

## Development of the Instructional Design Guideline utilizing Goal-based Scenario for Culinary Practice Education

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**ABSTRACT:** Recently, not only development of curriculum associated directly with job, the development of new education model is in great need. So, the purpose of this study is to develop the instructional design guideline utilizing goal-based scenario(GBS) for college students who major in culinary arts. First, to achieve this goal, we recognized the 7 core elements(learning goal, mission, cover story, role activity, scenario operating, resource, feedback) composing GBS through literature review and case study. Second, we drew a conclusion about the problem and guideline for traditional culinary practice course by conducting inspection about culinary practice environment and needs with professors who are teaching culinary arts. Third, we applied the instructional design guideline for culinary practice to regular classes according to GBS's factors, and then we did formative evaluation with content experts and educational technology expert. Finally, we designed the final instructional design guideline for culinary practice by modifying early model reflected the result of formative evaluation. The results of this study are as following. First, when we applied GBS to culinary practice, professors have to focus on process of materialization by developing easy scenario to students. Also, they have to prepare the class circumstance to feel about sense of realism in advance. Second, to give a conjugally new skill at working, professors's effort is important. culinary practice education at college has responsibility to carry out the vocational training that has competitiveness and difference with labor market's needs. Therefore, it is necessary for us to develop the teaching and learning model for culinary practice which is suitable for major based on the manpower demand for industry without causing job mismatch from demand for industry.

**Keywords:** goal-based scenario, instructional design, guideline, culinary practice, culinary major

### INTRODUCTION

Today, Korea's college education market changed into oversupplied market because of decreasing number of new student due to reduction in the number of students and increasing number of university. In order to cope with this education circumstance change and survive, it is necessary to have an interest and focus on qualitative improvement of education[1]. In this context, college education is

emphasizing on improving teaching method to get an employment competency of learner, reflecting change of industry and needs of learner. And college education is pulling in both learner-centered instruction than professor-centered instruction and doing than simply knowing to learner[2].

Culinary practice education has to change along with this education circumstance, but it's operated with the simply goal to complete the task with certain method. And culinary practice has not been ope-

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rating efficiently because it was operating according to condition of department' professors's condition of organizing or operating convenience without accurate purpose, range, and standard of value[3]. Growth and change of food service industry is asking all-out change to culinary practice education in education field. In addition, specialist who wants to work in kitchen after graduation has to acquire knowledge, skill, and attitude about cooking and develop work ability. In order to this, reasonable and systematic culinary practice education method in respect of competitiveness is surely necessary because culinary practice education is the basis of curriculum[3,4].

One of teaching methods that are learner-centered is learning by doing. Learning by doing shows a practical task to learner and makes him or her to acquire some knowledge, skill, and attitude in the process of performing this task. Based on this course of experience, typical learning model is GBS[5]. Because GBS was a proper model to utilize acquisition of technology, it had been applied to enterprise education in early stages. However, GBS has been applied to education field in recent and the range is gradually growing not only in elementary school, middle school, and high school but university education[6,7,8]. However, preceding research associated with culinary practice have mostly studied about practical contents and awareness[9, 10,11,12]. But research that suggests a development about process of culinary practice and a concrete alternative is lacking very much.

So, the purpose of this study in terms of this content is to develop teaching and learning model utilizing GBS for culinary practice education. In order to achieve this purpose, first, we researched characters of culinary practice education, GBS theory, and principles of plan. Second, based on theoretical basis, we designed a draft of instructional design guideline utilizing GBS for culinary practice. Third, we suggested the last model of instructional design guideline utilizing GBS for culinary practice after doing formative evaluation of experts groups about a draft.

## LITERATURE REVIEW

### *Goal-Based Scenario*

Past college education was professor-centered education of lecture and assignments for summative purpose. But it has changed into learner-centered education with active learning, assignments for formative purpose, collaborative learning, community service learning, online, asynchronous, self directed learning and problem based learning. Nowadays professors help all students to master the learning goals, take advantage of the classroom assessment and utilize the program evaluation for learning program improvement away from knowledge delivery education. And in traditional class, generally, learners don't know that when or how their knowledges and skills are used because most cases of learning new knowledge and skills are not used in real life. One of proper teaching methods that can solve this problem practically is GBS.

