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A Case Study Of Implementing Team-Based Community Problem-Solving Learning

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Abstract:

Background: The purpose of this study is to explore the enhancement of learner autonomy and the development of future-oriented competencies by applying team-based problem-based learning (PBL) to problem-centered assignments in mandatory university major courses.

Materials and Methods: The research involved a qualitative analysis of reflective journals, peer evaluations, team activity reports, and project presentation materials from 77 participating students.

Results: The results indicated that although students initially experienced difficulties with team collaboration, their problem-solving abilities, communication skills, critical thinking, and capacity for developing new content improved with task execution. Additionally, their understanding of community welfare and career aspirations in their major fields broadened. Such diverse team-based problem-solving learning is believed to drive enhanced collaborative outcomes in professional settings.

Conclusion: In conclusion, this study significantly strengthens the competencies of prospective social workers and applies job-related skills in the field of social welfare by fostering a self-directed learning environment. This environment enhances integrative thinking and expands critical thinking through communication training based on practical, field-oriented approaches and creative problem-solving abilities.

Key Word: Team-Based; Community Welfare; Problem-Solving Learning; PBL; Integrative Thinking.

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I. Introduction

Korean society has recently transitioned into an era marked by uncertainty due to the rapid advancement of various technologies and new industries. In the context of a prolonged global economic recession, there is growing concern that the employment prospects of young job seekers, who are expected to lead the next generation, will become increasingly challenging if diverse talents aligned with the rapidly changing future society are not cultivated [1]. To prepare for such an uncertain era, educational reforms focused on the intensive development of future competencies—such as critical thinking, communication, collaboration, and creativity—that are necessary for 21st-century professions and lives are spreading globally [2]. In line with this trend, Korea is also striving to cultivate high-level talents capable of leading the future society with innovations in university education.

Additionally, the Council on Social Work Education (CSWE) in the United States emphasizes integrative thinking and creative problem-solving abilities among the ten core competencies that social work majors must possess [3]. Moreover, recent changes in international circumstances, population decline and shifts in climate and environmental conditions have increased the complexity and diversity of internal and external issues in communities. Consequently, the range of needs among community members is becoming increasingly segmented.

In particular, the prolonged COVID-19 pandemic, which has lasted more than three years, has revealed various issues in communities that require practical interventions in the field of social welfare, such as isolated elderly individuals, people with disabilities, single-person households among youth, and socially isolated populations. Furthermore, there is a continuous increase in complex social problems and unpredictable events that existing methods cannot resolve, such as the rise of vulnerable groups, inter-class conflicts, and disparities between communities. Consequently, there is a significant challenge and necessity to enhance the competencies of social workers to address the needs and problems of community members.

Social work education is an academic discipline dedicated to improving the quality of human life and training professional social workers who directly engage in community practice and increasingly demands creative teaching methods that move away from traditional instructor-centered approaches [4]. These new teaching methods should be able to respond to challenging problems and complex needs, reflect an understanding of various field contexts, and demonstrate applicability in practical settings.

Furthermore, with the development of innovative curricula and the advent of the Fourth Industrial Revolution, there is a shift towards fostering creative talents as a new educational paradigm for cultivating future human resources [5]. Due to rapid social changes, there is a demand for interdisciplinary education aimed at developing innovative talents across the entire curriculum, making the cultivation of convergent and integrative talents extremely important in the field of social welfare as well.

To nurture these future professionals, substantial human resources, finances, and time are required, necessitating the enhancement of capabilities with the creation of new learning environments and innovative teaching methods [6]. Therefore, educational method innovation must be a prerequisite for educational reforms aimed at next-generation educational development and the development of future competencies.

In this context, problem-based learning (PBL) has recently been used in university courses as a teaching method to foster talents with various competencies who can creatively communicate and collaboratively engage in global (global and local) linkages in response to continuously changing societal dynamics [7]. Summarizing the commonalities of PBL, it is defined as a learning approach that integrates the context of life based on the learner's self-directedness through prolonged engagement with practical content and ultimately produces tangible outcomes.

Therefore, to foster the autonomous academic abilities of university students, enhance creative problemsolving, and develop imagination, critical thinking, and integrative thinking skills, it is necessary to naturally promote and expand these activities in the classroom environment.

In this study, we apply the recent problem-centered problem-based learning (PBL) approach to social work major courses as a teaching method aimed at enhancing integrative thinking based on field-oriented practical skills and creative problem-solving abilities. By innovating a self-directed learning environment with the expansion of communication, problem-solving, and critical thinking skills, this study seeks to strengthen the competencies of university students as prospective social workers and thus holds significant research significance as foundational research.

