A Study on the Developing Integrated Classes Based on Backward Design

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Abstract: In recent education, various institutions and countries are discussing ways to foster students' core competencies. Competency is basically defined as the ability to perform based on knowledge. Rather than memorizing knowledge, developing the ability to understand, apply, and create knowledge has recently become a major issue in the education community. In these discussions, big ideas, understanding by design (UbD), and backward design are the main discourses. The purpose of this study is to design a learning instruction based on the UbD concept and big ideas. For this purpose, the Wiggins and McTighe's concept of understanding was examined, and a backward design method was presented. Then, based on the backward design, a study guide for integrated classes was developed. The education plan presented as a result of the study needs to be developed and used in consideration of the method as follows. First, educational goal setting should be for understanding rather than acquiring knowledge. However, in this case, it is necessary to think specifically about how to structure the class in connection with the achievement standards so that the goal is not too abstract. Second, although procedural knowledge itself can be presented as an educational goal, this study recommends a method for students to learn it naturally through performance. To this end, teachers must closely monitor evidence that students have acquired procedural knowledge during performance. Third, teachers who can faithfully carry out this program are needed, which further emphasizes the need for teacher re-education. It is expected that many classes will be held in the future based on the teacher's understanding of backward design.

Keywords: Backward Design, Understanding by Design, Big Idea, Competency, Learning Instruction

1. Introduction

The OECD, which expanded competency development from the DeSeCo project in 1997, recently published the OECD Learning Compass 2030, summarizing the results of the Education 2030 project. The Education 2030 project defined the concept of competency as the ability to mobilize knowledge, skills, attitudes and values to meet complex needs.

The discourse on future education focuses more on the ‘big ideas’ as a way to develop core competencies. Curriculum is being redesigned in many countries to build students' core competencies for success in tomorrow's society. A distinctive feature of this curriculum design is the selection and organization of learning content around big ideas.

The 2015 revised curriculum in Korea was oriented towards students' happy learning by improving the quality of the learning experience. This means a paradigm shift from 'knowledge-based education' to 'happy education'. To this end, the learning contents were restructured and organized around the big ideas and core concepts. Because understanding was emphasized rather than fragmentary knowledge, core concepts were introduced to provide a meaningful learning experience and optimize the amount of
learning. In other words, the 2015 curriculum focused more on cultivating practical skills through understanding beyond simple knowledge acquisition.

[Fig. 1] A screenshot of the OECD Learning Compass 2030[1]

In the 2015 revised curriculum that introduced core competencies, not only knowledge but also skills are specified when describing the content taught in the curriculum. Achievement standards also were created by combining knowledge and skills. Although there are some differences between subjects, most subjects have a similar document format. The most important aspect of the format was to capture the core concepts and generalized knowledge of each topic.

The curriculum is not intended to teach more, but to teach well. Thus, it is necessary to reduce the learning content, and include only the content necessary to understand the core concepts. To this end, the goal of education must be changed based on understanding rather than memorizing knowledge. In order to operate the curriculum for these educational purposes, it is necessary to find out which educational model is suitable.

This study was conducted to develop a program that can enhance students' understanding. To this end, the concept of understanding was identified academically, and a research framework was established based on this discussion. Finally, an understanding-oriented curriculum developed based on the framework was presented as well as the meaning, limitations, and future directions of this program were discussed.

2. Theoretical Background

Understanding means more than just knowing things like facts, knowledge, and skills. Understanding is the process of abstraction that gives meaning to individual knowledge as well as is the inference process that creates meaning from individual knowledge. Here, what gives meaning to knowledge is to see the relationship between knowledge and others[2]. In other words, understanding could be seen as creating meaning by associating the object with others beyond knowing the content of the object to be understood.

Understanding also could be categorized into knowing and being able. Following the ideas, classes
might have different goals: 1) worth being familiar with, 2) important to know and do, 3) enduring understanding. Each of the above numbers may have the following examples. 1) to use the concept of a compass and village, 2) to have knowledge of circles and communities, and 3) to use pie graphs to have a historical understanding of human life and communities.

