SP: OTHERS

An academic approach for private gerontechnology certification and establishment of gerontechnology graduate schools in Korea

W.-J. Shim (Convener)[1], Y.-J. Lee (Moderator)[2]

Participants*: Ye-Jong Lee(Korea), Woo-Joung Shim(Korea), Sun-Ja Chang(Korea), Hong-Gyun Kim(Korea), Chun-Hee Choi(Korea). **ISSUE** Gerontechnology is a design aimed at improving the lives of older people. In Korea, the average life expectancy exceeds 80 years, with many older individuals living beyond 90. Socially, retirement begins before the age of 60, and over 8 million baby boomers are entering retirement. These individuals have 30-40 years or more of life ahead of them, and it is essential to guide them on how aging will progress, how to prevent and compensate for aging, and how to improve their quality of life by evaluating and organizing relevant technologies. In particular, in the case of caregiving, it is crucial to address the reluctance of individuals to become care recipients and their inability to actively respond to such needs. Therefore, it is important to promote the dissemination of Gerontechnology experts, including scholars, researchers, and other professionals, who can address these issues from the perspectives of the individuals involved, consultants, and providers. We aim to introduce and operate Gerontechnology Planners in Korea and gather key figures responsible for establishing Gerontechnology Graduate Schools to discuss what needs to be done from an academic perspective. **STRUCTURE** Woo-Joung Shim will present on the establishment and operation plans of the Gerontechnology Graduate School and compare it with other courses. Based on the roles and research directions of Gerontechnology researchers, he will propose the educational goals, course composition, curriculum, degree requirements, industry-academia-research network plans, and ISG collaboration strategies for the Gerontechnology Graduate School. Sun-Ja Chang will present a private certification for Gerontechnology Planners, including job contents, the criteria for qualification assessment, and the curriculum for planners. She will also mention the potential of the Gerontechnology Planner and the competencies that policymakers, researchers, and suppliers need to possess. Hong-Gyun Kim will explain the Gerontechnology toolkit used by users and planners. He will mention comprehensive tools aimed at improving life by setting and solving life goals, beyond just product services. Chun-Hee Choi will present cases of Gerontechnology planning. Utilizing the Gerontechnology tool kit, she will showcase life improvement planning conducted by Gerontechnology users, researchers, suppliers, and consulting experts. She will also discuss the issues with the tools and their potential development directions. **CONCLUSION** In the context of the aging paradigm and rapidly evolving scientific and technological era, the introduction of certification programs and the operation of a graduate school to train experts in innovating later life are timely and expected to contribute significantly to the advancement of Gerontechnology. Successful aging is a response to the combination of the aging of society and rapidly emerging new technologies, and training in Gerontechnology must be dynamic and expansive[1]. The establishment of a Gerontechnology Graduate School and the introduction of certification for Gerontechnology Planners are good initiatives. Therefore, it is essential to have ongoing, in-depth discussions on various visions, objectives, practical experiences, and development directions related to these introductions.

References

Gutman, G. (Convener) (2018). Beyond master classes: Other innovative opportunities for training in Gerontechnology. Participants A. Sixsmith (Canada), Y-L Hsu (Taiwan) H. Kort (Netherlands). Gerontechnology, 17(s),200s. https://doi.org/10.4017/gt.2018.17.s.195.00

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Introduction of gerontechnology graduate schools in Korea and comparison with other courses

