The Formulation of "Age-Friendly City" Evaluation Indicators for Taiwan: A Delphi-Technique Approach

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Abstract

"Global Age-Friendly Cities: A Guide," a report published by the World Health Organization (hereafter WHO), reveals the idea of an age-friendly city and builds on WHO (2002) "Active Aging: Policy Framework." Active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. Based on this, this study wishes construct indicators of an age-friendly city in Taiwan. Delphi Method is used in this study to construct indicators with effectiveness. Twelve scholars invited to discuss and clarify indicators of age-friendly cities are experts in older adult education, health promotion, urban planning, social welfare, and administrators in the government, non-profit organization, and business management. After three-round of Delphi Method, three findings stand out: First, the evaluation framework of age-friendly city includes 8 domains and 14 dimensions. Second, age-friendly city includes 65 evaluation indicators. Third, on the Likert 5-Point Scale, the importance of 65 indicators have a mean score of between 3.83~4.92. According to the conclusions, the recommendations for the government agencies and older adult education institutions were provided.

Keywords: active aging, age-friendly, evaluation indicators, older adult education

I. Introduction

1. Background and importance of the issue

Acknowledging the global trend toward aging population structures and urbanization, WHO (2007, 2013) published "*Global Age-Friendly Cities: A Guide,*" building upon WHO (2002) "*Active Aging: Policy Framework.*" The guideline aims to create more comfortable cities for older people, and highlights the importance of respecting senior citizens. An age-friendly city emphasizes the importance of health, participation, and security—three domains which especially enhance the quality of life as people age, and which support the goal of active aging. In other words, age-friendly cities emphasize both services and facilities for older people in terms of convenience and accessibility. Age-friendly cities aim to provide an active aging environment for older people through government policy, services, arrangements, and facilities.

WHO (2002) points out that health is a priority for older people. The framework identifies both risk factors (which compound the problems associated with aging) and protective factors (which ameliorate the problems of aging); thus, it is important to reduce the risk factors and increase the protective factors. For instance, in the transportation domain, a city can ensure comfortable and affordable facilities; in the housing domain, it can provide specialized designs for older people; in terms of outdoor space and public buildings, it can set up age-friendly pedestrian paths and accessible facilities; in the domain of respect and social inclusion, it can establish positive images.

According to statistics released by Taiwan's Ministry of the Interior (2018), by the end of January 2018, the population aged 65 and above reached 3,284,353, or 13.93% of the island's total. This study manages to develop evaluation indicators to enhance the quality of the aging process and achieve the goal of aging in place. Gou (2010) points out that human behavior goes through a continuous process of environmental adaption. There are two types of environment: natural and social. The natural environment includes nature, the climate, and so forth; the social environment includes human behavior, customs, history, social rules, and language, *inter alia*. This research will discuss about social environment.

A report on healthy aging by the Organization for Economic Cooperation and Development (OECD, 2009) illustrates the importance of paying attention to health factors that affect the social environment of older people—for instance, improving the quality of their living environment, security, service, transportation, etc. This study wishes to create an age-friendly social environment with the goal of accepting and including older people, in order to increase their mobility and encourage active aging. Applying the framework of active aging, this research tries to seek the approach to create an age-friendly social environment includes health, participation and security. After all, aging is a natural part of the life cycle, and citizens of all age groups deserve an accessible environment.

2. Theoretical Framework

In recent years, the government has embarked on the elderly-related policy formulation and implementation. Whether in education, learning, health promotion, welfare services and so on, these approaches shared the same intention: to build an age-friendly and supportive living environment for the elder in order to achieve the goal of active aging.

2.1 Active aging

Active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. It applies to both individuals and population groups. Active aging allows people to realize their potential for physical, social, and mental well-being throughout the life course and to participate in society, while providing them with adequate protection, security and care when they need (WHO, 2002).

WHO (2002) stresses "optimizing opportunity for health, participation, and security" in "*Active Aging: Policy Framework.*" This framework establishes eight major determinants: health and social services determinants, behavioral determinants, personal determinants, physical determinants, social determinants, economic determinants, gender determinants, and cultural determinants.

Health and well-being are determined not only by our genes and personal characteristics but also by the physical and social environments in which we live our lives. Environments play an important role in determining our physical and mental capacity across a person's life course, particular in later years. Both older people and the environments in which they live are diverse, dynamic and changing.

