	4.25（2）
	well	4.08（4）	4.10（3）	4.08（4）	4.06（6）	4.34（1）	4.28（2）
	good	4.02（6）	4.06（4）	4.06（4）	4.09（3）	4.32（1）	4.31（2）
	ordinary	3.95（6）	4.08（3）	4.08（3）	4.01（5）	4.36（1）	4.32（2）
overall		4.03（6）	4.09（3）	4.08（4）	4.05（5）	4.33（1）	4.29（2）

Note. ( ) shows the order of the elderly learners' personal data for Learning Needs.

Table 3. Analysis of elderly learners' personal data for learning satisfaction

Personal data	Learning Satisfaction	Curriculum	Teachers	Administrative support	Loneliness	Learning outcomes
Gender	male	4.15（4）	4.06（5）	4.16（3）	4.25（1）	4.22（2）
	female	4.17（3）	4.12（5）	4.28（1）	4.13（4）	4.22（2）
Age	55-59	4.20（2）	4.14（4）	4.15（3）	4.14（4）	4.21（1）
	60-64	4.18（3）	4.10（5）	4.20（1）	4.18（3）	4.20（1）
	65-69	4.20（1）	4.12（5）	4.18（3）	4.16（4）	4.20（1）
	70-74	4.14（4）	4.08（5）	4.21（3）	4.22（2）	4.25（1）
	75-79	4.15（4）	4.09（5）	4.23（3）	4.25（1）	4.24（2）
	Above 80	4.09（4）	4.01（5）	4.29（1）	4.19（3）	4.22（2）
Education	Illiterate	4.12（4）	4.12（4）	4.26（1）	4.22（3）	4.24（2）

	elementary (and below)	4.15（4）	4.10（5）	4.24（2）	4.24（2）	4.25（1）
	middle school	4.18（4）	4.08（5）	4.20（1）	4.20（1）	4.20（1）
	high school/vocational school	4.16（3）	4.11（5）	4.16（3）	4.18（1）	4.18（1）
	college/university	4.19（2）	4.04（5）	4.19（2）	4.11（4）	4.23（1）
Occupation Before Retirement	military/public servants/teachers	4.23（1）	4.11（5）	4.19（3）	4.17（4）	4.20（2）
	agriculture/fishery/forestry/farming Business	4.12（4）	4.12（4）	4.23（2）	4.23（2）	4.26（1）
	Housekeeper	4.20（1）	4.06（5）	4.18（3）	4.19（2）	4.18（3）
		4.09（4）	4.07（5）	4.24（1）	4.17（3）	4.24（1）
Marital status	Married	4.18（2）	4.13（5）	4.20（1）	4.15（4）	4.18（2）
	Widowed	4.14（4）	4.05（5）	4.22（3）	4.23（2）	4.26（1）
Health Condition	very healthy	4.15（3）	4.10（5）	4.18（2）	4.15（3）	4.19（1）
	well	4.17（3）	4.11（5）	4.20（1）	4.16（4）	4.20（1）
	good	4.14（4）	4.07（5）	4.22（2）	4.21（3）	4.24（1）
	ordinary	4.18（4）	4.08（5）	4.24（2）	4.24（2）	4.25（1）
	Overall	4.16（4）	4.09（5）	4.21（2）	4.19（3）	4.22（1）

Note. ( ) shows the order of the elderly learners' personal data for Learning Satisfaction.

Analysis of learning needs and level of satisfaction of senior learners via the variable, "level of education," indicated that "illiterate" senior learners have low needs (M < 4.02) for classroom lectures (such as health improvement course, life application course, and spiritual communication course). They have higher needs (M = 4.35 and 4.32 respectively) for courses which are designed for outdoor educational trips and interaction among college students (such as experiential education curriculum and course on intergeneration interaction). These results are consistent with the findings of Londoner (1990) which indicated that learning needs of senior learners are affected by their level of education. This shows that "illiterate" senior learners possess lower confidence and learning motivation towards courses that require "basic learning ability." Therefore, the key to success of the program is to redesign the program to employ "teaching materials or teachers" that can motivate participation of majority of the senior learners in learning.

5. Conclusion

5.1 Designing "Learner-Oriented" Activities for the Senior

As senior learners participate in reeducation voluntarily, they need to self-govern and perform perceptual measurement and judgment when choosing their learning methods and assessing their learning performance. This is entirely different from the design of preschool education where needs of both the children and the parents are taken into consideration. Therefore, it is important to perform in-depth analysis of the learning needs and goals of learners of different ages, set up hardware and software facilities and services catered to their different learning needs, and create a learning environment that could consistently generate learning motivation of senior learners so that both the senior learners and the servicing team offering senior education can be driven towards the goal of "sustainable management."

5.2 Exhibiting Characteristics of the "University" to Create Differentiation

To solve the problem of idling campus space brought by declining birthrate, the Ministry of Education has founded a "Short-term Boarding and Learning program for the Elderly" in 2008, integrating 13 universities in the country, and turning a new page for senior learning activities in universities. Campuses are targeted as learning centers for seniors and it is therefore necessary to design important activities or learning methods related to "university" learning and highlight exclusive courses or learning methods unique to each of the organizing university. The uniqueness may include professionalism of teachers, diversity of courses, intergeneration interactions, integration of resources, and effective use of campus space to establish a "Golden Age College" beneficial for the life-long learning of senior learners.

The golden age program also includes the following features: Teachers who have a master's degree or above are hired to give lectures (as compared with the over 60% of teachers having expertise in a "community high school"

hired to give lectures in the old age education institutes in Taiwan currently, and the 42.6% of teachers who are professionals possessing high school or elementary school teacher qualifications) (Wei & Huang, 2007); all courses are served and led by the students who study in the department of the university (with the student and senior service ratio being 2:1, where the student and senior service ratio suggests the proportion of service students who serve and the seniors who are served in the Golden Age College in each academic year); complementary therapies are integrated (including gardening complementary therapy, reminiscence complementary therapy, and music complementary therapy) to reduce the dementia phenomena; and festival experience courses are created (Christmas Caroling and making ginger bread houses, giving red envelopes with lucky money on Chinese New Year's eve, and making stuffed dumplings made of glutinous rice flour served in soup on winter solstice).

5.3 Characteristic Composition of Senior Learners Demonstrates Heterogeneity in Learning Needs

Findings from studies conducted by Williamson (2000) and Lin (2007, 2009) indicated that heterogeneity in individual profile of senior learners (such as gender, education level, pre-retirement occupation, and self-perception of health condition) produces different perceptions toward learning needs. This is especially true in courses of opposing features such as professionalism/experiential, one-way learning/interactive learning, and theoretical/practical courses. Therefore, it is necessary to investigate the learning needs of the senior learners enrolling in the current Golden Age College when designing the program. The course should be catered to fulfill the learning needs of most of the senior learners. This will not only enhance their learning motivation and interests, but also help achieve goals such as improvement of learning performance and reduction of sense of loneliness.

5.4 "Relationship" and "Word-of-Mouth" are Two Important Factors Encouraging Senior Participation in Learning Activities

The establishment of "Senior Learning Programs in Universities" opens up an entirely new channel for life-long learning for seniors in Taiwan. This research team has employed the "Product Market Expansion Grid" concept proposed by Ansoff (1965), the father of strategic management, in this study. The product development strategy is employed and the new product (different learning channels) is then introduced into the market (current senior learners in Taiwan). The success of this strategy requires "word-of-mouth" recommendations by program participants who are satisfied with it and close "relationships" between the participant and his/her peers, family, and friends, which will help encourage them to take the initiative to participate in such programs.

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