W.-J. Shim

Purpose The International Society for Gerontechnology (ISG) offers masterclasses aimed at advancing knowledge and expertise in Gerontechnology. These masterclasses provide intensive training and foster collaboration among students, researchers, and professionals in the field. The World Academy of Gerontechnology (WAGT) encourages and promotes teaching that combines the strengths of gerontology and technology in a multicultural and transdisciplinary way. Programs such as the AGE-WELL Network's EPIC, the Gerontechnology design school, and the Health and Engineering Summer School focus on Gerontechnology and successful aging. The Gerontechnology Education Network in Europe (GENIE) program was discontinued after three years, with none of the participating universities continuing it as a formal BSc or MSc program. However, master's programs such as the Master of Science in Applied Technology and Aging (MSATA) at the University of Southern California and the Master of Science in Smart Ageing and Gerontology at Lingnan University are currently being offered. Many gerontechnologists agree on the importance of life innovation through Gerontechnology, emphasizing the need for MSc and Ph.D. programs. Now, the ISG Korean chapter is challenging itself to establish a Gerontechnology graduate school in Korea to train master's and doctoral students. The goal is to find, develop, and guide useful and varied gerontechnologies. Therefore, discussions among various stakeholders are necessary. **Method** To address global aging, we aim to establish master's and doctoral programs focusing on Gerontechnology, based on the vision of nurturing experts and leaders who will innovate the quality of life and society for older persons. Our goal is to create a program that nurtures Gerontechnology researchers and developers who possess both theoretical knowledge and practical experience. The MSc program will span 4 semesters, and the Ph.D. program will be completed over a total of 8 semesters. We will structure the coursework and dissertation guidance in the doctoral program in stages as follows: foundational abilities in Gerontechnology (2 semesters), integrative abilities (2 semesters), leadership abilities (2 semesters), and theoretical abilities (2 semesters). This course will enable students to understand the stages of aging and identify the needs of older persons, integrate human-centered science and technology, and develop the skills needed for planning, conducting research and development, operating, evaluating, and improving Gerontechnology projects. Additionally, by studying Future Studies, Future Strategy, and Future Research Methodology, the program will provide the capability to conduct integrative research and development on the senior life and Gerontechnology design in response to changes in science and technology. **Results and Discussion** This course emphasizes the academic value of merging experiential value, technology, and environment, focusing on the life goals and living innovations for older individuals. The key difference from existing courses is that it is specialized for policy researchers, government officers, planners, engineers, nurses, or humanities and social sciences majors to understand aging and improve lives. Graduates, both master's and doctoral, will lead in researching, discovering, planning, developing, evaluating, organizing, and guiding. They will also be certified as Gerontechnology Planner Masters, fostering synergy between academia and practical application. Global cooperation is essential for this endeavor.

Table 1. Courses

1	Introduction to Gerontology	12	Gerontechnology Toolkit Research
2	Gerontological Psychology	13	Cognitive Science Convergence
3	Introduction to Gerontechnology	14	Future Studies in Gerontechnology
4	Physical Activity and Aging	15	Gerontechnology and Policy
5	Sociology of Aging	16	Gerontechnology Leadership*
6	Environmental Gerontology	17	Qualitative Research in Gerontech
7	Case Studies in Gerontechnology	18	GT Future Forecasting Methodology
8	Quantitative Research in Gerontech	19	AI & Senior Life DX
9	Service Design	20	GT Future Strategy Research Methods
10	Cultural Technology (CT) Convergence	21	Thesis Guidance I**
11	Gerontechnology Counseling	22	Thesis Guidance II, III, IV

Figure 1. Overview of the proposal
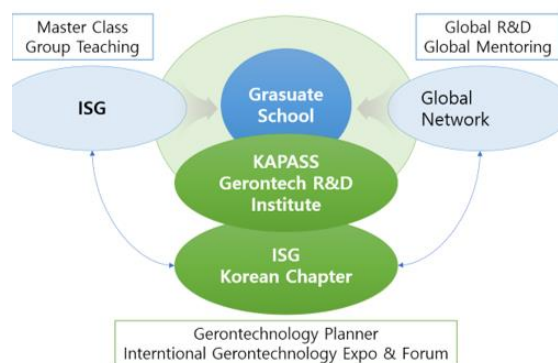
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Introduction and potential of the gerontechnology planner in Korea

S.-J. Chang[1], W.-J. Shim[2]