WHO (2002) indicates that the elements of social services and facilities are interrelated with these determinants, and lead to the cultivation of an age-friendly city. In this study, an age-friendly city is defined as one which includes older people, provides an accessible environment, and promotes active aging. Age-friendly city has become a worldwide trend in aging society. This paper raises awareness on the importance of environments in determining active aging and aims to the creation of age-friendly environments by Delphi-Method approach.

2.2 Age-friendly city

Active aging depends on a variety of influences or determinants that surround individuals, families and nations (WHO, 2007; 2013). Because active aging is a lifelong process, an age-friendly city is not just "elderly friendly." Accessible buildings and streets enhance the mobility and independence of people with disabilities, young as well as old. Secure neighborhoods allow older people to venture outside in confidence to participate in physically active leisure and in social activities. Families experience less stress when their older members have the community support and health services they need. The whole community benefits from the participation of older people in volunteer or paid work. Finally, the local economy profits from the patronage of older adult consumers. Many aspects of urban settings and services reflect these determinants and are included in the characteristic features of an age-friendly city.

WHO (2007, 2013) includes eight areas to create an age-friendly city: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services. The first three topics were outdoor spaces and buildings, transportation, and housing. As key features of a city's physical environment, they have a strong influence on personal mobility, safety from injury, security from crime, health behavior and social participation. Another three topics reflect different aspects of the social environment and of culture that affect participation and mental wellbeing. Respect and social inclusion deals with the attitudes, behavior and messages of other people and of the community as a whole towards older people. Social participation refers to the engagement of older people in recreation, socialization, and cultural, educational and spiritual activities. Civic participation and employment addresses opportunities for citizenship, unpaid work and paid work; it is related to both the social environment and to the economic determinants of active aging. The last two topic areas, communication and information, community support and health services, involve both social environments and health, and social service determinants.

The eight areas point out needs of older people, emphasizing the importance of facilities and social service in order to create an age-friendly city. On the other hand, the report of "*Active Aging: A Policy Framework*" shows that aging population will face the following challenges (WHO, 2002): increased disease, increased risk of disability, increased economic burden (from caring for an aging population), increased poverty (resulting from the feminization of aging), and increased ageism and inequities. In order to respond to these challenges, Walker (2002) points out that active aging policies must respect national and cultural diversity if they are to be effectively implemented.

According to Greenfield (2012), implementation must be based on a partnership between citizens and society. That is, the government should motivate citizens and encourage their participation by offering high-quality social protections. At the same time, citizens should actively take part in various social activities (lifelong education and continuous learning) in order to enhance their mental and physical health, and further improve their life quality. The concept of partnership benefits the public understanding of the aging process, and helps the establishment of positive attitudes toward active aging. This is the reason why this paper adapt the perspective of active aging.

On the other hand, based on Lewin's theory of psychological fields, the ecological systems theory holds that we encounter different environments throughout our lifespan that may influence our behavior in varying degrees. The Ecological System theory states that human development is influenced by the different types of environmental systems. In order to understand human development, one must consider the entire ecological system in which growth occurs. This system is composed of five socially organized subsystems that help support and guide human growth, which include the micro system, the mesosystem, the exosystem, the macro system, and the chronosystem (Bronfenbrenner, 1994).

The Ecological System theory published in 1979, has influenced many psychologists in terms of the manner of analyzing the person and the effects of different environmental systems that he encounters. The ecological environment is conceived as a set of nested structures, moving from the innermost level to the outside. Bronfenbrenner focused on a scientific approach emphasizing the interrelationship of different processes and their contextual variation. The core feature of ecological system theory is focusing on the person in the center of the circles, according to this view point, Taiwan may have different domains, dimensions and indicators of age-friendly city.

II. Materials and Methods
1. Research objectives
The indicators from "*Global Age-Friendly Cities*" were based on surveys of 33 cities in 22 countries, where multiple discussions were conducted with older people in focus groups. This study proposes evaluation indicators for age-friendly cities in Taiwan to establish the foundation of aging in place with respectful and ageism free. The research objectives are as follows:

 (1) To develop a localized evaluation framework for age-friendly city.
 (2) To establish evaluation indicators of age-friendly city for Taiwan.
 (3) To analyze the importance of evaluation indicators.