II. Material & Methods

Research Subjects

This study was conducted with 77 university students enrolled in the Community Welfare Theory course in the Department of Social Welfare of K University, located in B City. This course is a mandatory core subject for second-year students, consisting of 63 second-year students, 11 third-year students, and three fourth-year students. Among the participating students, the vast majority had no prior experience with problem-based learning (PBL) classes. The characteristics of the study participants are presented in Table 1.

Category **Subcategory** Frequency Percentage Male students 31 40% Gender Female students 47 60% Second year 63 81% Academic Year Third year 11 14% Fourth year 3 5% Theology 2 2% 1 Humanities 1% Academic Social welfare 88% Division 68 Education (teacher training) 6 9% Social welfare 68 88% Christian education 7% Department 6 Other majors 3 5%

Table 1: Characteristics of Participants

Data Collection

The study was carried out over a 15-week period from September to December 2024, with three hours per week dedicated to the mandatory major class. The purpose and objectives of the course were clearly communicated at the beginning of the semester during the orientation session. The data collected for this study included reflective journals, peer evaluations, and team activity reports voluntarily written and submitted by the 77 participants. Additionally, course evaluation forms, some students' reflection essays, and interview data were also referenced.

The operation of the PBL class involved a combination of theoretical lectures and team project activities. The instructor continuously supported the students' understanding of team projects, motivated team activities,

identified and analyzed issues in team assignments, and developed creative challenges and performed revisions throughout the project execution process. Feedback on each team's report content and direction was provided during breaks and at the end of each weekly class. The instructor structured the entire course to allow students to expand into various roles with coaching to facilitate an easy conceptual understanding and overview of community welfare. This approach enabled learners to acquire creative problem-solving skills through task completion and enhanced communication and cooperation. The course design and assignment planning were predesigned to support these objectives. A lecture design and operation overview of the PBL class are presented in Table 2 and Table 3.

Table 2: Lecture Design Overview of PBL Class

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Stage	Task	Content	
1	Course Planning and Assignment Design	 Planning course content and PBL project design Structuring team project topics and presentation contents Team project peer evaluations and reflective journals 	
2	Development of Course Materials	Developing PowerPoint presentations and content materials for conceptual understanding Forming project teams and presenting models from senior students	
3	Execution of Course Assignments	Making project teams and determining methods of task execution Establishing plans and providing feedback at each stage of progress Supporting solutions, counseling, and facilitating the resolution of concerns	
4	Team Project Presentation and Feedback	- Presenting team projects and providing supplementary explanations, Conducting Q&A sessions and facilitating discussions	
5	Evaluation of Course Activities	- Compiling project team activity reports - Conducting peer evaluations for each project team - Completing individual reflective journals	

Table 3: Operation Methodology of PBL Class

Duoingt Name	Team-Based Community Welfare Problem-Solving Project
Project Name	Team-based Community Wenare Froblem-Solving Froject
Project objectives	- Acquiring a conceptual understanding of community welfare with weekly theoretical lectures - Explore social issues, institutions, and policies in the community welfare sector based on learning
Execution methods	- Theoretical lectures on community welfare - Team project activities categorized by topics such as social issues, institutions, and policies - Analysis of issues and sharing of problem-solving strategies through online and offline team activities, discussions - Small-scale discussion formats and continuous instructor feedback based on weekly progress reports
Main deliverables	- Team project presentations and final reports - Team project activity reports - Individual reflective journals - Peer evaluations

Following the lecture design and operational methods for the PBL class, the instructor began the semester by motivating team-based projects with a focus on the overall conceptual understanding of community welfare. When the team-based projects were initiated, the instructor formed teams by considering mixed genders, majors, and departments based on the overall students' preferences. Various topics related to community welfare were presented to each team. Each team selected their preferred topics ranked from first to third through mutual communication among team members.

The instructor acted as a facilitator and mediator to adjust the topics to avoid duplication and ensured that each team could research their desired topic. Additionally, as the team project progressed, the instructor continuously provided feedback on problems arising from cooperation or the problem-solving processes and acted as a facilitator to ensure completion of the project. The related content is shown in Table 4.