GBS is an instructional design model which is concentered by research including Shank. It focuses on a specific and clear goal. And in setting up a situation called scenario like learner activity, learning material, or feedback, learners are arranged. And they achieve given goals in a process of performing their job in role-playing situation[13]. The practice programs should be expanded its interpretation for learner to take active part in GBS lesson. It is effective only when applied to education program leading to active participation of learners based on their activeness and responsibility. Team discussions, cooperative learning are very important in GBS program. Therefore, it is emphasized the importance of learner-centered and self-directed learning[14]. The final objective of GBS is core technology and knowledge which were well designed in advance by teacher and the learning environment is promoted as the actual working environment so as to achieve the learning object. Therefore, this study is meaningful because GBS theory is applied to culinary practice to help to increase problem solving skills of students.

### *Application and Components of GBS Model*

On the practical training class, offering GBS training environment that shows achievement of goal like performing real task to knowledge and increasing of creativity is important. Therefore, so as to apply GBS for culinary practice, we have to check out

various elements that consist of GBS, and then understand how they relate to each other.

Core components presented by Schank et al [15] contain learning goal, mission, cover story, role activity, scenario operations, resource, and feedback, and these become core element comprising learning process. The specific components of GBS are described in Table 1.

First, the learning goal means the degree of knowledge and skill that the learners should take and it can be divided by process knowledge and content knowledge. The former is the knowledge how the functions are practiced and the latter is the knowledge required for the achievement of the goal. Second, the mission is the task that the learners should perform to achieve the established goals, and the mission should be practical to motivate the learners. Third, the cover story is the background story required to complete the mission, and fourth the role activity is the characters that the learners will take in the cover story. Fifth, the scenario operation means all the detailed activities for the learners to perform the mission. Sixth, the resource is to provide the required information when the learners accomplish the goals of mission. To help accomplish the mission successfully, well-organized information should be prepared and provided in advance. Lastly, the feedback is to provide the solution to overcome the challenges that may occur during the learning

process. The types of feedback include the suggestion of the performance results, coaching, and suggestion of the specialist's experiences.

## METHODS

### *Research Process*

Development process of instructional design guideline utilizing GBS for culinary practice is as follows. First, we draw the instructional design procedure and activity utilizing GBS by carrying out analysis of relevant literature and case study. Second, in order to figure out basic components of instructional design guideline utilizing GBS for culinary practice, we conducted a survey of 36 professors who are teaching culinary practice in college. Third, based on literature review, case study, result of survey, we developed the instructional design guideline utilizing GBS for culinary practice, and content experts and instructional design expert conducted a formative evaluation about the draft. Finally, we modified the instructional design guideline utilizing GBS for culinary practice, and determined the last guideline in accordance with result of formative evaluation. Research process is shown in Figure 1.

### *Study Participants*

To achieve the purpose of this study, participants consist of learner, expert on the scene, content ex-

Table 1. Component to lay out GBS

Component	Content
Learning goal	Division of procedural knowledge and content. Instruct skills what learner wants to practice and contests what learner wants to find.
Mission	Mission is aim of accomplishment that can motivate for learner.
Cover story	Have to provide opportunity of information for exploration and functional training, obtain robustness.
Role activity	Character that learner will perform(The considered point when designing: considering what the proper role is fit scenario).
Scenario operation	Including every activity to learners to run mission's goal.
Resource	Providing information that needs to achieve goal, learning resource of story form.
Feedback	Providing method of feedback is feedback of expert about result of activity.

Schank RC, Fano A, Bell B, Jona M (1993). The design of Goal-based scenarios. *Journal of the Learning Sciences* 3(4):305-345.

