

## 피부미용 현장 실무 전문가를 양성하기 위한 문제중심학습(PBL)수업 개발 및 적용

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### Development and application of problem based learning (PBL) classes to nurture field experts in skin care

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**요약** : 본 연구는 뷰티산업 현장 실무 전문가를 양성하기 위한 피부미용 이론 및 실기 수업을 통해 문제중심학습(PBL) 수업 개발 및 적용하고자 한다. 학습자들에게 피부미용 현장에서 일어나는 실제적인 문제를 제시하고, 그 문제를 해결하기 위해 학습자들 상호간에 공동으로 문제를 해결하는 방안을 강구하고자 한다. 학습자들에게 문제중심학습(PBL)을 적용한 피부미용 수업을 진행하고, 수강 후 그 효과에 대해 분석한다. 본 연구 결과로 현장 실제의 문제를 제시함으로써 학습자들이 실제 전문가들이 하는 일을 이해할 수 있었고, 주어진 문제에 대한 다양한 해결방법을 도출할 수 있다는 부분을 알게 되었다고 하여 문제해결 능력 신장을 기대 해 볼 수 있었다. 이와 같은 결과는 문제 탐구와 문제를 해결하기 위한 문제중심학습(PBL) 수업 과정은 학습자의 문제해결능력 향상에 긍정적으로 작용하고 있음을 시사하고 있다.

**주제어** : 문제중심학습, 문제해결능력, 전문가 양성, 피부미용, 학습자중심

**Abstract** : This study aims to develop and apply problem Based learning classes through skin beauty basics and practical classes to foster experts close to the beauty care field. Students are presented with a problem to solve in practice in the field of skin care, and in order to solve the problem, intellectuals try to come up with a solution to solve the problem jointly. Conduct skin beauty learning classes that apply problem-based learning to students, and analyze the effects after taking the classes. As a result of this study, by presenting actual problems in the field, scientists were able to actually do what experts do, and it was possible to come up with various solutions to a given problem in the future, and to share parts to expect problem-solving abilities. These results suggest that problem-solving and

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the problem-centered learning process for problem-solving have a positive effect on improving his problem-solving ability.

*Keywords : Problem Based learning, Problem-solving ability, professional training, skin beauty, learner centered*

## 1. Introduction

Our society is experiencing rapid changes with the development of science and technology, globalization, and the 4th industrial revolution society. Accordingly, we emphasize student participatory teaching methods to foster competency-based creative convergence talents, breaking away from traditional teacher-centered teaching methods. There is [1]. Recently, as interest in the 4th industrial revolution era has increased, innovation in university education is also required. It is not possible to prepare for an uncertain and opaque future with an injectable education that acquires fragmentary knowledge through memorization. Accordingly, university education must change from knowledge-oriented education to competency-oriented education. Talented people who lead the 4th industrial revolution must have an active attitude, self-directed learning ability, communication ability, creativity, problem-solving ability, values, emotions, and interpersonal skills [2]. Problem-Based Learning (PBL) is attracting attention as one of the educational alternatives to develop abilities and expertise suitable for a changing society. Problem-Based Learning(PBL) is a constructivist learning model based on relativistic epistemology [3]. The characteristics of constructivism emphasize the student-centered educational environment, and it is assumed that knowledge is not acquired and formed only by individual cognitive actions, but by interaction with members of society to which students belong. Through Problem-Based Learning(PBL), learners can acquire necessary specialized knowledge and skills, and can