Table 4: Instructor Guidelines

Stage	Problem Presentation Stage	Problem Analysis Stage	Problem-solving Stage
Activity content	- Theoretical concept explanation (instructor) - Presentation of field-linked problems	- Team project support (team formation, presenting problem-solving tasks) - Team project process feedback	- Final deliverable presentation - Peer evaluation of team presentations - Encouragement and Q&A

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	- Presentation of issues and real- life cases Use of media and small group discussions	- Problem analysis and direction guide - Presentation of creative induction strategies	
Learning facilitation methods	Questions to assist in problem understanding Presentation of actual social issues Application of field-linked problems	- Learning extension facilitation - Problem-solving facilitation - Idea development for task outcomes - Final assignment supplement feedback - Creative content development facilitation	- Individual reflective journals - Peer evaluations for team projects - Team project progress reports - Summarization and supplementary explanations
Instructor 's Roles	Lecturer	Supporter and Mediator	Facilitator and Encourager

Data Analysis

This study aimed to explore the effectiveness of team project-based Community Welfare Theory classes employing the PBL teaching method to foster future-oriented and creative social workers, thereby seeking to enhance the competencies of the students.

Data was collected through open-ended questionnaires, and peer evaluations during the problem-solving process of the team projects. At week 15, questions were asked regarding what students expected before taking the class, what they learned after taking the class, what they felt was lacking, how they engaged in communication and cooperation during the team projects, what types of meetings they conducted, what competencies could be used as social workers, and what they learned from other teams' presentations and discussions. The collected data were analyzed using qualitative data analysis methods based on the open-ended questionnaires, peer evaluations, and reflective journals.

III. Research Results

This study conducted team-based community welfare problem-solving projects in a mandatory major course. Based on the activity reports, self-reflection reports, and peer evaluations submitted after the project execution, the achievement outcomes of the participating students were identified as follows.

Improvement of Problem-Solving Ability

Most students experienced confusion in identifying problems and generating solutions during their first experience with problem-centered team projects. Despite selecting their preferred topics, they struggled to recognize what constituted a problem in the chosen topic and why it should be selected as such. Additionally, they faced difficulties in finding the direction for the identified problems and encountered challenges in the data collection process related to the selected issues. Even when data was found, students had trouble understanding, analyzing, and applying the collected information collaboratively, leading some teams to lose their direction.

"Our team couldn't establish a basic framework for the presentation topic, so we investigated community welfare centers in Korean society but found it difficult to reorganize everything from the beginning again" (Team A).

"After receiving feedback from the professor, we decided to segment our data research and investigate welfare areas in the United States and Northern Europe. However, all team members lacked sufficient understanding of the research and the topic, resulting in slow progress" (Team G).

"Initially, the concept of a regional self-sufficiency center was unfamiliar, which made the topic selection process burdensome from the start" (Team H).

Since identifying the problem is fundamental to the team project, the instructor did not follow the traditional method of simply presenting the problem. Instead, the instructor provided subtle hints to guide the students toward problem-solving pathways. Nevertheless, when teams struggled to outline their research, the instructor offered more specific directions. Unlike the beginning, students learned to understand concepts as time progressed with individually gathered data and internal team activities, began to form problem recognition regarding their topics, and started exploring various analyses and applications of the issues.

Table 5: Categorization of Problem-Solving Ability

Subcategory	Category	Super category
Difficulty in problem identification	Task analysis and contextual	
Feeling burdened and confused	understanding	Difficulty in problem recognition and interpretation stage
Struggling with problem approach methods	Conflict in creating solution strategies	

Lack of problem recognition and understanding		
Struggling to find data		Exploring the PBL application process Pre-learning and analysis process
Clues Regarding the Scope of Learning	Instructor's facilitation feedback	
Supportive Feedback on Approach Methods		
Touching Problem Relevance Between Cases and Concepts	,	
Open Alternatives for Unresolved Problems		Project Execution Performance Resilient Problem-Solving Strategies
Various Application and Field Practice Application Strategies		
Imitation and Discovery Through Interaction	Sense of Accomplishment According to Execution Process	
Expanded Understanding of Exploratory Learning		
Increased Understanding of Career Exploration		

Some teams received revised feedback from the instructor regarding the scope of learning and approach methods, prompting them to redefine the outline of their research process and embark on new directions for data collection. Additionally, many teams deliberated on innovative ideas for their presentation methods.

"There was a lack of relevant data, which was concerning during the research phase, but the professor's feedback provided us with ideas and motivated us to conduct more thorough data research" (Team D).

"As we collected various materials for problem-solving, finding data that matched our topic helped us understand the significance of the topic, making it easier to engage in group activities diligently" (Team B).

"The field of our topic was too broad, so we had to investigate each aspect from the beginning to gain a new understanding. However, after receiving weekly feedback, we discussed, analyzed, and searched again, which gradually improved our analysis and problem-solving methods as we revised our work" (Team J).

Moreover, some students expressed that overcoming the initial challenges of dealing with unfamiliar topics provided a significant sense of accomplishment.

"Preparing, discussing, and coordinating each week while receiving continuous feedback and encouragement from the professor was very meaningful and rewarding" (Team F).

