



Development and Application of an Integrated Curriculum Centered on Mathematics for Elderly Generations

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Purpose: To develop an education program based on adult learning principles and actual experiences of elderly generations to develop an integrated curriculum centered on Mathematics.

Methods: Using a theme-based integrated curriculum design for a particular group of elderly learners (n=4x18), this study followed a sequence in program development: Assessing the needs, choosing a theme, studying a topic, writing a rationale, brainstorming, stating the learning objective, planning the project, establishing detailed activity plans, programming the learning time, and assessing the efficiency and the validity.

Results: Using our data analysis, core concepts were applied to everyday experiences of travel and cooking; the need to develop numeracy for elderly generations informed the development of unit objectives and learning outcomes within a Korean adult literacy curriculum. Implementation of the curriculum led to some improvement as evident from the pre- and post-results using the K-mmse; it was also possible for the elderly generations to engage in cooperative learning events and complement each other during the problem solving processes.

Conclusion: This study is significant in that it develops and applies the principles of Problem-based Learning (PBL) - an integrated curriculum design, use of real-life topics and consideration of the needs of the learner, in this case, elderly generations. As a learner-centered curriculum, it gave greater motivation to learners and made the mathematics subject relevant to their needs. It is necessary to consider the diversity across generations of learners and develop curricula in accordance with their needs.

Keywords: Integration Curriculum; Elderly generations; Mathematics; Curriculum; Thematic

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INTRODUCTION

'Integration' implies 'the connection of things for the whole', or 'qualitative change to combine components into a new whole' (Myeoung, 2002). Over two decades ago the seventh curriculum for secondary education reestablished the concept of an integrated curriculum encouraging its management using activity-based topics rather than attempting integration across subjects (The Ministry of Education, 1997). However, integration is not evident within the environment of adult education in Korea. The National Institute for Lifelong Education was established as a part of aspirations for an approach to lifelong education or ongoing learning. Nevertheless, approaches to Korean education have not realized any principles for curriculum development for mature adults, although there are some positive developments.

Resources for elderly generations now center on 'The Adult Literacy Text (The National Institute for Lifelong Education, 2012)' emerging from a national project; the 2019 Adult Literacy Text will be soon published as a revised edition. Trial and error was a feature of the early stages of curriculum development suited to the principles of adult learning but curricula for the elderly

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generations of learners have made their mark through two development processes. Thus, our study on the development and application of an integrated curriculum is designed for elementary and secondary courses of adult literacy, providing suggestions for the methodology of curriculum development. The elementary course within these curricula focuses on adult literacy; when embedded within a secondary course, the same principles can be realized within a subject. The characteristics of this adult literacy curriculum for elderly generations in Korea are based on learning events reflecting everyday experiences of members of the elderly learners. The mathematical concepts underpinning the development of numeracy, should be considered a priority.

Curriculum design featuring the experiences of an elderly generations, and those of adults, overlap within a range of subject-based curricula; the overlap becomes intensified within topics and the incremental development of mathematical concepts. Some formal subjects can be seen as meaningless and time-wasting for the elderly. The ultimate goal for elderly learners is to improve their quality of life.

The learning needs of elderly generations are important as changes in society, especially around technologies, impact their lives. Elderly generations have led their lives independently. Their quality of life has become a hot issue in our society. Thus, we suggest the use of more learner-centered integrated curricula based on real life situations, reflecting everyday experiences. This integrated curriculum centered on mathematics emphasizes learning processes reflecting intuitive thinking, the development of cooperative teaching and learning among seniors to promote positive attitudes and integration of relevant information and knowledge in modern society.

Consideration of the hierarchical map of mathematical concepts was central to the education programs based on other real-life experiences of elderly learners. This study was designed to describe the outcomes of an integrated approach to development and application of relevant concepts centered on mathematics for elderly generations and how it applies in daily practice.

THEORETICAL BACKGROUND

1. Theme-based Integrated Education

'The Integrated Approach' has developed as a part of progressive education; it has been actively studied in Korea since 1990 (Kim, 2000). As early as 1979, Ingram reported that an integrated curriculum is significant for the following reasons that remain today.

First, learners can cultivate the ability to handle the extensive knowledge and information, that has increased these days.