improve advanced skills such as self-directed learning skills and problem-solving skills required by society. However, it can be said that the interest in the quality of teaching and learning and education in beauty education is remarkably low compared to the quantitative growth so far. These results have been reported in previous studies, and since beauty education at universities does not have a close connection with industrial work, the education taught at schools is not directly helpful for field work, or raises the issue of lack of adaptability to field work after employment. is continuing [4, 5, 6]. Previous beauty education has mostly consisted of one-way, lecture-style classes in which the instructor demonstrates to the learners and the learners practice along with it. This teaching method inhibits learners' creative thinking and cannot develop active problem-solving skills [7]. Recently, the degree of use of problem-based learning (PBL) has been increasing, but compared to other subjects, the use of problem-based learning (PBL) classes in beauty subjects is insignificant, and the beauty industry field is also diverse according to the continuously changing environment. As it becomes more and more complicated, it is necessary to apply PBL (Problem-Based Learning), which is different from the existing lecture-type classes, in order to nurture professional beauty field practitioners suitable for the times. Therefore, in this study, when the existing lecture class and problem-based learning (PBL) class were applied, the change in learners' perception was investigated, and then the effect was analyzed. Therefore, this study develops and applies problem-based learning (PBL) classes through skin beauty

theory and practical classes to nurture field experts in the beauty industry, presents practical problems that occur in the skin beauty field to learners, and solves problems. In order to solve the problem, learners want to find a way to jointly solve the problem.

Problem-Based Learning (PBL) Barrows (1985) pointed out the problems of existing medical school education, seeing that medical students had many difficulties in real situations of diagnosing patients in hospitals despite having received arduous education for a long period of time. The problem-oriented learning (PBL), which is learner-centered, was conducted to help learners find solutions to practical problems on their own through a cooperative process between peers, away from the traditional teaching method of teaching. Problem-based learning (PBL) began in medical school education, but recently it has been applied in various fields such as humanities, management, education, and science as well as medical-related academic fields. Problem-Based Learning (PBL) means that learners have cooperative learning and self-directed learning processes to solve complex and unstructured problems that they may encounter in real life. It is a learner-centered teaching and learning method that learns communication skills and communication skills [8].

By applying the teaching method using problem-based learning (PBL) to the skin beauty course, which is a major elective course, to produce professional beauty people who will create physical and mental beauty based on modern medicine, and furthermore, to meet the needs of the future society. Focus on contributing to the professionalization of the beauty industry. Skin care business is an important field directly related to public health as a public health field, and demand is increasing as the country's industrial structure shifts from manufacturing to service industry in the future. It is hoped that this course will contribute to cultivating practical beauty

experts in the field based on treatment for each skin disease, problem solving method, practice and theory in mastering the skin beauty national qualification test and overall field problem solving and technology. In order to maintain, protect, improve, and manage facial and body skin beautifully, practice and theory are performed using appropriate care methods, devices, and products for each part and type. In this class, we intend to conduct practice-oriented education that can solve learner-centered problems, rather than one-way knowledge transfer by the instructor as the traditional teaching and learning method. The Facial Treatment II course is a course that nurtures practical beauty experts based on practice and theory to master the skin beauty national qualification test and other overall skills.

The era of the 4th industrial revolution is a next-generation hyper-connected super-intelligence industrial revolution achieved through the convergence of information and communication technologies. As a new era approaches, seven major trends for promising future jobs are approaching. Trends related to the sophistication of consumption are most appropriate [9]. Automatic devices such as skin measurement or massage chairs can be replaced with robots to some extent. However, in the case of skin care, which is different for each person, it is related to body temperature, and it is impossible to replace robots because you have to touch and manage it yourself. As Korea's per capita GDP index exceeds 30,000 dollars, the desire for consumption also increases, and a higher level of service for beauty is desired. In line with this, beauty devices and technologies are continuously evolving. Looking at the 2020 Korean Occupational Prospect, the Korea Employment Information Service, which is affiliated with the Ministry of Employment and Labor, predicts that the number of people employed by skin estheticians will increase over the next 10 years due to an increase in the desire for

beauty and an increase in various customer-tailored services. With the arrival of the 4th industrial revolution era, the application of related technologies to the beauty industry is in full swing. Meanwhile, in Korea, for the first time in the world, customized cosmetics preparation was implemented to manufacture cosmetics through individual skin diagnosis. It is necessary to think about the future direction of how skin beauty subjects should prepare in line with the trend of the 4th industrial revolution. It is a very positive environment that cutting-edge biotechnology (BT) and IT technologies such as artificial intelligence and Internet of Things (IoT) of the 4th industrial revolution will open up a new skin care and cosmetics industry that will lead the future market and contribute to the creation of new jobs. can see.