2. Research Design and Implementation
This research uses the Delphi Method, which was developed by Project Ran during the 1950s to forecast future impacts. The approach involves a panel of experts replying to questionnaires in multiple rounds; it stresses the importance of group communication in order to provide diverse perspectives, identify common ground, and suggest solutions. It shares some of the advantages of questionnaires as well as meetings. The survey process is anonymous, and a summary of the statistical results is presented after each round. The experts are then encouraged to revise their answers. The process is repeated, ideally until consensus is reached. The results of the Delphi Method can be used as references for departments of government, to assist them in making important decisions (Wang & Wang, 2007). To sum up, Delphi Method can determine the critical factors or criteria in a decision-making process but it doesn't work for weights of criteria.

The 12 participants in this study included experts from the fields of older adult education, health promotion, urban planning, social welfare, and administrators in the government, non-profit organization, business management. Before beginning the Delphi Method, the researcher contacted the participants, provided detailed information about the background and plan of the research, and received consent forms from all

participants.

Using the Delphi Method, a questionnaire for age-friendly city was designed in light of scholarly literature, and subjected to three rounds of reviews. The researcher analyzed the data after receiving each questionnaire, then modified the questionnaire to take into account comments from previous rounds in order to achieve consensus from the participants. That is, the input from Round 1 was attached to Rounds 2 and 3 as reference data for the Delphi Method experts.

The questionnaire contains three parts. The first part aims at evaluating the suitability of the indicator. The selections in the questionnaire include suitability, non- suitability, and suitability after amendment. The second part focuses on evaluating the importance of the indicators, and uses a Likert 5-Point Scale (in which 5 means 'extremely important,' 4 means 'slightly important,' 3 means 'important,' 2 means 'not so important,' and 1 means 'not important at all'). The third part focuses on evaluating the primary indicators and the secondary indicators. The participants in the Delphi Method rated the scale individually.

III. Findings and Analysis

Analysis of the questionnaires was carried out by SPSS which measured percentage, frequency analysis, mode, mean, standard deviation, and coefficient of variation (CV) to examine whether the results were significant. Percentage measure was adopted to evaluate the suitability of the indicators in Round 1, and the Likert 5-Point Scale for Round 2 and 3. In Round 1, the indicator was defined as appropriate if it achieved more than 80% suitability score. For Rounds 2 and 3, if the mode and mean point of an indicator was more than 3 and 3.5 respectively, and the SD$\leqq$1, this indicated that the experts had reached a consensus on the indicators. In terms of the importance of indicators, the Likert 5-Point Scale was carried out during all three rounds of review. Again, if the mode and mean point of an indicator were more than 3 and 3.5 respectively, SD$\leqq$1, and CV of Round 3 is less than or equal to Round 1, the experts were deemed to have reached a consensus on the indicators.

In this study, 12 scholars and experts were consulted, of whom 8 were males (67%) and 4 females (33%). Their professional fields included: 7 university faculty members, 3 government administrators, 1 participant from a non-profit organization, and 1 from the business field (related to senior citizens). Their career positions included: 2 university administrators, 5 university instructors (whose jobs did not involve administration), 3 officials from government administrative departments, 1 expert from a non-profit organization, and 1 manager from the business field (related to senior citizens). Detail information of 12 scholars and experts can be found in Table 1.

Round 1 of the questionnaire covered 8 domains, 16 dimensions, and 70 evaluation indicators. Based on feedback from the Round 1, Round 2 was modified to have 8 domains, 14 dimensions, and 68 evaluation indicators. Finally, after the results from Round 2 were reviewed, Round 3 was revised to have 8 domains, 14 dimensions, and 65 evaluation indicators. Details of 3 rounds domains, dimensions and evaluation indicators can be found in Table 2.