Purpose In North America, a Rehabilitation Engineering Technologist (RET) applies engineering principles to the design, modification, customization, fabrication, and/or integration of assistive technology for persons with disabilities[1]. The Assistive Technology Professional (ATP) certification recognizes demonstrated competence in analyzing the needs of consumers with disabilities, assisting in selecting appropriate assistive technology for their needs, and providing training in the use of the selected devices[2]. In Korea, an Assistive Technology Engineer develops, maintains, repairs, and customizes various commercial assistive technology devices to help individuals with disabilities or the elderly overcome physical and mental challenges in their daily lives[3]. Currently, the qualifications for assistive technology professionals primarily focus on individuals with disabilities, emphasizing rehabilitation, medical, and economic interventions, and intermediary roles. However, there is a growing need for qualifications that comprehensively address the aging process, including prevention, compensation, care, and overall quality of life for older persons. **Method** A Gerontechnology Planner is responsible for understanding the lifestyle changes of individuals in various stages of aging, assessing their current situations, and utilizing a range of technologies and environments to improve their living conditions. Their duties include investigating, analyzing, planning, implementing, guiding, and communicating technological and environmental solutions to enhance the quality of life for the elderly. The certification levels are divided into Level 2, Level 1, and Master levels, assessed through written and practical exams. The subjects are categorized into Introduction to Gerontechnology, Assessment and Counseling for Aging Individuals, Aging and Lifestyle Changes (physical, psychological, social), Presentation of Papers on the Application of Technological Environments, Planning Reports using the Planner Toolkit, and Methods of Teaching Gerontechnology. The applicable subjects vary depending on the certification level. Two universities have organized courses to obtain the Level 2 certification. Additionally, at six universities, students can obtain the Level 2 certification by taking the Introduction to Gerontechnology and Gerontechnology Practicum (Toolkit) courses. For the Master level, a special course involving the study of Gerontechnology value assessment and planning toolkit is required to obtain the certification. **Results and Discussion** The reason we use the term "Gerontechnology Planner" is that, under domestic law, it is impossible to call them "Gerontechnologists." The terms 'technician', 'engineer', and 'technologist' can only be used for positions recognized by the government. Therefore, 'Gerontechnologists' cannot be used as a certification title because it corresponds to 'engineer'. However, 'Gerontechnologists' can be used as a general term to refer to researchers and developers, not as a certification title. These individuals are the most knowledgeable about gerontechnology and possess the competencies to work in related fields. We can also use the terms "Gerontechnology Adviser" and "Gerontechnology Developer." It has been registered as a private certification in Korea, and 20 individuals were awarded the Level 2 certification through the first training session. The second training session will be offered during the summer vacation. Continuous improvement of standard textbooks and ongoing academic research at the master's and doctoral levels are necessary. It is essential to compile and share numerous case studies that Level 2 and Level 1 certificate holders can utilize.

Table 1. Courses

Course	Hours
Course Introduction, Greetings, Self-Introduction	1
Introduction to Gerontechnology	3
Physical Aging and Life (Problem Identification and Response)	6
Psychological Aging and Life (Problem Identification and Response)	6
Social Aging and Life (Problem Identification and Response)	6
Methods of Elderly Counseling	6
Analysis of Gerontechnology Cases (Prevention, Compensation, Care, Quality of Life)	8
Application Technologies (Advanced Tech., Cultural Tech., Human-Centered Design, Service Design, Service DX)	12
Introduction to Gerontechnology Toolkit	2
Gerontechnology Planning Practice (Step-by-Step Practice, Team Practice)	10
Gerontechnology Planning Presentation & Evaluation	4
Graduation Ceremony	2
Total	66

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1. Rehabilitation Engineering Technologist (RET); https://www.resna.org/Certification/Assistive-Technology-Professional-ATP
2. Assistive Technology Professional (ATP); https://www.resna.org/Certification/Rehabilitation-Engineering-Technologist-RET
3. Assistive Technology Engineers; https://www.kuksiwon.or.kr/subcnt/c_2031/1/view.do?seq=7&itm_seq=16

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Introduction and potential of the gerontechnology toolkit

H.-G. Kim[1], W.-J. Shim[2]

Purpose There are various general design methodologies such as service design toolkits, design thinking, new product planning, blue ocean strategies, and innovative technology development. These methods provide multiple ways, methods, and instruments to integrate users into the innovation process, with the choice of method depending on the context. However, most studies do not evaluate if participatory approaches will lead to better acceptance and/or use of the co-developed products[1]. In the case of Gerontechnology, it is crucial for older adults to be aware of their aging process and to be guided on how to prepare for it. From the initial needs assessment, there should be a comprehensive process to improve life quality through science and technology. Retirement planners must also incorporate scientific and technological advancements into their plans. Therefore, the Gerontechnology Toolkit approaches from an overall perspective to enhance the individual's life quality. **Method** Based on the assumption that the current Recognition of Aging does not reflect science and technology, we aim for an innovative aging life. Life improvement focuses more on fulfilling complete tasks rather than improving individual functions. Therefore, the main process proceeds in the following order: Understanding and Empathizing with Aging, Predicting Aging Life, Designing Life/Response Plans, Investigating/Analyzing Technological Environment, Technological Environment Integration Model, Acting/Implementing, and Improvement. This toolkit is divided into three areas of Gerontechnology and consists of tools for users to perform, tools for researchers/developers and suppliers to develop products and services, and consultant tools that act as intermediaries between users and researchers/developers. There are a total of 11 tool areas, including tools for aging recognition and simulation tools. Each area contains various tools. **Results and Discussion** Participants using the toolkit were able to anticipate aging, set life goals, identify problems, and create and implement new life models applying technology. Some users find it difficult to anticipate their aging and the benefits of new technologies. They prefer small-scale planning that achieves a clear life task. Providers and advisors require many case studies. Gerontechnology masters need to evaluate, organize, and disseminate various gerontechnologies. Toolkits should become more precise according to their purposes.