Characteristics of Problem-Based Learning (PBL) First, learning begins with problems. The biggest feature of problem-based learning (PBL) is that learning begins with problems. Problems used in problem-based learning (PBL) are not standardized problems with fixed answers used in general textbooks, but complex and unstructured problems that can be encountered in real life, and problems that learners can work together to find various solutions to. to be. Learners have cooperative learning and self-directed learning processes to solve given problems, and it is a learner-centered teaching and learning method that acquires new knowledge and learns cooperative learning ability, problem solving ability, and communication ability in this process. Accordingly, skin beauty subjects are in line with the characteristics of problem-based learning(PBL) because they are combined in a way to analyze, understand, and solve various skin types [10].

Second, learners play the role of participants and leaders as the subject of learning. The most obvious difference between problem-based learning(PBL) and traditional teaching methods is the role of instructor and learner.

In traditional teaching methods, the instructor transmits knowledge and learners often passively accept the instructor's knowledge. However, in the process of problem-based learning(PBL), the instructor does not directly deliver class contents or knowledge, but plays the role of a helper, facilitator, guide, learning facilitator, coach, and tutor to help learners find out on their own. As the subject of learning, they play the role of participants and leaders [11]. On the other hand, problem-based learning(PBL) shows many differences from traditional teaching methods. Above all, in the traditional teaching method, the instructor clearly conveys information centered on the textbook and the learner passively listens to the lecture. In PBL, the learner takes the lead in collecting and analyzing information, and the instructor directly Instead of explaining or presenting it as an explanation, it plays the role of a helper who encourages learners to find solutions on their own.

## 2. Research method

### 2.1. Research Problem

- 1) How was the skin beauty subject designed and operated as a problem-based learning(PBL) class?
- 2) How are learners' academic achievement, self-regulated learning ability, class satisfaction, and class evaluation in skin care classes that applied problem-based learning(PBL)?
- 3) How is the instructor's class analysis self-diagnosis evaluation in the skin beauty class to which problem-based learning(PBL) is applied?

### 2.2. Research Subject

The participants of this study were 30 first-year students who were taking the Facial Treatment II course opened in the Department of Beauty Care, J University. A problem-based

learning(PBL) class was developed and applied to the skin beauty class. Classes were conducted for 7 weeks, 4 hours per week in the second semester of 2022, and the results of the study were analyzed with 30 learners who faithfully responded to the survey required by this study.

### 2.3. Research Model

The research model proceeded in the order of research subject selection, pre-inspection, class operation using the problem-based learning (PBL) applied teaching method, learner evaluation after class, and itor's class analysis self-diagnosis evaluation (Fig. 1).

### 2.4. Class Design and Operation

The method of conducting Facial Treatment II class by applying problem-based learning (PBL) is a total of 7 sessions, and the learning goal is to develop the capacity as a professor who has both theory and practice to solve various problems that may occur in the field. Before applying problem-based learning (PBL) to classes, learners were provided with learning guidance for problem-based learning(PBL) classes and orientation for the subject. In the team, the instructor modified the major and grade in various ways, and the team was composed of two people. In the first hour of class, learners and instructors, learners and