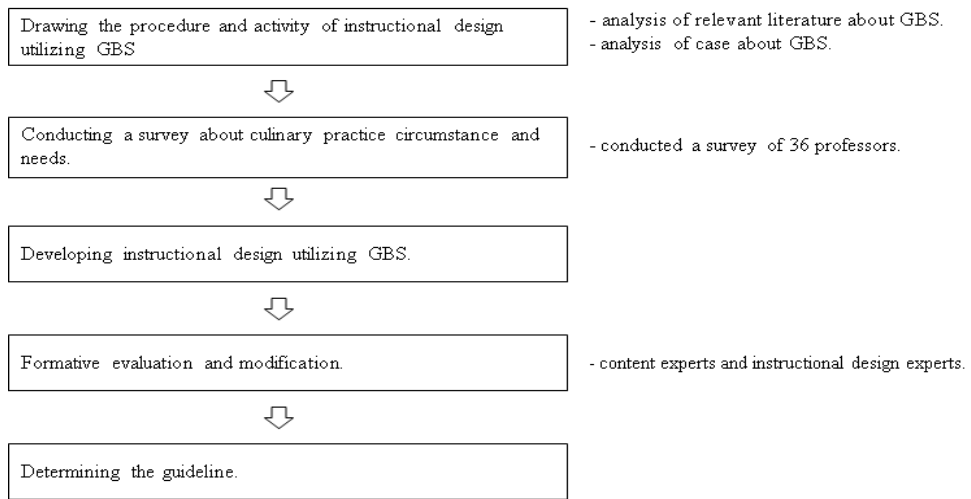


Figure 1. Development process of instructional design guideline utilizing GBS for culinary practice.

pert, instructional design expert.

First, learners consisted of specialists who major in culinary arts in D university located in Daegu. This study was conducted from march 2013 to june 2013, and it was applied to "western cooking practice" course among the major curriculums. We informed teaching method, a learning activity, and role to learner participating in study before class. In addition, we analyzed the questionnaire received by 36 experts of the scene because we should know what is needed, and what problem occurs when applied to the scene. Second, Content experts consisted of specialists who had experience in designing teaching and learning methods among professors who are teaching culinary practice in college. And instructional design expert consisted of professor who majored in educational technology to review GBS learning process in terms of systematic view. Major careers of content experts and instructional design expert are described in Table 2.

*Focus Group Interview*

A purpose of focus group interview is to get understanding and insight about subject of research through discussion. We applied the instructional design guideline utilizing GBS which is designed with literature review and case study for culinary practice. And then we draw merits and demerits, advantage, and improvement point of model from content experts and instructional design expert. Finally, while developing the last instructional design, we interviewed focus group, modified and made up model by focusing on the formative evaluation to instructional design guideline draft utilizing GBS.

*Reliability and Validity of Study*

To get reliability and validity of study, this study concentrated on securing validity regarding various manners like literature review, case study, and survey. In addition, we conducted a survey of 36 experts on the scene about culinary practice circum-

Table 2. Major career of attendances

	Attendance	Gender	Degree
Content expert	J prof.	Male	Ph.D. Tourism.
	L prof.	Male	Ph.D. Tourism.
Instructional design expert	J prof.	Female	Ph.D. Education Engineering

Table 3. Results analyzed the questionnaire received by 36 experts of the scene

Questions	N(%)	
Culinary practice of professor-centered	Very right	14(38.8%)
	Right	21(58.3%)
	Normal	1(2.7%)
	Not right	-
	Completely not right	-
Not concerning difference of student's ability	Very right	12(33.3%)
	Right	10(27.7%)
	Normal	10(27.7%)
	Not right	4(11.1%)
	Completely not right	-
Similarity of teaching method by culinary practice	Very right	9(25%)
	Right	13(36.1%)
	Normal	5(13.8%)
	Not right	7(19.4%)
	Completely not right	2(5.5%)
Similarity of culinary practice teaching form with other university	Very right	16(44.4%)
	Right	11(30.5%)
	Normal	3(8.3%)
	Not right	2(5.5%)
	Completely not right	-
Necessary of newly culinary practice method	Very right	19(52.7%)
	Right	8(22.2%)
	Normal	6(16.6%)
	Not right	3(8.3%)
	Completely not right	-
Type of university	A 4-year-course college	10(27.7%)
	A 2-year-course college	26(72.2%)
Total	36(100%)	

stance and needs. Also, we did formative evaluation about first guideline of 2 content experts and 1 instructional design expert. Specifically, in order to examine content validity, we checked that it would be proper discussion with study's purpose and content by previewing a questionnaire in advance. Secondly,

research informed participants about interview's goal and background explanation during interview faithfully. Third, we wanted to eliminate bias in breaking a single data and a single recorder by comparing research' scene note to materials which is shorthanded and audio material using triangular

Table 4. Problem and improvement point with existing teaching and learning method

Existing teaching method	Improvement point
Imitative culinary practice of professor-centered	Proceed self-learning practice through developmental work class
Preparation ▶ rehearsal ▶ practice ▶ evaluation	Provide thinking opportunity by giving principle
Group practice not concerning practice ability difference	Categorize learner's type, and give mission and assign role reflecting personal character and provide equal activities
Simple culinary practice	Parallel the three-dimensional learning through learning tool(recipe card and design of work card)
Skilled learner has advantage over its opponents	Method that all learners can participate together through individual work complete
Need of using class outcome	Make a portfolio using practice outcome
Judging system of professor-centered	Assure objectivity through assessment of professors and learners

demonstration methodology[16].