The main ideas and basic principles underpinning integration

are drawn from and reflected in a wide range of studies. Also, ideas from different realms of knowledge are linked in an organized way, promoting their relevance, accessibility, penetration and wholeness.

Second, the integrated approach makes learners follow their own learning process. The reflective thinking of Dewey (1933) and the discovery learning of Bruner (1961) emphasizes the learning process itself, asserting inquiry-based activities with topics rather than the acquisition of factual information. So, it can achieve a sense of balance within an individual as well as between the individual and the environment, developing evenly the cognitive and affective areas at the same time.

Third, integrated approaches have the function of learning how to cope with social problems. To solve various problems occurring in modern society, it is necessary that one should have the integrated knowledge applicable to many fields, not just knowledge of a specific field. In other words, the learning and the life experiences should not be isolated from Third, integrated approaches have the function of learning how to cope with social problems. To solve various problems occurring in modern society, it is necessary that one should have the integrated knowledge applicable to many fields, not just knowledge of a specific field. In other words, the learning and the life experiences should not be isolated from each other; school education for example should apply to everyday life.

Therefore, integrated educational content and processes are designed to link a lot of ideas systematically, helping with problem solving, organizing them in accordance with the development of learners, promoting their holistic growth, increasing cooperation among peers and thus maximizing the learning effect based on the interaction among the elements.

2. Integrated Curriculum Centered on Mathematics for Elderly generations

Research relevant to this study centered on mathematics education for elderly generations suggests it has application as follows: analysis of interactions between seniors in speed calculation, mathematics for development of thinking and gaming skills (Seo, 2007), approaches to development of programs to investigate mathematical characteristics relevant to the elderly in terms of cognitive and other affective areas (Lee, 2007;Joo, 2007;Lee, 2008) and analysis of 'calculation characteristics' in seniors (Choi, 2008).

Although few programs have been based on research, these are mainly composed of real-life topics and calculations. A mathematics literacy program was recently developed based on the experiences of elderly generations with mathematics education (Lee & Ko, 2018). The experiences of elderly generations should have a central place in education considering their cognitive and affective needs.

3. Literacy Educational Processes for Adults

The necessity for literacy educational processes for adults has been raised as an essential foundation to establish systems to certify qualifications, to provide literacy education for adults, to increase demand for learning materials, and to develop independent processes of education. The latter, suitable for adult learners, are differentiated from those for juvenile learners, especially in the field of literacy education. Thus, emerging from a focus on queries about demands for educational sites for literacy education for adults, consideration of the needs of professionals, developing textbooks for such education, thoughts of researchers, and advice from professionals working at their actual worksites, an essential system and content within a textbook was finalized ([The National Institute for Lifelong Education, 2012](#)).

The components for national literacy education for adults include suggestions for each step.

4. Real-life Topic Selection

In the Development Model of theme-based Integrated curricula ([Fraze & Rudnitski, 1995](#)) the assessment process was as follows; ① Assessing Needs → ② Choosing a Theme in the Organization of Curriculum → ③ Selecting a Studying Topic for Each Subject → ④ Writing a Rationale for the Selected Topic and Concept → ⑤ Brainstorming → ⑥ Making a Statement for the Learning Objective → ⑦ Designing the Project → ⑧ Establishing the Detailed Activity Plan → ⑨ Planning the Learning Time → ⑩ Considering the Efficiency and Validity of Integrated Curriculum.

Our needs analysis suggested a program design to reflect cognitive and affective characteristics of elderly generations who might have graduated a long time ago or did not attend school at all. We tried to reflect excitement around their needs to learn mathematical concepts, as they thought these difficult to study and apply in many real-life situations. Their goal to learn about mathematical ideas was located around improvement in their quality of life. We selected life-based materials, that elderly generations are highly likely to develop an interest in and absorb because they are based on their experiences; we then applied these to concepts from the relevant mathematical text.

METHODS

[Table 1](#) outlines the approach taken.

First, we investigated and then integrated the theories from the relevant literature to develop real-life education programs centered on mathematics using a ‘theme-based integration’ approach.

Second, we selected the developmental stages of theme-based education program based on the evidence from research before

program development progressed.

Third, we considered the content validity of the education programs which we developed, with two onsite specialists and one educationalist; we then modified our plan according to feedback.