learners, and the rules to be followed during team activities were established. In the 1st session, the dry skin and aging skin types are identified, cosmetic ingredients and types are prescribed, and solutions are sought by group discussion to solve problematic skin using devices. In the second session, the types of acne skin, such as acne skin, occurrence mechanism, cause and management, cosmetic prescription, etc., are explored and solutions are sought by group discussion. In the 3rd session, the types related to sensitive skin, development mechanism, cause and management, are discussed and solutions are sought by group discussion. In the 4th session, the types related to peeling, such as the definition of peeling, skin diseases requiring peeling, side effects, before and after treatment, are explored and solutions are sought by group discussion. In the 5th session, skin types related to the application of devices using light, such as devices using light, Titan, and I.P.L, are explored and discussed in groups to find a solution. In the 6th session, skin types related to the application of high-frequency devices such as high-frequency devices, Thermage, Infini, etc. are explored and solutions are sought by group discussion. In the last 7th session, the skin types related to the application of ultrasonic devices, such as devices using ultrasonic waves and

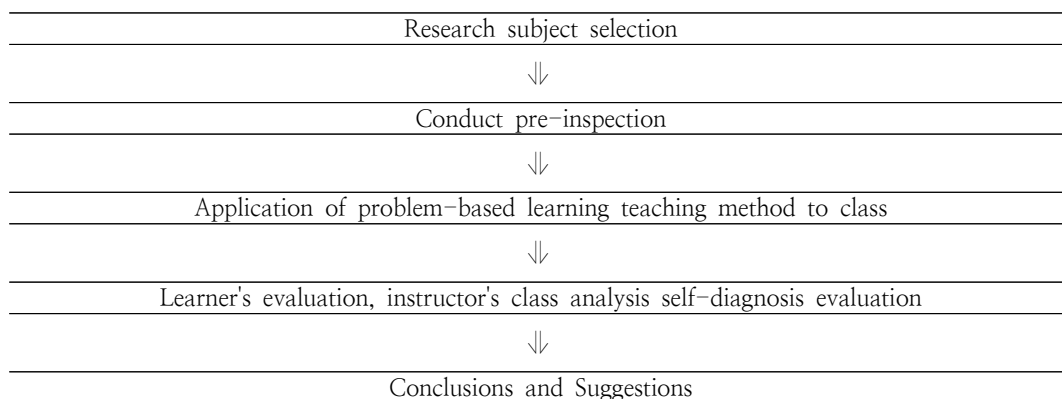


Fig. 1. A research model for problem-based learning through skin beauty basics and practical classes to nurture field experts in the beauty industry.

extracorporeal shock wave fat cell destruction, were explored and discussed in groups to find solutions. Each team was asked to select one problem. At the same time, individual learning and cooperative learning were conducted to solve realistic problems, and in this class,

practice-oriented education that can solve learner-centered problems is intended to be carried out, rather than the one-sided knowledge transfer by the instructor as the traditional teaching and learning method (Table 1).

Table 1. Facial treatment II class design and operation using problem-based learning (PBL)

Weekly	Class Content	Notes
1	Definition and classification by skin disease and type, case review	lecture
2	Definition and classification of skincare applied with medical devices, case review	lecture
3	Drug treatment, cosmetic prescription, treatment device definition and classification, case review	lecture
4	Dry skin, aging, management, cosmetics, and devices, such as dry skin, and other skin types and discusses by group to seek solutions.	-Lecture and discussion -Problem-based learning
5	Find out the types related to acne skin, such as acne skin, occurrence mechanism, cause and management, and cosmetic prescription, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
6	Find out the types related to sensitive skin, the mechanism of occurrence, causes and management, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
7	Find out the types related to peeling, such as the definition of peeling, skin diseases that require peeling, side effects, before and after treatment, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
8	Midterm examination	test
9	Find out the skin type related to the application of light devices such as light devices, Titan, and I.P.L, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
10	Find out the skin types related to the application of high-frequency devices such as high-frequency devices, Thermage, and Infini, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
11	Find out the skin types related to the application of ultrasound devices, such as devices using ultrasound and extracorporeal shock wave fat cell destruction, and seek solutions by discussing in groups	-Lecture and discussion -Problem-based learning
12	Activities by team1 by reviewing the feasibility of proposals and topics, development and application	-Lecture and discussion -Problem-based learning
13	Team activity 2 by reviewing the logical and consistent content of proposals and topics	-Lecture and discussion -Problem-based learning
14	Team presentations, discussions, knowledge sharing of various ideas	-Lecture and discussion -Problem-based learning
15	Final examination	test