## RESULTS

### *Investigation for Culinary Practice Environment and Needs*

We did a survey from 11 March 2013 to 19 April 2013 with professors who are teaching culinary practice class in culinary arts department among universities to understand culinary practice environment and needs. Content of survey is developed through word modification of Kim[17], Jung[18], Paik[19]'s preceding study in order to fit our study's purpose. And we had sent an e-mail to 50 professors. Then we did frequency analysis using SPSS ver 18.0 with 36 surveys, remaining 14 surveys were not returned. The result is described in Table 3, and the summarizing problems of teaching method for culinary practice are described in Table 4.

### *The Instructional Design Guideline Draft utilizing GBS for Culinary Practice*

We designed the first draft of instructional design guideline utilizing GBS for culinary practice based on literature review, case study, survey received by experts of the scene. In considering of learner's character and leaning time, we made it faithfully learner-centered model according to introduction, devel-

opment, and result. GBS associated with strategy to improve cooking techniques and character of culinary arts major, and took the opportunity to explain about sober reflection on activities and expected failure. Then, it got accumulation of knowledge experience and internalization of learning. The operation process of GBS is described in Table 5.

### *Formative Evaluation Content of Draft by Stages*

We did a focus group interview with 2 professors, 1 specialist who majors in educational technology theory. Experts evaluate application about draft and examine the field application possibility and generalizing ability in regards of this results. In putting together interview's analysis results, the items are described in Table 6.

### *The Last Modification of Instructional Design Guideline utilizing GBS for Culinary Practice*

The final content about each component through formative evaluation is as follows, and culinary practice process is shown in Figure 2.

### *Goal*

The goal of culinary practice class utilizing GBS consists of acquisition of process knowledge by developing a new menu and participating in cooking

Table 5. Operation process of GBS

Steps in lesson	GBS steps	GBS activity content	Learning resource
Before lesson	<ol style="list-style-type: none"> <li>1. Education progress analysis</li> <li>2. Design of learning goal</li> <li>3. Design of mission</li> <li>4. Develop of scenario</li> <li>5. Make and add exhibition poster</li> </ol>	<ol style="list-style-type: none"> <li>1. Learning process analysis through western culinary major</li> <li>2. Extracting learning goals by each category</li> <li>3. Setting a practice goal</li> <li>4. Designing mission through learning goal</li> </ol>	<ol style="list-style-type: none"> <li>1. Providing excellent picture in culinary competition</li> <li>2. Sharing information through online communities</li> </ol>
Introduction	<ol style="list-style-type: none"> <li>1. Making motivation</li> <li>2. Suggesting scenario (Cover story and mission)</li> </ol>	<ol style="list-style-type: none"> <li>1. Reminding exhibition</li> <li>2. Understanding mission through scenario</li> </ol>	<ol style="list-style-type: none"> <li>1. Providing with various forms of learning scenario</li> </ol>
Development	<ol style="list-style-type: none"> <li>1. Operating scenario</li> <li>2. Arrangement of outcome</li> </ol>	<ol style="list-style-type: none"> <li>1. Selecting performed task and designing or perform</li> <li>2. Solving perform task</li> <li>3. Arrangement of outcome</li> </ol>	<ol style="list-style-type: none"> <li>1. Performing of team mission</li> <li>2. Performing of role mission</li> </ol>
Result	<ol style="list-style-type: none"> <li>1. Announcement of learning outcome</li> <li>2. Announcement</li> <li>3. Organization</li> <li>4. Reviewing</li> <li>5. Feedback</li> </ol>	<ol style="list-style-type: none"> <li>1. Announcement of team outcome</li> <li>2. Announcement</li> <li>3. Bilateral questions between teams and team members</li> <li>4. Reviewing activity</li> <li>5. Feedback</li> </ol>	<ol style="list-style-type: none"> <li>1. Writing an analysis report about reason of failure through first draft work</li> </ol>

competitions. For learner's motivation, at first week, we made a poster that printed learner's name and attached it in the laboratory's wall.