Fourth, we carried out the field study to search demonstrate effectiveness in application and demonstrate the worthiness of the chosen curriculum approach. The field study was carried out 18 times on a group of four elderly learners in the lifelong learning school located in Suwon, Korea.

RESULTS

1. The development of an integration curricula centered on Mathematics for Elderly generations

A. a) Selection of Educational Objectives and b) Learning Content

a) This study is designed as the developmental research of curriculum for elderly generation learners, comprehensively forming the real-life topics in the mathematics subject to improve the quality of life for learners.

b) the learning content used to develop centered on mathematics real-life curriculum is shown in [Table 2](#).

B. The Content of 2007 Adult Literacy Education Course by Topic

The content of education programs, related to travel and cooking, are classified by subject, the relationship between them and those of 2007 Adult Literacy Curriculum.

Curriculum content was shown in [Table 2](#). The 2007 Adult

Table 1. Study approach

Procedure	Contents
Analysis	Consideration of theme-based curriculum: Integration Theory
	↓
Design	Selection of Education Program Development Model
	↓
Development	Education Program Topic Organization Education Program Development
	↓
Assessment	Assessment of Education Program -Expert Assessment of Content Validity -Learning Subject Assessment through Preliminary Courses
	↓
Application	Application of Integrated Curriculum Program for Adult Learners

*Application of K-mmse: Korean version of Mini-Mental State Exam ([Folstein et al., 1975](#); [Lancu & Olmer, 2006](#); [Oh et al., 2010](#))

Literacy Curriculum consists of Wish Tree (Volume1~Volume4), Learning Tree (Volume5~Volume8) and Wisdom Tree (Volume9~Volume12) by stages; however, we are presenting only Volumes 1 ~ 12' for convenience in this study.

a) The Topic of 'Travel'

The education program topic 'Travel', relates to 'Korean, Mathematics, and Society' in the 2007 Adult Literacy Curriculum, the major resource used. Specifically, the mathematics is based calculations, while the Korean and Society are related to their real life experiences; details are as follows in Table 3.

b) The Topic 'Cooking'

The topic cooking also relates to relevant material within the Learning Resources contained in other units: Korean,

Mathematics, English, Science and Society in the 2007 Adult Literacy Curriculum. Details are presented in Table 4.

C. Systematization of Learning contents

Subcategories for learning content were grouped and systematized; then, those concepts in each group were integrated through comprehensive integration processes to organize units. These are presented in the following flowcharts.

a) Integration of learning content in Figure 1.

b) The Composition of Units and Establishment of Education Objectives in Table 5.

Table 5. The establishment of education objective based on the comprehensive integration in travel

Classification	Education Objectives
1. Summary	
General Objective	To understand the overview of the travel unit.
Detailed Objective	To understand the learning content in the travel unit.
2. Basic Knowledge	
General Objective	To understand the basic knowledge for travel plans.
Detailed Objective	To read and use calendars and timetables. To make use of cellphone. To understand how to calculate the time and the hour. To understand the concept and application of tables and diagrams. To understand the concept of distance and speed. To understand the weather and tour maps. To understand the concept of calculation. To understand how to search via internet.
3. Application and Problem Solution	
General Objective	To enable the solution to problems through activity tasks.
Detailed Objective	To meet scheduling for meetings. To confirm the weather and the location. To make reservations and scheduling (including ticketing and accommodation) To open an account and issue a cash card. To have the emergency measure (including hospitals and pharmacies) in a travel destination.

Table 2. Reality-based stimulus material

Classification of Real-Life Topics	Subcategories	Mathematical Activities	Learning Content
I . Travel	Budget planning	Calculation	Calculation
		Calculator Application	Calculator
	Weather Checking	Account Opening	Understanding of Interests and Calculation
		Temperature (°C) Unit	Understanding of Symbols Understanding Temperature Understanding Fine Dust Unit
Scheduling using a table	Table Making	Application of Computers and Smartphones Understanding Tables Understanding Diagrams Scheduling using tables and diagrams Scheduling and Smartphones	
Ticket Preserving		Calculation PC Application	Calculation Calculator Computer Application
II . Cooking	Basic Unit Diary	Volume and Weight Unit Diary	Volume and Weight Unit Diary Material Composition
	Nutrient Profile Diary	Pie Graph	Pie Graph Nutrient Composition Diary using a Pie Graph
		Bar Graph	Bar Graph Diary Nutrient Comparison using a Bar Graph
	Understanding of Safety Regulations	Electricity Use	Safety Cooking Utensil Manual Using the Electronic Product Manual
	Emergency Measure	Minor Wound Treatment Visiting a hospital/Calling an ambulance	