## 2.5. Research Method

As a method of applying problem-based learning (PBL) to nurture practical experts in skin care field, the performance of learning operated as a problem-oriented learning (PBL) model for students who registered for skin care courses was measured in two ways. First, the performance of learning was analyzed using a problem-solving ability measurement tool. As a problem-solving measurement tool, the scale developed by Happner & Peterson was reconstructed for adults by Choi Eun-young and others [12]. A conceptual model of the problem-solving process consisting of 5 steps: problem clarification, learning satisfaction, self-directed learning ability, solution finding, solution implementation, and creative thinking evaluation and reflection was used, with a total of 30 questions. The second is the performance analysis of qualitative learning through evaluation sheets written by students, class satisfaction, and self-diagnosis evaluation written by instructors. Statistical processing of the data collected by the data analysis method was analyzed using the SPSS v.18.0 statistical program after data coating and data cleaning processes.

## 3. Results and discussion

### 3.1. Verification of problem-based learning effect through pre-post test of problem-solving ability

Table 2 below is the result of analyzing problem clarification, learning satisfaction, self-directed learning ability, solution finding, solution execution, and creative thinking evaluation factors by verifying the total score and difference before and after problem solving ability by sub-factors. As a result of the analysis to find out the change in the first problem clarity, the problem clarity of the existing skin care class was average (M=3.98), while the post-problem clarity of the problem-based learning skin care class was average (M=3.71). Although it decreased slightly, there was no statistically significant difference (t=1.195). As a result of the secondary analysis to find out the change in learning satisfaction, the learning satisfaction increased to the average (M=3.37), while the learning satisfaction after the problem-based learning skin beauty class increased to the average (M=3.86), showing a statistically significant difference (t=2.168, p<.05). In other

Table 2. Verification of problem-based learning effect through pre-post test of problem-solving ability

Category	Pre-test		Post-test		t-value	p	
	M	SD	M	SD			
Problem Solving Ability	Problem clarification	3.98	.879	3.71	.856	1.167	.275
	Satisfaction with learning	3.37	.728	3.86	.798	-2.168	.032
	Self-directed learning ability	3.45	.786	3.96	.798	-2.568	.041
	Finding solutions,	3.56	.821	3.89	.895	-2.188	.037
	Solution implementation	3.26	.971	3.86	.875	-2.174	.048
	Creative thinking						

\*p<05

words, it can be seen that problem-based learning(PBL) skin beauty classes have relatively higher learning satisfaction than existing skin beauty classes. In addition, it was confirmed that self-directed learning ability, solution finding, solution execution, and creative thinking evaluation factors increased on average in the period after preparation, showing a statistically significant difference. As a result, it was confirmed that the post-examination, which is most of the categories to which PBL grades [13, 14, 15, 16], were applied, increased on average, indicating that the application of PBL grades had a positive effect.

### **3.2. Verification of problem-based learning (PBL) effect through class satisfaction survey**

After the team presentations and practical classes that applied the PBL class method to skin beauty subjects, a class satisfaction survey was conducted. As a result of the survey, I was generally satisfied with the lecture, and I am willing to recommend this lecture to others. In the question, 100% chose a positive response with 5 points out of 5 points. As a class that combines theory and practical classes, it was appropriately used as learning materials for theoretical and practical lectures using practice equipment or practice tools. In the question, 100% chose a positive response with 5 points out of 5 points. As a result of this, it can be confirmed that students evaluate the PBL class positively by verifying the effect of applying the PBL class method to the skin beauty subject [17].