### *Mission*

Mission is the task that learners must perform to achieve goals. In this study, we suggested a step-by-step mission that is similar to learner's real situation. According to the content described in the exhibition poster, we applied that content which consists of action learning and detailed mission. All mission was "Let's display my own work" at the last class. Specific detailed mission is showed discriminatory according to situation for completion of work.

### *Cover Story*

Cover story is a scenario that describes mission in more detail. Cover story in this study was constructed in the form of a story associated with learning goal that learner have to reach for not only completing final work but improving vocational pride. Content is that "Through this class, you are to be

a preliminary chef, and then get an opportunity to submit your own work. As a prepared chef, you hand in your works to your own exhibition in 2013. You will find pride as an artistic chef and be a great person."

### *Role Activities*

Role activities is to perform the role set within cover story. So, we proposed that students must collaborate to work such as work conception, partial practice, aspic coating and plating.

### *Operating Scenario*

Our scenario about teaching and learning method utilizing GBS for culinary practice was suggested in 4 steps. It is more effective to systematic approach method to proceed every scenario more systematic.

### *Learning Resource*

We selected best work pictures that help work conception and the creative guidance and supplied two pictures to each student. Learning resource was

Table 6. Summary of the interview result by factor components..

Component	Result of interview
Goal	<ol style="list-style-type: none"> <li>1. Setting the newly class model's necessity and strategy well understanding problems about overall existing class.</li> <li>2. Specifying design activity of GBS class model and needing to filling in instructional plan.</li> <li>3. Re-state about subject's study goal and need to fill out concrete learning goal to achieve</li> <li>4. Need to know what skill acquisition must include in goal.</li> </ol>
Mission	<ol style="list-style-type: none"> <li>1. Setting mission and task that learners have to perform associated with achievement.</li> <li>2. Setting special mission and detailed work must precede to perform this mission.</li> </ol>
Cover story	<ol style="list-style-type: none"> <li>1. To achieve goal, there is a need to develop cover story that explain the role students should play in story form.</li> </ol>
Role activity	<ol style="list-style-type: none"> <li>1. Develop learner's role who performs mission.</li> <li>2. Make sure that role can achieve knowledge and skill acquisition.</li> </ol>
Scenario operation	<ol style="list-style-type: none"> <li>1. It must that learner practically understands mission, cover story, role.</li> <li>2. It is important that scenario operation will be concrete.</li> <li>3. Making time to see what is the reason of failure through filling out reason of failure analysis report. So, provide the opportunity to create perfect work.</li> <li>4. Designing part that cause experience of failure as expected failure.</li> </ol>
Learning resource	<ol style="list-style-type: none"> <li>1. In need of specific design of learning resource and development.</li> <li>2. It must contain about period and method of providing learning resource, interaction activity between learner and professor, providing of feedback after learner activity.</li> <li>3. It have to provide learner who perform mission with teaching material, video, internet, thesis, expert meeting.</li> </ol>
Feed back	<ol style="list-style-type: none"> <li>1. After learner's activity, it have to be designed proper feedback activity in order to their own reason analysis and explanation when occurs expectation failure.</li> <li>2. Designing form of feedback including expert's coaching, professor's consultation.</li> </ol>

total 8 from A-1 to D-2, and learning resources given alphabet like A, B, C, D were given 4 kinds of each team, and then had to be analyzed part of each role.

### *Feedback*

The learner who finished his part practice of role playing experienced first market research, and we proposed to submit their first draft until 31st, May. In 13 week, we invited 2 professor experts and they provided feedback about strong point and weak point on learner's work and practice attitude to the students after classroom observation.