Table 3. Travel: Content from 2007 Adult Literacy Curriculum

Subject	Title	Contents	2007 Adult Literacy Curriculum
Korean	Going on a Visit	To go on a visit with friends.	Volume 2 Chapter 13
Mathematics	Calendar	To make and read a yearly or a weekly calendar.	Volume 2 Chapter 17
Mathematics	Watch	To read the time and the digital watch.	Volume 3 Chapter 17
Korean	Sign	To read and write the names of various signs and then name them in accordance with attached pictures.	Volume 3 Chapter 15
Mathematics	Addition and Subtraction	To understand the symbols of 'plus (+)' and 'minus (-)'. To read and write the addition and subtraction of one-digit numbers.	Volume 4 Chapter 18
Korean	Taking a Bus	To understand the types and usage of means of transportations.	Volume 5 Chapter 10
Korean	Train Trip	To read travel notices and make use of their information.	Volume 5 Chapter 11
Korean	Weather Cast	To read written details on the weather.	Volume 5 Chapter 12
Mathematics	Addition 1	To add one-digit numbers with 'carrying'.	Volume 5 Chapter 26
Korean	Notification	To read and understand various notices.	Volume 5 Chapter 15
Korean	Country	To understand each, Do(province) in Korea.	Volume 5 Chapter 24
Korean	City's Name	To understand the names and locations of Korean main cities.	Volume 5 Chapter 25
Mathematics	Addition 2	To add two-digit numbers to one-digit numbers.	Volume 5 Chapter 27
Mathematics	Addition of two-digit Numbers	To add two-digit numbers with 'carrying'.	Volume 6 Chapter 26
Mathematics	Subtraction 1	To subtract numbers with 'borrowing'.	Volume 6 Chapter 27
Korean	Cellphone Etiquette	Cellphone Etiquette (in public spaces)	Volume 6 Chapter 19
Mathematics	Subtraction 2	To subtract two-digit numbers with 'borrowing'.	Volume 6 Chapter 28
Korean	Advertisement in our daily life	To understand the meaning in advertisements.	Volume 7 Chapter 6
Mathematics	Figure	To distinguish triangles and quadrangles.	Volume 7 Chapter 27
Korean	Today's News	To grasp the content of news written in accordance with five w's and one h.	Volume 7 Chapter 15
Korean	Five W's and One H	To read notices and understand them considering five w's and one h.	Volume 7 Chapter 16
Mathematics	Time and Hour	To read the hourly train timetable and calculate time.	Volume 7 Chapter 26
Mathematics	Multiplication 1	To learn the principle of multiplication and then memorize the multiplication table (two times to five times).	Learning Tree Volume 3 Chapter 28
Mathematics	Multiplication 2	To learn the principle of multiplication and then memorize the multiplication table (six times to nine times).	Volume 7 Chapter 29
Korean	Visiting a Bank	To read and write based on the experience of visiting a bank.	Volume 8 Chapter 4
Mathematics	Length	To understand the concept and unit of length.	Volume 8 Chapter 26
Korean	Environmental Protection	To understand and practice environmental protections.	Volume 8 Chapter 12
Mathematics	Weight	To understand the concept and unit of weight.	Volume 8 Chapter 27
Korean	Public Etiquette	To understand and practice public etiquette.	Volume 8 Chapter 19
Mathematics	Division	To understand the division and then divide one-digit numbers.	Volume 8 Chapter 28
Society	Tour Map	To read and understand tour notices and maps.	Volume 9 Chapter 7
Mathematics	How to Use a Calculator	To solve calculation problems using a calculator.	Volume 9 Chapter 24
Mathematics	Addition of Three-digit Numbers	To add three-digit numbers.	Volume 9 Chapter 25
Mathematics	Subtraction of Three-digit Numbers	To subtract three-digit numbers.	Volume 9 Chapter 26
Mathematics	Multiplication of Two-digit Numbers.	To multiply two-digit numbers.	Volume 10 Chapter 24
Society	Economy and Life	To understand about markets and the economy.	Volume 10 Chapter 19
Society	Climate	To understand the climate of other countries and ours.	Volume 10 Chapter 23
Mathematics	Distance and Speed	To understand the concept of distance and speed and their relationship.	Volume 11 Chapter 25