Table 1: Detail information of 12 scholars and experts

Variables	Items	Mean (%)
gender	males	8 (67%)
	females	4 (33%)
professional fields	university faculty member	7(58.3%)
	government administrator	3(25%)
	participant from a non-profit organization	1(8.3%)
	business field (related to senior citizens)	1(8.3%)
career positions	university administrator	2(16.7%)
	university instructor (whose jobs did not involve administration)	5(41.7%)
	officials from government administrative departments	3(25%)
	expert from a non-profit organization	1(8.3%)
	manager from the business field (related to senior citizens)	1(8.3%)

Table 2: Details of 3 rounds domains, dimensions and evaluation indicators

	Round 1	Round 2	Round 3
Domain	8	8	8
Dimension	16	14	14
Evaluation indicators	70	68	65

According to the methodology of the Delphi Method, the researcher summarized the following results from the analysis of Round 3:

1. Respect and social inclusion

The respect and social inclusion includes the dimension of respect, care, and support for older people. Scharlach & Lehning (2013) also claim the importance of social inclusion.

(1) Respect and care for older people

The importance degree of the following four evaluation indicators were over 90%: special service counters for older people in public sectors (percentage of importance: 91.6%, M=4.42, SD=0.90); solitary older people accepting home care services (percentage of importance: 100%, M=4.92, SD=0.29); public sectors planning events related to respecting older people (percentage of importance: 100%, M=4.50, SD=0.52); public sectors planning intergenerational events and activities (percentage of importance: 100%, M=4.42, SD=0.52).

(2) Support for older people

The importance degree of the following three evaluation indicators were over 90%: researching and developing living necessities or assistive devices for older people with different levels of disability(percentage of importance: 91.7%, M=4.42, SD=0.52); businesses serving senior citizens (e.g. health care, mobility aids, long-distance medical care) (percentage of importance: 100%, M=4.67, SD=0.49); public sectors providing training sessions for serving older people (assisting older people and ensuring their safety in outdoor activities) (percentage of importance: 91.7%, M=4.33, SD=0.65).

2. Social participation

The social participation includes two dimension of convenient services and accessible services. According to Stephanie (2015), key characteristics of age-friendly cities and communities contains social participation.

(1) Convenient services

The importance degree of the following three evaluation indicators were over 90%: community service centers located within 15 minutes from where older people live and that can be easily accessed (percentage of importance: 100%, M=4.50, SD=0.52); public sectors providing special promotions for older people in various institutions and places (percentage of importance: 91.7%, M=4.58, SD=0.67); public sectors providing shuttle services for older people during public events (percentage of importance: 91.7%, M=4.58, SD=0.67).

(2) Accessible services

The only evaluation indicator believed to be important by more than 90% of the experts is proportion of older people attending learning institutions (percentage of importance: 100%, M=4.67, SD=0.49).

Established in 2007, the Age-Friendly Manchester Cultural Offer Program promotes "a positive story of aging." Among the recent research efforts and a study showing that, on average, each Manchester-based Culture Champion engages more than 20 other older residents, helping them stay connected and involved in the community (AARP, 2015).

3. Outdoor spaces and buildings

The outdoor spaces and buildings includes the dimension of friendly space and safe facilities. Developing environments responsive to the aspirations and needs of older people has become a major concern for social and public policy (Buffel, Verté, De Donder, De Witte, Dury, Vanwing, & Bolsenbroek, 2012). In this paper, each dimension consisted of multiple evaluation indictors.

(1) Friendly space

The importance degree of the following six evaluation indicators were over 90% : pedestrian paths set up for people with disabilities (percentage of importance: 100%, M=4.75, SD=0.45); proportion of traffic deaths involving older people (percentage of importance: 91.7%, M=4.50, SD=0.91); public toilets with handicap access (percentage of importance: 100%, M=4.83, SD=0.39); underpasses and footbridges with elevators (percentage of importance: 91.7%, M=4.67, SD=0.65); reader friendly reading signs for older people in public spaces (percentage of importance: 91.7%, M=4.42, SD=0.67); accessible facilities in community service centers (percentage of importance: 100%, M=4.42, SD=0.67).

(2) Safe facilities

None of the evaluation indicators importance degree were over 90%.
The AARP (2015) Age-Friendly: inspiring communities report presents a collection of age-friendly "good practices." Among these, Tattnall Square Park is an example of how to make a part come alive for an entire city. In 2014, hundreds of supporters and partners helped to make the park a beautiful and age- and culturally-diverse public space and display of community pride.

4. Transportation

The transportation includes the dimension of transportation facilities and transportation services. Stephanie (2015) emphasized key characteristics of age-friendly cities and communities including transportation.