Thus, understanding is multidimensional and complex, and there are many facets of understanding. In other words, there are various aspects of generating meaning by relating the object to other things. Below presented various aspects of this understanding, which was developed by Wiggins and McTighe, by classifying them into explanation, interpretation, application, perspective, empathy, and self-knowledge.

![Fig. 2] Wiggins and McTighe’s Three-layer Conceptual Model Filters Information to Identify Learning Goals[3]

![Fig. 3] Six Facets of Understanding[4]
These six aspects of understanding reflect the kind of meaning that is generated through understanding. In the case of the explanatory aspect, the reason and method of the object to be understood are generated. In the interpretation mode, the content, value, importance, and intention of the object of understanding related to the specific context are created. In the application aspect, a method is created that could be applied by modifying and transforming the understanding object according to the problem situation. In the perspective aspect, the content about the object of understanding viewed from a new point is generated. In the empathy aspect, it means feeling, thinking, and accepting opinions or other cultures that seem awkward and unfamiliar to you from the point of view of others. The self-knowledge aspect can be said to be a method of meta-regulating one's own way of understanding. Therefore, the meaning created by relating the object of understanding to others was categorized into explanation, interpretation, application, perspective, empathy, and self-knowledge. It is explained that understanding as an intellectual activity does not simply mean the state in which intellectual activity is carried out, but is also transitive. Once students understand the knowledge and skills they need to understand, they should be able to use them effectively, flexibly and fluently in new situations. To have this transferable potential, students need intellectual activities that go beyond mere understanding of meaning objects and create meaning.

According to this view, understanding is more like to grasp the structure of knowledge. Usually, students mention about whether they understand facts and knowledge. However, understanding as in the above model is not limited to facts and knowledge. If the former is called declarative knowledge, there may be process knowledge or procedural knowledge. This procedural knowledge also could be structured. Below suggested the structure of the process.

![Structure of Knowledge](image1)

![Structure of Process](image2)

[Fig. 4] Structure of Procedural Knowledge[5]

The structure of the process is useful for the teacher to explain the purpose and reason for the performance of the students. Performance is not just repetitive mastery of functions. The structure of the process consists of the levels of processes, concepts, generalization, and principles. The process proceeds through continuous steps, including strategies and functions. In this process, students exert
strategies and functions, which are structured into common concepts. The characteristic of this model is that the process procedure could be structured into a concept, and as a next step, also be converged into general principles. In other words, not only facts but also procedures can be explained in principle.

3. Research Methodology

This study partially utilizes the methodology of action research. Action research is a kind of research methodology that records series of processes of designing, implementing, and modifying a specific class that the researcher believes to be effective[6]. This study attempted to show the process of using the following templates for class design.

Wiggins and McTighe presented the backward design in the template, which means guidelines, frameworks, and structures for design. It provides conceptual guidance to help to understand the design phase at a glance. Below is a backward design 2.0 model, and there have been some modifications in the existing model.

![Backward Design Template 2.0](image)

They also presented the development principle of backward design in three steps. The first step is named as 'desired results' in which a teacher sets goals of a class. The second step is 'assessment of evidence'. The evaluation plan consists of students’ performance. The model suggested the performance task design model as the GRASPS model. Following the GRASPS model, in the performance task,
learners should have a Goal in a certain Situation that could be applied to real life, take a Role while considering a specific Audience, and create a Product according to the Standard.

The last step is to plan the class with a 'learning plan'. In the last step, teachers need to consider 'WHERE TO' method. Hereto is an abbreviation of the elements to be considered in teaching methods. This includes goals and reasons for learning (Where, Why), attention (Hook), knowledge and tools (Equip, Enable), reflection and modification (Retink, Reflect, Revise), opportunity to evaluate achievement (Evaluate), individualized class composition (Tailored), and content organization (Organization).