Table 4. Cooking: Content from 2007 Adult Literacy Curriculum

Subject	Title	Contents	2007 Adult Literacy Curriculum
Korean	A-frame and Stews	To distinguish 'ㅈ', 'ㅉ' and 'ㅊ'.	Volume 4 Chapter 4
Korean	Pickling cabbage	To distinguish homonyms.	Volume 5 Chapter 3
Korean	Selection of Hospital	To understand information on types and treatment processes of hospitals	Volume 5 Chapter 8
Korean	Caution against Fire	To understand the telephone number necessary on emergency.	Volume 5 Chapter 21
Korean	Saving Electricity	Sentence completion and the consumption of electricity.	Volume 6 Chapter 6
Korean	Spacing Class	Understand spacing for reading and writing.	Volume 7 Chapter 1
Korean	New Year's Day in Different Countries	To compare New Year's Days in different countries.	Volume 8 Chapter 8
Mathematics	Weight	To understand concepts and units of weight.	Volume 8 Chapter 27
English	Alphabet Song	To read and write alphabet: Upper and lower cases.	Volume 9 Chapter 4
Science	State of Matter	The State and Change of Matter.	Volume 9 Chapter 19
Science	Nutrients of Food	To understand types of nutrients, nutrient-rich foods and avitaminosis.	Volume 10 Chapter 4
Korean	My Recipe	My Recipe for explanations to others.	Volume 10 Chapter 11
Mathematics	Fraction	To understand the concept of fraction.	Volume 10 Chapter 25
Mathematics	Comparing the size of fractions	To compare the size of fractions.	Volume 10 Chapter 26
Society	Economy and Life	To understand the market and the economy.	Volume 10 Chapter 19
Korean	Caution against Fire	Fire Prevention and Measure.	Volume 10 Chapter 22
Mathematics	Addition and Subtraction of Fraction	To add and subtract fractions.	Volume 10 Chapter 27
Mathematics	Decimal	To understand the concept of decimal.	Volume 11 Chapter 24
Science	Healthy Dietary Life	To understand dietary elements for healthy life.	Volume 11 Chapter 21
Mathematics	Quantity Unit	To read and understand units of quantity.	Volume 12 Chapter 24
Mathematics	Understanding of Percentage (%)	To understand and calculate percentages.	Volume 12 Chapter 25
Mathematics	Graph	To understand and interpret graphs.	Volume 12 Chapter 26

Table 6. The establishment of education objective based on the comprehensive integration in cooking

Classification	Education Objectives
1. Summary	
General Objective	To understand the overview of cooking units.
Detailed Objective	To understand the learning content in cooking unit.
2. Basic Knowledge	
General Objective	To understand basic knowledge of food.
Detailed Objective	To understand the concept of weight and volume. To understand the unit of weight and volume. To understand fractions, decimals and percentages. To understand graph. To understand the concept of matter. To understand nutrients in foods. To understand the composition of healthy dietary life. To understand the safety regulations of home appliances. To understand fire-fighting prevention measures
3. Application and Problem Solution	
General Objective	To enable solutions through problem through activity tasks.
Detailed Objective	To select foods and cooking processes. To make a recipe. To compose the nutrients of food. To understand the emergency measures.

The following flowchart elaborates on how the we established the composition of learning content for the travel unit and the establishment of education objective based on the comprehensive integration processes.

The composition of learning content for cooking unit and the establishment of education objective based on the comprehensive integration in [Table 6](#).

2. The Assessment of an Integrated Curriculum centered on Mathematics for Elderly generations

A. The Expert Assessment of Content Validity.

The experts' assessment process was designed to see that the content and level of theme-based integration curriculum were developed with consideration of the learners as follows: According to the opinion of experts, the program provides content which meets the education objectives, to apply in the field study for elderly learners, and thus achieves its development purpose. In particular, they said that it includes those highly accessible concepts underpinning the interests of learners. However, they pointed out that elderly learners spend a lot of time fully understanding in-depth areas of study. Also, there were some opinions expressed that around the question of program design that leads to personal problem solving i.e. self-direction in learning. They