## **CONCLUSIONS & IMPLICATIONS**

### *Discussion of Findings*

In the laboratory, education that follows professors's content with limited time and restricted

material is not connected with context of practical problem solving since it is confined with skill acquisition. Also, as a result of this study, 97% of the respondents answered that the current culinary practice had been performed not by learners' initiatives but by trainers, and students who major in culinary arts demonstrated to demand the new and creative classes. To solve this problem and to achieve the ultimate goals, this study is to develop teaching and learning model utilizing GBS for culinary practice education. In order to achieve this purpose, we designed first draft of instructional design guideline utilizing GBS, and suggested the final instructional design guideline utilizing GBS for culinary practice through formative evaluation of experts groups.

The instructional design guideline utilizing GBS for culinary practice has meaning as following.



Table 7. Phased detailed mission

Step	Period(week)	Phased detailed mission
Step 1	1~5	- Visiting library and finding cooking book - Taking pictures about appetizers, main dishes, and desserts - Analyzing how to cook
Step 2	6~11	- Meeting chef you want to learn - Taking advice about your curious items such as field work, future value of the job
Step 3	12~13	- Calculating the food cost through market research and completing work - Finding the failure reason of completing work - Writing a failure report
Step 4	14~15	- Calculating the food cost through second market research and completing work - Exhibiting the works

Table 8. Role activities for culinary practice

Part	Role activities	Practice role activity
A	1. Calling team meeting 2. Culinary practice activity aiding 3. Portfolio learning aiding	1. Being in charge of main ingredient 2. Showing and sharing how to apply main ingredient 3. Checking personal hygiene, practice tools
B	1. Being in charge of market research 2. Supporting learning for cooking word sheet 100 3. Benchmarking other team idea and sharing information	1. Being in a change of side dish or garnish 2. Showing and sharing how to apply side dish or garnish 3. Checking the environment of laboratory, and floor and sink
C	1. Supporting learning for recipe card 2. Work completing and creative activity aiding 3. Search for desert date	1. Being in charge of sauce or herb 2. Showing and sharing how to apply sauce or herb 3. Checking practice table
D	1. Writing down work proceeding 2. Work design card learning aiding 3. Activity and administration of online cafe	1. Being in charge of decoration or crafts 2. Showing and sharing how to apply decoration or crafts 3. Checking the leftover and garbage can

First, GBS learning process that was designed in this study can increase problem-solving ability because it includes what culinary arts specialist have to study, confirmation about mission, selection of perform task, role checking and setting clear learning goal through mission, scenario operating, and process of self-examination about learned content. Thorough performance of mission, learners are asked to their interest and motivation of performance activity and problem solving strategy by learning of practical problem and skilled aspect at cooking situation.

Second, selection of performance task and practice is based on co-operative team. In the process

of practicing of mission performance assignment on the scenario, we can improve teamwork not only on-site practical ability asked in culinary arts major. In other words, to increase effectiveness of creative thinking and transmission of technology through culinary practice process utilizing GBS, it is desirable that various instructions like personal guidance and team guidance are answered.

Third, as failure showed independent learning, the opportunity of explanation when we fail expectation is that occurring step associated with real culinary practice. In the process of this course, people can solve their conflict between team members.