4. Results

This study developed a learning mentoring activity class for multicultural children based on the backward design model as a way to increase students' understanding. According to the backward design design procedure, the desired results were first stated as follows; students should understand the background of the formation of a multicultural society and be able to find ways to cope with it on their own. Students also should understand why multicultural societies have come through social flows. By understanding this, it is necessary to understand the characteristics of a multicultural society, identify problems, and find solutions. They also need to learn how to interact with children from multicultural families. These goals are relevant with the achievement standards in the 2015 revised curriculum in Korea as follows.
- [9SocialStudies 12-01] Understand the meaning of social change and analyze changes and problems in modern society.
- [9SocialStudies 12-02] Understand the recent trend of social change in Korea and seek countermeasures against it.
- [9Music02-03] Listen to music and explain the characteristics of music in historical and cultural contexts.

The tasks that need to be done to achieve these goals are: Students become mentors for children of multicultural families. Rather than unilaterally caring for multicultural children, students should learn from each other through their own circumstances. For this to happen, students must be given a situation where they can learn from each other. Among various examples of multiculturalism, this study hypothesized that it would be easier to understand the cultures of different countries through music activities. This is because the historical background of that culture has naturally melted into the music.

The performance evaluation criteria are as follows.
1. Can students identify the formation and characteristics of a multicultural society?
2. Can students prepare activity plan for multicultural children?
3. Can students discover and enjoy the value of life based on empathic understanding of cultural sensitivity?
4. Can students effectively express his/her thoughts and feelings in various situations and respect the opinions of others?
5. Can students understand the changes in modern society and the characteristics of a multicultural society?

The lesson design created is as follows.
<table>
<thead>
<tr>
<th>1st hour</th>
<th>pre-action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification of learning</strong></td>
<td><strong>Learning contents</strong></td>
</tr>
</tbody>
</table>
| **introduction** | Motivation  
- Talk about your mentoring experience  
- Share what you like about getting help from your mentor | |
| **deployment** | ★ Explore the roles of mentors and mentees  
- Find out about the roles of mentor you need  
- Prepare the roles and attitudes that a mentor should have  
★ Understand multicultural society based on what you learned in social studies class  
- Learn about changes in modern society and its process  
- Search for changes in a multicultural society and take countermeasures.  
- Discuss the values and attitudes to have in relation to the formation of a desirable multicultural society | understanding the concept  
lecture discussion |
| **research** | ★ Organize what you have learned and ask questions  
★ Advance notice | |
| **organize** | | |
| **4 hours** | main activity |
| **Classification of learning** | **Learning contents** | **Activity method** |
| **introduction** | ★ Pre-learning confirmation  
- Presentation on desirable cultural awareness attitudes in a multicultural society  
★ Motivation  
- Watch video clips of multicultural songs from various countries | watch video  
presentation group activity  
role play  
mentor guidance  
field practice |
| **deployment** | ★ Research and list the learning mentoring needs of multicultural children in groups.  
- Korean class, guidance for students with learning difficulties by subject, computer skills instruction, math/science concert, exciting foreign language class, reading picture books, retelling fairy tales, learning our nursery rhymes, health gymnastics class, playing folklore, balloon art/origami class, peer counseling, traffic safety guidance, etc.  
★ Plan multicultural children's learning  
- Divide groups according to their mentor talent and write a manuscript for learning | |
- Take on the role of a multicultural child, rehearse together and revise the plan
- Re-sing multicultural songs and Korean traditional music based on what you learned in music class to form a rapport with multicultural children
- Prepare body expressions suitable for multicultural music and practice several times along with the song
  ★ Implement multicultural children's learning according to the role assigned to each group
- Treat multicultural children in a friendly manner with a smile in neat attire
- To form a rapport with multicultural children, sing the songs of the countries from which multicultural children have migrated based on what they learned in music class
- Demonstrate your talents and engage with sincerity with the contents of your learning mentoring
- In the case of music learning mentoring, try to get acquainted with Korean music and culture while sharing body expressions that match Korean traditional music.