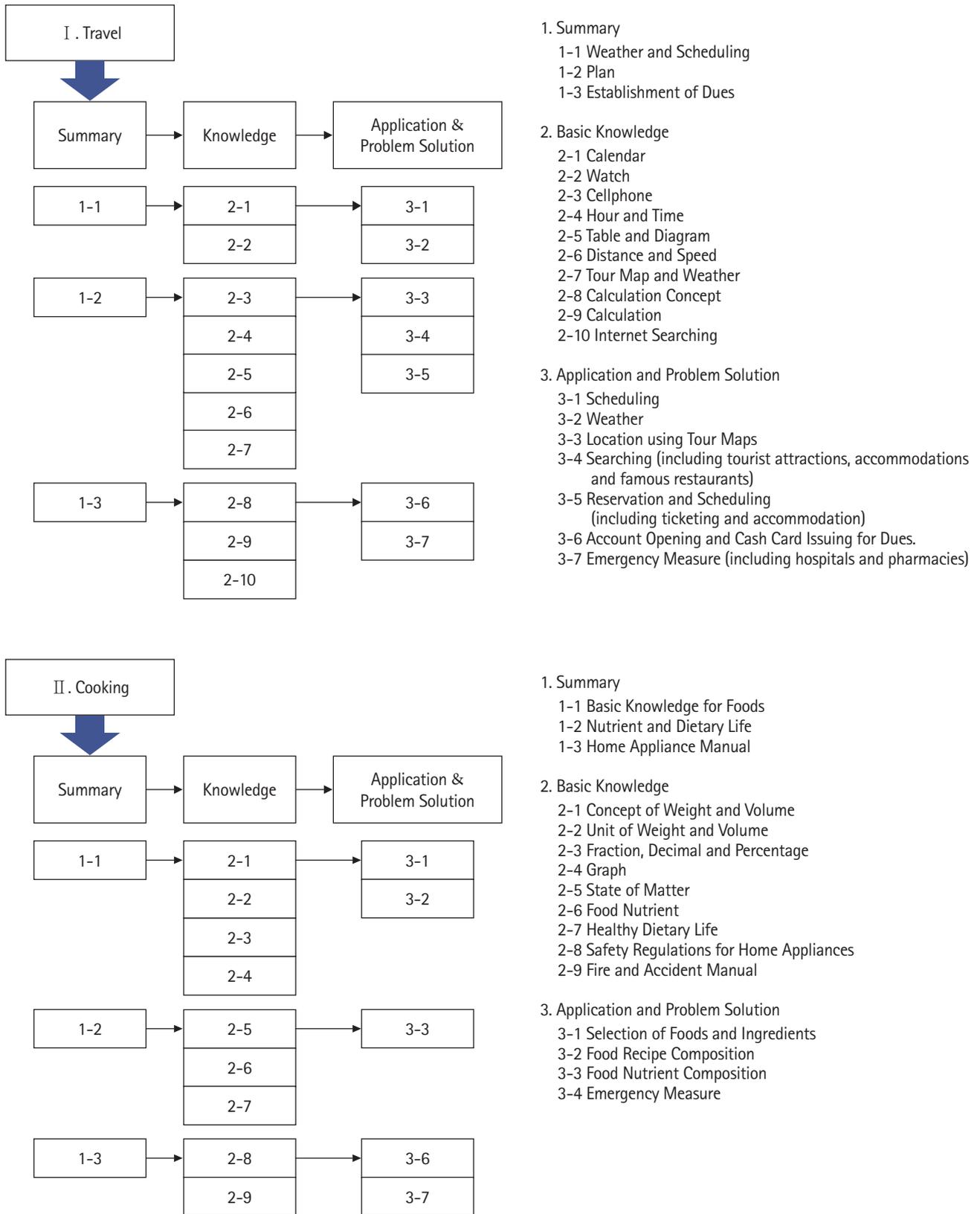


Figure1. Integration of learning content

suggested that learners might need the guidance of their instructors during the course e.g. using a computer.

Based on the results of above expert assessment, we modified units after considering each piece of feedback. This newly developed program was modified again through many preliminary course implementation processes.