(1) Transportation facilities

The importance degree of the following two evaluation indicators were over 90%: free and specialized bus routes for older people (percentage of importance: 91.7%, M=4.33, SD=0.65); offering more, or more frequent, rehabilitation bus services (percentage of importance: 100%, M=4.67, SD=0.49).

(2) Transportation services

Using appropriate fonts for older people at the bus stop (percentage of importance: 91.7%, M=4.33, SD=0.89) is the only evaluation indicator rated over 90%.

In Edmonton's transit education programs, the program aims to educate older adults about using public transit to the ease of travel by public transportation. Follow-up surveys show that older adults who participated in the programs had achieved a greater understanding of the transit system and were more likely to use it in the future (AARP, 2015).

5. Housing

The housing includes one dimension of living environment consisted of multiple evaluation indicators. The only evaluation indicator believed to be important by more than 90% of offering housing security subsidies for solitary older people (percentage of importance: 91.7%, M=4.58, SD=0.67). To support older adults' desire to age in place, their housing needs must be well understood. Catherine, Marie & Suzanne (2014) uses the concept of meaning of home in later life to explore older adults' housing needs.

According to AARP (2015), for some Lyon residents, a city housing program creatively replicates the benefits of belonging to a multigenerational family household. There are approximately 1,000 apartments in the 12 city-owned residences for older people that are taking part in Lyon's program. Both older and younger people confirm that intergenerational living is an enriching experience.

6. Communication and information

The communication and information includes one dimension of accessible information, which is consistent with the study results of Ball & Lawler (2014). The following three evaluation indicators were judged 'important' by 90% of the experts: information technology developed for older people (percentage of importance: 91.7%, M=4.00, SD=0.74); public sectors providing large-print or bold-print reading materials on television captions and in publications (percentage of importance: 91.6%, M=4.50, SD=0.67); arranging periodic home visits or telephone care, and providing important information for solitary older people (percentage of importance: 100%, M=4.75, SD=0.45).

Among AARP (2015) the good practices of Age-Friendly report, Westchester's caregiver coaching program—caring for the caregivers, offers a vital service to family caregivers throughout the county. As a phone-based program, it can be replicated in other communities and is especially useful for rural areas or regions where getting around is a challenge.

7. Community support and health services

According to Fitzgerald & Caro (2014), age-friendly cities and communities should consider the community support and health services, which are consistent with this paper. Each dimension consisted of multiple evaluation indictors as follows:

(1) Community support

The importance degree of the following four evaluation indicators were over 90%: care locations set up in the community, and their usage rate (percentage of importance: 91.6%, M=4.50, SD=0.67); day care centers set

up in the community, and their usage rate (percentage of importance: 100%, M=4.83, SD=0.39); providing caregivers and care service, and their usage rate in the community (percentage of importance: 91.6%, M=4.75, SD=0.62); setting up activity centers and recreational facilities, and their usage rate in the community (percentage of importance: 91.7%, M=4.58, SD=0.67).

(2) Health services

The importance degree of the following two evaluation indicators were over 90%: proportion of beds for older people in long term care institutions (percentage of importance: 91.7%, M=4.42, SD=0.67); communities providing periodic health examination service and usage rate (percentage of importance: 100%, M=4.58, SD=0.52).

Every year, Des Moines University Medical School's 50 & Better Senior Health Fair offers older Iowans free medical screenings and health information in a friendly, social atmosphere. More than 300 older adults attend each 50 & Better Senior Health Fair. According to event evaluations, say they intend to change their health behaviors based on information received at the fair (AARP, 2015).

8. Civic participation and employment

The civic participation and employment includes the dimension of friendly employment environment and volunteer services. Greenfield, Oberlink, Scharlach, Neal & Stafford (2015) also claim that civic participation and employment are the key issues of age-friendly community.

(1) Friendly employment environment

The importance degree of the following two evaluation indicators were over 90%: employees over 65 years old with delayed retirement plans (percentage of importance: 100%, M=4.50, SD=0.52); providing an ageism-free working environment (percentage of importance: 91.7%, M=4.33, SD=0.65).