<table>
<thead>
<tr>
<th>organize</th>
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</thead>
<tbody>
<tr>
<td>★ Organize your activities</td>
</tr>
<tr>
<td>- Organize materials and tools</td>
</tr>
<tr>
<td>★ Advance notice</td>
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<tr>
<th>5 hours</th>
<th>evaluation activity</th>
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<th>Classification of learning</th>
<th>Learning contents</th>
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<tbody>
<tr>
<td>introduction</td>
<td>★ Pre-learning confirmation</td>
</tr>
<tr>
<td></td>
<td>★ Motivation</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>deployment</th>
<th>★ Review of Learning Mentoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Share the joy of helping multicultural children by using their talents as learning mentoring</td>
<td></td>
</tr>
<tr>
<td>- Share your difficulties or embarrassment in dealing with multicultural children and think about appropriate responses</td>
<td></td>
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<tr>
<td>★ Internalizing the meaning of mentoring activities</td>
<td></td>
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</table>

<table>
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<th>reflection</th>
<th>organize</th>
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<tbody>
<tr>
<td>★ Take time for self-evaluation</td>
<td></td>
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<tr>
<td>★ Share your experiences</td>
<td></td>
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<tr>
<td>- Organize and share what you feel, what you know, and what you can do</td>
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5. Conclusion

Recent education avoids mere memorization of knowledge. As mentioned earlier, this is in line with the direction of core competency education not only in the OECD but also in various countries. Core
competency education can be implemented as education for understanding. The 2015 curriculum in Korea also aims to deepen students' understanding. For this, it is necessary to redefine the content of the curriculum. An in-depth discussion is needed on the axis that is the basis for organizing the content. The commonalities of various theories related to understanding are summarized as follows. Content should be structured in a way that avoids fragmentary knowledge and pursues in-depth understanding. This is closely related to the understanding of education described in backward design.

Backward Design aims to help students learn big ideas. Using this design model, teachers can first set up a big idea of what students need to understand, and then organize their lessons by developing activities they can do. Therefore, it is effective to use the strategy suggested in the backward design as a method of organizing and designing the contents. In this study, the learning contents of the curriculum were constructed through backward design and an exemplary instructional design that enables meaningful learning was proposed.

An important point in backward design is that when describing a desired outcome, the teacher should set goals for the student to understand the concept or procedure. This requires teachers to explain what they need to understand and identify basic problems. It should also explain what propositional knowledge and procedural knowledge are.

Assessment plans are created based on the tasks students are expected to perform. To properly gather this evidence, teachers must present a cohesive action plan, including goals, circumstances, and roles.

Finally, the study plan records the various activities students can perform. Activities are based on the understanding of knowledge rather than simple performance, and the results of performance must be returned to knowledge. Specific knowledge must relate to higher-level concepts, larger ideas, which must be linked to the generation and transfer of knowledge in new contexts.

In this study, the program was constructed by applying these discussions. Setting the educational goals is an important part of the backward design, and the goals should be for understanding rather than acquiring knowledge. At this time, it is necessary to think specifically about how to structure the class in connection with the achievement standards so that the goal is not too abstract. If there was one thing that the researcher was worried about while conducting the research, it was how to present procedural knowledge. Although procedural knowledge itself can be presented as a goal, this study suggests a direction to naturally induce it through students' performance. Teachers should closely monitor evidence that students have acquired procedural knowledge during performance.

In fact, it is difficult to conclude that the table presented as the result includes all the contents discussed above. Teachers who can faithfully implement this program is needed, which further emphasizes the need for teacher re-education. In the future, it is expected that many classes will be held for a deeper understanding of students based on the teacher's understanding and research on backward design.

References