B. The Field Study

When the proposed program was applied in actual classes, elderly learners became highly interested unlike the case where they originally learned about subjects centered on mathematics. Also, these learners reported that they could recognize the need for mathematics given their participation in the program; learners expressed opinions that the program was valuable, as it allowed them to use a calculator on complicated mathematical problems. However, some respondents said they were not confident with mathematics i.e. when using a computer or learning the difficult terms for ingredients during the cooking unit.

As a result of field study feedback, we adjusted the difficulty of computer skills learning activities.

C. Application of Curricula for Elderly Learners.

We implemented this program with four elderly generation learners 18 times; dividing them into groups of two, they participated into group learning processes twice a week. We used the K-mmse (Korean version of Mini-Mental State Exam) tool (Folstein et al., 1975; Lancu & Olmer, 2006; Oh et al., 2010) before and after the course so that we could detect change. Their results were as follows in Table 7.

Table 7. K-mmse test result according to curriculum application

Learner	Pre	Post	Difference
Learner A	25	29	+4
Learner B	23	26	+3
Learner C	17	21	+4
Learner D	21	23	+2

The following are records of conversations of learners during the course; these show how they solved their problems. In the following situation, Learners A and B were paired to interpret the graph during the travel unit; they were expected to identify from the graph, the second preferences for the site where travelers wanted to go. This question is designed to find that they can read and interpret the graph. Learner B understood exactly the situation; he correctly answered the Palace Museum. Learner A tried to convince him that the tourist attraction is the place they want. However, Learner B again explained the situation to Learner A,

but they could not resolve their differences. So, the teacher intervened to help them find the relevant data.

Learner B: Where is the place, where the members want to go most second, in this graph? this is the Palace Museum.

Learner A: No. maybe this is the tourist attraction.

Learner B: The Palace Museum. Sister, look at here. You should see it (pointing at the question). The tourist attraction is here (Pointing at the neighboring bar graph).

Learner B: Um? The place they want to go to. The palace museum.

Learner A: So, they took a bath in the place where they wanted to go most second, and they may hope to go to the tourist attraction.

Learner B: Hey, I already selected the palace (museum) as the second place?

Learner A: I think it is for the tourist attraction? This is the second most visited place...

Teacher: Please consider the height of each bar graph. Can it be counted using this table?

Learner A: (Pointing at the graph by the finger) Here? here? the second most... ah... it is the museum.

In the following case Learners C and D were paired to interpret the graph during the cooking unit. The question was about the ratio of each ingredient (including fat and protein) in the pie graph. Learner D understood the nutrient was carbohydrate, accounting for 68 percent in the pie graph. Learner C understood that protein accounted for 9 percent. The following conversation shows how they discussed the question, encouraging each other.

Learner C: um... others... (read again more carefully for a while) Other fats, protein, water. So, others, fats, protein and water are 2 percent, 3 percent, 9 percent and 18 percent, respectively. Isn't the total 100?

Learner D: Yes, you're right. Haven't you learned pro (the abbreviation of percentage) carbohydrate accounts for 68 percent.

Learner C: Carbohydrate accounts for 68 percent. So, you mean that all should add up. I learnt gram (g) as well.

Learner C: 68%. Write the most ratio here. Read... (read the question carefully) 'Write the most ingredient in this food.' So, we write 'carbohydrate' here.

Learner C: Do I write 68 only?

Learner D: You should write pro (percentage) also. (Alas) I haven't known these until now.

Learner C: It's not too late. I do this thing! (Laugh)

CONCLUSIONS AND RECOMMENDATIONS

This study was designed to develop an integrated curriculum centered on mathematics for elderly generations, using real-life topics based on the experiences of the elderly learners. We analyzed the content of many different subjects in Korean adult literacy curricula to develop an integrated curriculum. Tests for content validity were undertaken by three experts including two onsite specialists and one subject-educationalist. Curricula were modified

immediately using the evaluation of learners. Learners were reported to intuitively understand the mathematical concepts, including their real-life elements used as topics; clearly, motivation enhanced the understanding of mathematical concepts.

It is evident that ongoing education is essential in seniors and members of the elderly generations if improvements in their quality of life is to be achieved. Therefore, the establishment of appreciation of educational content and processes and instructor expertise on the characteristics of learners is important if educational outcomes can be optimized for learners. Consideration of their varied experiences and levels of cognitive and physical functions will also impact management of social situations. Like all learners, the individual needs of those of elderly generations should be central to curriculum design and the development of learning activities.

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