(2) Volunteer services

The importance degree of the following four evaluation indicators were over 90%: older people volunteering in public sectors (percentage of importance: 100%, M=4.75, SD=0.45); providing volunteer training sessions for older people (percentage of importance: 91.6%, M=4.50, SD=0.67); older people participating in service clubs (percentage of importance: 91.6%, M=4.25, SD=0.62); public sectors setting up human resource bank for senior volunteers (percentage of importance: 91.7%, M=4.36, SD=0.67).

The Stoke-on-Trent City Council won an AARP Best Employers International Award in 2014 (AARP, 2015), which is rapidly earning a reputation as a hotbed of economic growth and innovative approaches to promoting the employment of older workers. They value older staff as an integral part of workforce, in order to leading the way as an age-friendly employer.

IV. Conclusion

This study organized three rounds of the Delphi Method with experts to clarify, define and generate an evaluation framework and 65 evaluation indicators.

1.   The evaluation framework of age-friendly city includes 8 domains and 14 dimensions

This research uses WHO (2007) "*Global Age-Friendly Cities: A Guide*" to construct evaluation framework for age-friendly cities in Taiwan. The study concludes that the evaluation framework including 8 domains and 14 dimensions:

(1) The respect and social inclusion includes the dimension of respect, care, and support for older people.

(2) The social participation includes two dimensions of convenient services and accessible services.

(3) The outdoor spaces and buildings includes the dimension of friendly space and safe facilities.

(4) The transportation includes the dimension of transportation facilities and transportation services.

(5) The housing includes one dimension of living environment.

(6) The communication and information includes one dimension of accessible information.

(7) The community support and health services includes the dimension of community support, health services.

(8) The civic participation and employment includes the dimension of friendly employment environment and volunteer services.

2. Age-friendly city includes 65 evaluation indicators

In order to gain a better understanding of the prerequisites for establishing age-friendly cities in Taiwan, the researcher first designed 70 evaluation indictors. After the first round of the Delphi Method, the researcher modified the 70 evaluation indicators into 68 indicators. After the second round, these were modified into 65 indicators, which were used in the survey for this study. Details of these indicators of round three can be found in Appendix I.

3. Evaluation indicators were ranged between 'important' and 'very important'

In this study, the mean of the 65 evaluation indicators ranged from 3.83 to 4.92 on the Likert 5-Point Scale. In general, the evaluation indicators were located between "important" and "very important." The following evaluation indicators had the highest mean among the 14 dimensions:

(1) Respect and care for older people—proportion of solitary older people accepting home care services (e.g. food delivery, home services) (M=4.92)

(2) Support for older people—proportion of businesses serving senior citizens (e.g. health care, mobility aides, long-distance medical care) (M=4.67)

(3) Convenient services—proportion of public sectors providing special promotions for older people in various institutions and places; proportion of public sectors providing shuttle services for older people during public events (M=4.58)

(4) Accessible services—proportion of older people attending learning institutions (M= 4.67)

(5) Friendly space—proportion of public toilets with handicap access (M=4.83)

(6) Safety facilities—proportion of crosswalks / traffic lights with a time-extension button (M= 4.50)

(7) Transportation facilities—proportion offering more, or more frequent, rehabilitation bus services (M=4.67)

(8) Transportation services—proportion providing specialized public transportation promotions for older people (M= 4.58)

(9) Living environment—proportion offering housing security subsidies for solitary older people (M= 4.58)

(10) Accessible information—proportion arranging periodic home visits or telephone care, and providing important information for solitary older people (M=4.75)

(11) Community support—proportion of daycare centers set up in the community, and their usage rate (M=4.83)

(12) Health services—proportion of communities providing periodic health examination services and usage rate (M= 4.58)

(13) Friendly employment environment—proportion of employees over 65 years old with delayed retirement plans (M= 4.50)

(14) Volunteer services—proportion of older people volunteering in public sectors (M=4.75)

V. Recommendations

This study aims to develop evaluation indicators to emphasize both services and facilities. The researcher employed the Delphi Method to collect data. The findings concluded 8 domains, 14 dimensions and 65 evaluation indicators that help to enhance the quality of service systems and the framework for aging in place. The implications of indicators developed to policy and practice are as follows:

1. For government agencies

(1)   Advocate the importance and value of age-friendly city evaluation indicators

According to the first and second part of the conclusion, this paper identifies 8 domains, 14 dimensions and 65 evaluation indicators of age-friendly city, ranging from "important" to "very important." Government agencies play a crucial role in advocating for the importance and value of these evaluation indicators, and in encouraging cities and counties to develop the infrastructure of age-friendly city in order to meet the trend of aging society in Taiwan.