### **3.3. Instructor's problem-based learning (PBL) class analysis self-diagnosis effect verification**

Students actively participated in class in the process of finding materials directly, engaging in external activities, and communicating and discussing with each other rather than lecture-style classes. Through team activities,

the learners showed consideration for each other, responsibility, respect for each other, and the importance of role sharing [18], and found and shared desired data in the process of solving problems together. The instructor verified the effect using the self-diagnosis checklist for class analysis(Table 3). First, as a class problem, the instructor presented a problem that can suggest deep thinking and various solutions that include actual field. Second, the instructor played the role of a facilitator, not a transmitter of knowledge. Third, a learning environment was provided so that learners could practice learning during problems, such as enabling group discussions to be conducted smoothly. Fourth, during the discussion, the roles of leader, course recorder, and presenter were rotated to prevent monopolization of opinions by a minority. Fifth, the instructor promoted learners' critical thinking through indirect questions and feedback. Finally, we had time to compare the problem-solving methods of each group through a comprehensive theorem.

## **4. Conclusion**

The researcher of this study, as a professor who takes care of beauty classes for students majoring in beauty at J University, teaches facial treatment subjects through problem-oriented learning through skin beauty theory and practical classes to nurture experts in the field of beauty industry. This study was conducted to develop and apply lessons in a practical way. For this study, a new teaching-learning program was introduced and applied to the facial treatment practice class after diagnosing the learning attitude of students majoring in beauty, and a conclusion could be drawn through evaluation. The learning tendency of students is that it is difficult to concentrate on theoretical classes compared to practical classes, and in the teacher-led one-way delivery class situation, the environment



Table 3. Instructor's Problem-Based Learning(PBL) Class Analysis Self-Diagnosis Checklist

Teaching method	Detailed items	Evaluation items				
		It's not like that at all.	I don't think so.	Be average	That's right.	It is quite so
Problem Based Learning (PBL)	As a class problem, the instructor presented a problem that could present a variety of solutions and deep thinking that included actual field.	1	2	3	4	5
	The instructor played the role of a facilitator, not a knowledge transferor.	1	2	3	4	5
	A learning environment was provided so that learners could implement problem-oriented learning, such as allowing group discussions to take place smoothly.	1	2	3	4	5
	During the discussion, the roles of leaders, process recorders, and presenters for each session were circulated to prevent monopolization of a small number of opinions.	1	2	3	4	5
	The instructor promoted the learner's critical thinking through indirect questions and feedback.	1	2	3	4	5
	Through a comprehensive summary, we had time to compare problem-solving methods for each group.	1	2	3	4	5

where it is difficult to see that they are participating in class was prominent. First, the total score of problem-solving ability and pre- and post-difference verification for each sub-factor resulted in problem clarification, learning satisfaction, self-directed learning ability, solution finding, solution execution, and creative thinking evaluation factors. The skin beauty class of problem-based learning (PBL) can be seen as relatively high in satisfaction with learning compared to the existing skin beauty class. In addition, it was confirmed that the factors for self-directed

learning ability, solution finding, solution execution, and creative thinking evaluation increased on average in the post-preparatory period, resulting in a statistically significant difference. Second, through the verification of the problem-based learning(PBL) effect through the class satisfaction survey, it is confirmed that students are positively evaluating the problem-based learning(PBL) class by verifying the effect of applying the problem-based learning(PBL) class method to the skin beauty subject. You can check. Third, by verifying the effect of the instructor's problem-based

learning(PBL) class analysis and self-diagnosis, students actively participate in the class in the process of finding materials directly, engaging in external activities, and communicating and discussing with each other rather than lecture-style classes. I was able to check the appearance. As a result, problem-based learning(PBL) classes increase satisfaction through skin beauty subject classes, and in order to advance to competitive studies to nurture field experts in the beauty industry, various and effective By developing and applying teaching and learning methods, it is thought that changes in the new beauty curriculum should be established along with the growth of beauty education.

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