Finally, the application of GBS can be new alter-

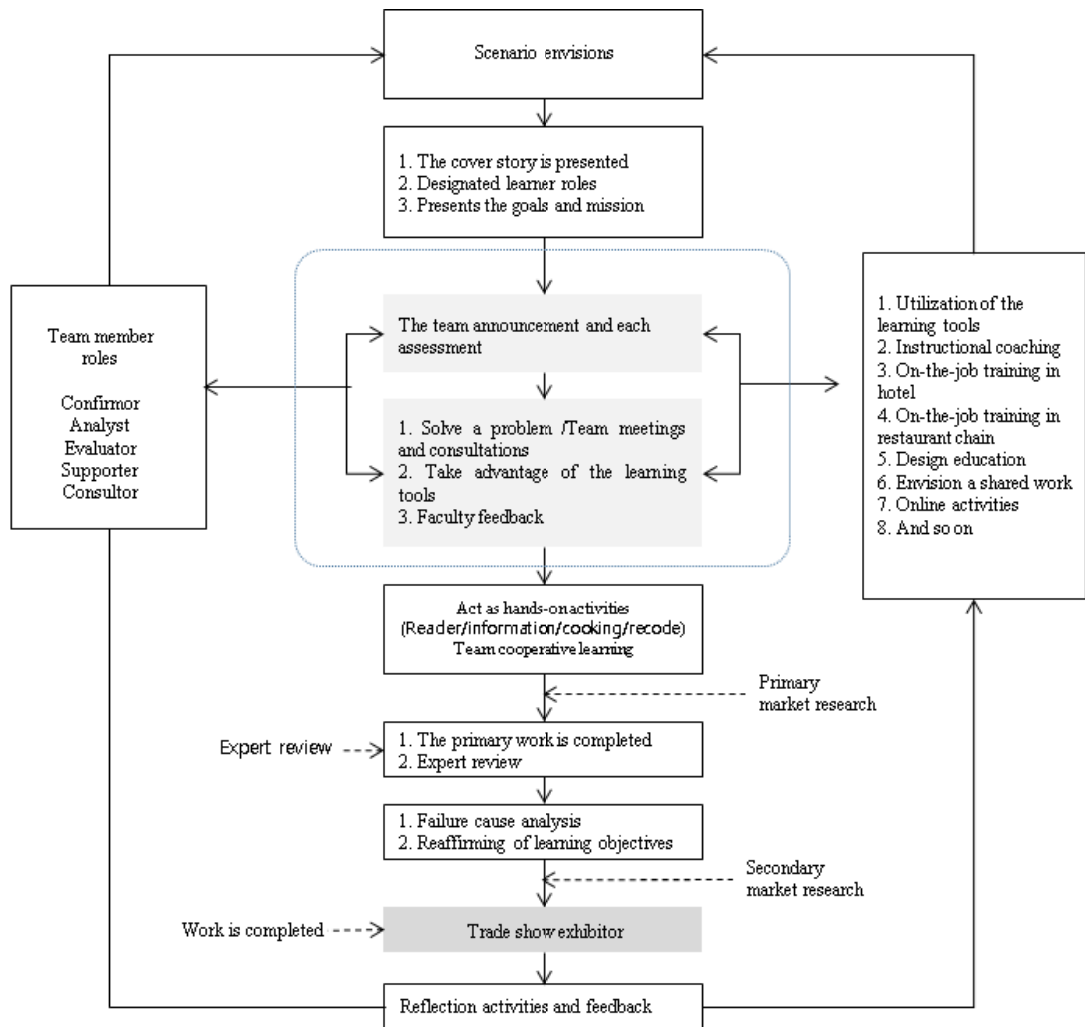


Figure 2. The last modification of instructional design guideline utilizing GBS for culinary practice.

native as a new teaching and learning method because it can raise its skill of modification and supplementation concerned with changeable situation and limited condition by developing learner’s assignment performing skill.

Technical education in the universities should be performed with competitive and differentiated programs to coincide with the demands in the job market. To do so, the practice education in the universities should be harmonized with the demands of the industry and developed the appropriate educational system for the majors based on the human resource demands of the industry. Hence, to in-

troduce the requirements from the industry to the classes, the efforts to enhance the students’ motivation and self-directed completeness of the job performance with GBS application should be made.

*Limitations and Future Research*

Meanwhile, there are some propositions about the follow-up studies based on the limitation of this study. First, there should be a study about how we apply learner’s character in order to solve problems easily to culinary arts major. Second, in the comprehensive level, professors have to focus on materialization of thinking process by developing easy sce-

Table 9. Phased scenario content

Step (period)	Learner activity	Content
Period of understanding work (1~5 week)	<ul style="list-style-type: none"> <li>- To use learning material actively</li> <li>- To prepare presentation through meeting</li> <li>- Online cafe: To share competition and information of food</li> </ul>	This is period that you understand every mission and search information about appetizer, main dish, dessert.
Period of work preparation (6~11 week)	<ul style="list-style-type: none"> <li>- To use learning material actively</li> <li>- Mission: To consult with job department</li> <li>- Online cafe: To appraise about team work on the online</li> </ul>	This is period that you make partial thing and understand partial role. And you have to increase your initiative work force.
Period of a formative work (12~13 week)	<ul style="list-style-type: none"> <li>- To use learning material actively</li> <li>- Writing recipe using new cooking method</li> <li>- To perform own's role</li> </ul>	This is period that you have a confidence about constitution of work. However, it is difficult to making the highest work because of shortage of your experience.
Period of work completion (14~15 week)	<ul style="list-style-type: none"> <li>- To use learning material actively</li> <li>- To searching for new ingredients and purchasing through market research</li> </ul>	You should find your confidence and recognize your original goal to complete great work to final exhibition.