The Health Promotion Administration, Ministry of Health and Welfare played a key role in bringing about age-friendly cities across Taiwan by leading public and private agencies, institutions, or groups to actively develop age-friendly environments and services. Through these policies, over 3,253,000 elders can enjoy policies related to respect and social inclusion and social participation as well as a high quality golden age.

(2)   Set up priorities for establishing an age-friendly city

According to the third part of the conclusion, the mean of 65 evaluation indicators ranged from 3.83 to 4.92. There are 5 indicators which mean score is more than 4.75, this study makes the following suggestions for setting the priorities for establishing age-friendly city.

     a. Encourage more elder institutions to care solitary older people, to offer home care services (e.g. food delivery, home services) for those who are disability.

     b. Fully set up public toilets with handicap access, especially in elder institutions and public places.

     c. Encourage more elder institutions to arrange periodic home visit or telephone care, and providing important information for solitary older people.

     d. Set up day care centers in the community, and improve usage rate as much as possible.

     e. Encourage more older people to participate in volunteer in public sectors.

2. For older adult education institutions

(1)   Use age-friendly evaluation framework as a reference for curriculum design

According to the first part of the conclusion, the age-friendly city included 8 domains and 14 dimensions. The researcher suggests educational institutions to edit and publish age-friendly city pamphlet to promote the importance of each domain and dimension. In addition, according to the second part of the conclusion, the evaluation indicators proposed in this study, are recommended to educational institutions as a reference for curriculum design. The indicator "public sectors planning events related to respecting older people" reached 100% of importance in the dimension of respect and care for older people. Thus, older adult education institutions can design curriculum related to aging education.

Although lifespan-aging education has been endorsed since the first White House Conference on Aging in 1961, little is happening with aging education in our homes, schools and communities. Older adult often reach old age with little or no formal education on aging or anticipatory guidance about aging. Therefore, the content should focus on what is happening in aging process, addresses why we need to know about aging, presents a conceptual framework for aging education, discusses aging education resources, and gives some easily implemented aging education activities.

(2)   Emphasize the importance of offering courses related to respecting and caring older people

According the third part of the conclusion, the indicator "proportion of solitary older people accepting home care services" (e.g. food delivery, home services) has the highest mean (M=4.92) in the domain of respect and social inclusion. Thus, older adult education institutions should integrate issues related to respect and social inclusion into their curriculum with the goal of accepting and including older people. On the other hand, older adult education institutions can provide various learning activities for inter-generations, in order to improve their interaction and social bond, and to increase positive aging experiences.

Appendix I Evaluation indicators of age-friendly city in Taiwan

Domain	Dimension	Evaluation indicators	M	SD
Respect and social inclusion	Respect and care for older people	Proportion of special service counters for older people in public sectors	4.42	0.90
		Proportion of compulsory-education courses related to aging education	4.50	0.80
		Proportion of solitary older people accepting home care services (e.g. food delivery, home services)	4.92	0.29
		Proportion of public sectors planning events related to respecting older people	4.50	0.52
		Proportion of public sectors planning intergenerational events and activities (i.e. activities which focus on interactions between different generations)	4.42	0.52
	Support for older people	Proportion researching and developing living necessities or assistive devices for older people with different levels of disability	4.42	0.52
		Proportion of businesses serving senior citizens (e.g. health care, mobility aids, long-distance medical care)	4.67	0.49
		Proportion of public sectors providing training sessions for serving older people (assisting older people and ensuring their safety in outdoor activities)	4.33	0.65
Social participation	Convenient services	Proportion of community service centers located within 15 minutes from where older people live and that can be easily accessed	4.50	0.52
		Proportion of public sectors providing special promotions for older people in various institutions and places	4.58	0.67
		Proportion of public sectors providing shuttle services for older people during public events	4.58	0.67
	Accessible services	Proportion of older people attending learning institutions	4.67	0.49
		Proportion of social welfare organizations for older people	4.08	0.67
		Proportion of public sectors providing free elder learning activities	4.17	0.84
		Proportion of older people attending assemblies and seminars related to aging issues	4.25	0.75