References
1. Sebastian Merkel, Alexander Kucharski, Participatory Design in Gerontechnology: A Systematic Literature Review, The Gerontologist, Volume 59, Issue 1, February 2019, Pages e16–e25, https://doi.org/10.1093/geront/gny034

Figure-1. Gerontech Planning Process & Toolkit
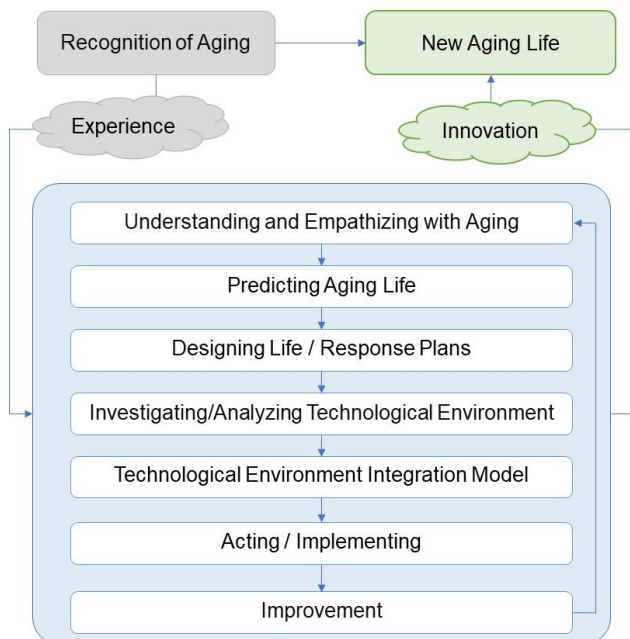
Table 1. Toolkit

Item	Tools
Understanding of Aging	Aging Awareness Tools
Methods to Understand and Empathize with Aging	Aging Knowledge Tools
Methods to Anticipate Life in Old Age	Old Age Life Assessment Tools
Methods to Design Life / Devise Response Plans	Life Design / Solution Tools
Methods to Discover and Evaluate Various Technologies	Technology Analysis Tools
Methods to Apply to Oneself / Subjects (Models)	Model Derivation Tools
Methods to Simulate	Simulation Tools
Methods to Evaluate Changes	Evaluation Tools
Methods to Revise Designs	Quality Tools
Methods to Apply Practically	Implementation Tools
Methods to Record Cases	Case Tools

Case study on gerontechnology planning

C.-H. Choi[1], W.-J. Shim[2]

Purpose. We have developed a Gerontechnology Toolkit and provide education and certification for Gerontechnology Planners. We are curious if the toolkit effectively improves the lives of older adults. It is essential to analyze various cases and make improvements. **Method** Since June 2022, we have explored the potential of planning through lectures and planning for users. In the first half of 2023, university undergraduate students participated in practical exercises as part of their coursework. In the second half of the year, graduate students engaged in practical exercises. In 2024, practical exercises will be part of the certification program. Students have the option to proceed from the perspective of users, provider staff, or consultants/advisors. **Results and Discussion** The planning conducted by the three groups—users, advisers/consultants, and suppliers/developers—had mixed results; some aspects were feasible, while others were not. It is important to achieve small, easily attainable goals frequently, such as methods for motivating people. The effectiveness is difficult to measure physically and can be understood through subjective evaluations of life changes. Users need abundant reference materials that are easy to find and apply. Some users find it difficult to plan like experts. While advisers/consultants can do this well, they need specialized data tools to understand the value and application effects of technologies. Suppliers/developers need data tools to find the models most suitable for their technology.

Figure 1. Gerontechnology planning sheet

Gerontechnology planning for ( )		
Role	□ User □ Adviser/Consultant □ Supplier/developer	
Title		
Overview		
Aging of ( )		
Designing the Aging Life of ( )		
Discovery of Technology		
Technology and Environment Model for ( )		
Model Evaluation		
Expected Effects		

Figure 2. Gerontech planning practice(Feb., 2024)

Figure 3. Gerontech planning practice(June, 2024)