nario for student to understand. And then, a short-period scenario to appear short, clear effective to apply an universal using of GBS must be developed. For example, we will take a view of learning effectiveness based on scenario to increase class effect in short-period. Third, class environment to know on-site feeling must be ready. Also, university and professor's effort is important in transmitting new skill and aiding several learning tools. Finally, this study only developed the instructional design guideline for western cooking practice, so it is difficult to apply in a variety of cooking classes. The follow-up studies should develop the instructional design guideline considering the type and nature of cooking classes. And the follow-up studies should verify the effectiveness of the guideline applying to the actual culinary practice because we did not verify the effectiveness of the developed guideline.

## REFERENCES

- [1] Lee JH (2011). A study on student satisfaction with educational environment in a cooking and food service program. *The Korean Journal of Culinary Research* 17(2):74-84.
- [2] Min HR (2012). Perception and need assessment of faculties on faculty development program: Focusing on faculties of S university. *The Journal of Korean Teacher Education* 29(3):95-219.
- [3] Kim TH, Kim WM (2005). A study on the learning model for efficient culinary practice. *The Korean Journal of Culinary Research* 11(1):1-17.
- [4] Jeong HJ, Cho HH (2012). An exploratory case study on satisfaction of culinary practicum using gamification program. *Journal of Hospitality and Tourism Studies* 14(4):173-186.
- [5] Jeon YH, Chung HM (2014). Developing an instructional design guideline for goal-based scenario in classroom settings. *The Journal of Educational Information and Media* 20(3):373-397.
- [6] Park SH, Lee SB (2009). A study on goal-based scenario(GBS) learning process for enhancing students' problem solving: In social study. *The Journal of Elementary Education* 22(4):379-403.
- [7] Kang IA, Lee MS (2008). A study on how to apply GBS(goal-based scenario) to 'ecology & environment' education in high school. *The Environmental Education* 21(4):94-110.
- [8] Cho YS, Lee SJ (2007). Design and implementation of a GBS theory-based RPG edugame for low-achieved students in mathematics. *The Journal of Education* 27(1):171-184.

- [9] Lee JA (2013). A study on student satisfaction with educational environment, innovation configuration, and intervention demand of students in culinary practice education: Focusing on university students majoring in culinary arts. *The Korean Journal of Culinary Research* 19(4):77-93.
- [10] Kang KS (2011). A study on the method to vitalize culinary education based on recognition survey of culinary practice: Focused on universities located in Daejeon · Chungnam areas. *The Korean Journal of Culinary Research* 17(2):126-139.
- [11] Na TK, Lee DK(2010). Culinary art students' adaptation to college life according to their satisfaction with a culinary laboratory and their educational experience: Focus on the universities in Chungcheong province. *The Korean Journal of Culinary Research* 16(2): 185-198.
- [12] Park ES, Kim YN (2006). A study on stage of concern, level of use, innovation configuration, and intervention demand of teachers in culinary practice education. *Journal of Korean Home Economics Education Association* 18(3):41-60.
- [13] Cho KL, Cho YH, Kim MK, Sung BS (2004). Design and development of WBI contents: A goal-based scenarios(GBS) model approach. *The Journal of Korean Association of Computer Education* 7(5):9-21.
- [14] Lee MS (2007). Ecology & environment learning case by GBS(goal-based scenario). *The Environmental Education* 20(3):31-44.
- [15] Schank RC, Fano A, Bell B, Jona M (1993). The design of goal-based scenarios. *Journal of the Learning Sciences* 3(4):305-345.
- [16] Guion AL, Diehl CD, McDonald D (2011). Triangulation: Establishing the Validity of Qualitative Studies. Florida: University of Florida Cooperative Extension Service.
- [17] Kim GR (2010). The Effects of Practical Training in the Construction Technology Lesson in the Technology and Home Curriculum of the High School on Learning Performance. Seoul: Kyonggi University.
- [18] Jung YI (2006). The Effects of Practical Training in the Automobile Management Lesson on Learning Performance. Seoul: Kyonggi University.
- [19] Paik EJ (2009). A Satisfaction Survey on Hands-on Cooking Education by e-learning. Seoul: Sookmyung Women's University.

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