Domain	Dimension	Evaluation indicators	M	SD
Outdoor spaces and buildings	Friendly space	Proportion of reserved seats for older people in public places	4.33	0.78
		Proportion of pedestrian paths set up for people with disabilities	4.75	0.45
		Proportion of traffic deaths involving older people	4.50	0.91
		Proportion of public toilets with handicap access	4.83	0.39
		Proportion of underpasses and footbridges with elevators	4.67	0.65
		Proportion of reader friendly reading signs for older people in public spaces	4.42	0.67
		Proportion of barrier-free facilities in community service centers	4.42	0.67
	Safe facilities	Proportion of crosswalks / traffic lights with a time-extension button	4.50	0.80
		Proportion of pedestrian crossing signals	4.08	1.00
		Proportion installing emergency alarms for older people	4.33	0.78
Transportation	Transportation facilities	Proportion of free and specialized bus routes for older people	4.33	0.65
		Proportion of low-floor buses	4.50	1.00
		Proportion offering more, or more frequent, rehabilitation bus services	4.67	0.49
		Proportion of reserved (senior) seating	4.42	0.90
		Proportion of benches (with shelter) at the bus stop	4.42	0.79
		Proportion of reserved seating on public transportation	4.25	0.89
		Proportion of affordable parking spaces for older people	3.83	1.00
		Proportion of walking frames for boarding and disembarking from a taxi	3.92	1.00
	Transportation services	Proportion providing public transportation timetables	4.08	0.90
		Proportion using appropriate fonts for older people at the bus stop	4.33	0.89
		Proportion providing specialized public transportation promotions for older people	4.58	0.67
		Proportion of special public transportation counters for older people	4.08	0.94
		Proportion offering age-friendly training services for public transportation service providers (e.g. drivers)	4.42	1.00
Housing	Living environment	Proportion of barrier-free houses designed for older people	4.42	0.79
		Proportion offering housing security subsidies for solitary older people	4.58	0.67
		Proportion offering government-built senior apartments	4.17	0.72

Domain	Dimension	Evaluation indicators	M	SD
Communication and information	Accessible information	Proportion of information related to health education and social welfare conveyed through newspapers, mass media, and email	4.25	0.97
		Proportion of information technology developed for older people	4.00	0.74
		Proportion of public sectors providing large-print or bold-print reading materials on television captions and in publications	4.50	0.67
		Proportion arranging periodic home visits or telephone care, and providing important information for solitary older people	4.75	0.45
		Proportion providing government subsidies for commutative equipment and reduced fares for low-income, solitary older people	4.08	0.79
Community support and health services	Community support	Proportion of care locations set up in the community, and their usage rate	4.50	0.67
		Proportion of day care centers set up in the community, and their usage rate	4.83	0.39
		Proportion providing caregivers and care service, and their usage rate in the community	4.75	0.62
		Proportion setting up activity centers and recreational facilities, and their usage rate in the community	4.58	0.67
	Health services	Proportion of beds for older people in long term care institutions	4.42	0.67
		Proportion of doctors of Gerontology in medical institutions	4.25	0.97
		Proportion of communities providing periodic health examination service and usage rate	4.58	0.52
		Proportion offering periodic health seminars, and their usage in the community	4.50	0.80
		Proportion providing government-managed long-distance home care for older people	3.92	0.90

Domain	Dimension	Evaluation indicators	M	SD
Civic participation and employment	Friendly employment environment	Proportion of employees over 55 years old	4.25	0.75
		Proportion of educational training sessions provided for employees over 55 years	4.25	0.87
		Proportion of employees over 65 years old with delayed retirement plans	4.50	0.52
		Proportion offering government assistance to employees over 55 to start their own business, or providing promotional planning	4.00	0.74
		Proportion of the successful employment recruiting rate for people over 55 years old	4.08	0.67
		Proportion providing an ageism-free working environment	4.33	0.65
	Volunteer services	Proportion of older people volunteering in public sectors	4.75	0.45
		Proportion providing volunteer training sessions for older people	4.50	0.67
		Proportion of older people participating in service clubs	4.25	0.62
		Proportion of public sectors setting up human resource bank for senior volunteers	4.36	0.67

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