"Learning about various work settings in community welfare was very helpful for choosing a career path as a future social worker after graduation" (Team I).

In the category of improvement in problem-solving ability, students initially faced challenges such as lack of problem recognition, feelings of burden and confusion, and difficulties in approach methods. However, with continuous support and feedback from the instructor, open alternatives, mutual imitation and discovery, and an expanded understanding of exploratory learning, their problem-solving abilities transformed. They experienced a sense of achievement during the execution process, thereby enhancing their resilient problem-solving capabilities.

Mutual Cooperation

Most students in this class were social welfare majors, and a few double majors and students who changed their majors also participated. It was anticipated that this would create an environment where cooperation abilities could be further emphasized. From the team formation stage, teams were composed of including social welfare majors, double majors, and students who changed their majors to promote collaborative efforts. During this process, some students who had not yet developed strong camaraderie expressed difficulties in communication due to unclear concepts, and despite having creative presentation ideas, they struggled to harmonize differing opinions during the concretization process.

"Our understanding of the topic concepts was not fully established, making it difficult to uncover indepth content, which hindered communication progress during team meetings" (Team C).

"There were many ideas for the presentation, but clear opinions on the presentation were not emerging, and we needed more opportunities to try various approaches" (Team B).

"I thought it was necessary to properly understand the differences and similarities in national policies and systems, but incomplete concept clarification and confusion made it difficult to grasp what needed to be understood" (Team I).

Table 6: Categorization of Mutual Cooperation

Subcategory	Category	Super category
Acceptance in the state of insufficient concept clarification	Boundary Issues in Communication	Initial Difficulties in Cooperation

Communication without setting direction		
Meetings without progress	Idea Issues	
Deliberating on presentation ideas	idea issues	
Issues of opportunity		
Lack of time	Practice of the Cooperation Process	PBL Application Process
Repeated practice of empathy, respect, and consideration	Tractice of the Cooperation Process	Issues in Cooperation, Time, and Methods
Enhancement of responsibility	Channel in Communication Metalla	Project Execution Performance
Importance of mutual communication	Change in Communication Methods	Perception of Cooperation and Communication

As preparation time for classes and presentations progressed, students began to understand each other's issues to some extent, and their cognitive levels were organized. From that point on, cooperative communication progressed smoothly and rapidly. Additionally, as communication increased, some students began to recognize their responsibilities and learn about accountability in the field. Due to the short duration of the project, opportunities for teams to experiment were very limited, and some students believed that the lack of opportunities made communication even more difficult.

"We were able to practice not only team project cooperation but also the responsibility of our roles and the efficiency of time management" (Team A).

"Due to individual circumstances and different exam periods, there were times when progress stalled or communication was lacking. However, we learned to manage our time well and handle tasks efficiently" (Team G).

"Some teams faced difficulties in implementing problem-solving measures or lacked the drive to push forward, especially since it was the final presentation, leading to a relaxed attitude and failure to achieve their goals" (Team H).

In the process of cooperation, students initially struggled to set directions and lacked opportunities and time for communication. They recognized the need to practice responsibility and respect, which led them to learn about changes in communication, ideas, and cooperation methods. With the application of PBL, they successfully overcame the initial difficulties by achieving cooperative and communicative performance outcomes.

Critical Thinking

Each team presented their results, and mutual evaluations between teams and self-assessments were conducted to discuss each other's strengths and weaknesses. During the Q&A session following each presentation, questions were encouraged to promote small-scale discussions. Many opinions focused on the content of the PowerPoint presentations and visual aspects, while some students emphasized the importance of communication and roles within the team. Most students remembered the expressions and concepts of teams that presented original content meaningfully and provided feedback that they learned various things from case applications.

"The balance between text and images in the PPT was well harmonized, making it easy to view" (Team F).

"We decided on a new concept, and since there was a foreign member on our team, we thought it would be better for them to present in English as a foreign reporter while displaying subtitles, to make the presentation easier" (Team C).

"We adopted the concept of a 'Challenging Golden Bell,' wore school uniforms, set up an entertaining presentation format with quizzes and snacks, and enjoyed the entire presentation" (Team D).

"We used the recent trending 'Squid Game,' created videos, prepared on-site role-play at subway stations, and our well-prepared presentation was fun and impressive" (Team I).

Table 7: Categorization of Critical Thinking

Subcategory	Category	Super category
Analysis of Visual Media		
Team Member Collaboration	Trial and Error in Presentations	Cupativity of Einal Deliverables
Creative Ideas for Presentation	Trial and Error in Presentations	Creativity of Final Deliverables
Composition of Reports and One-Pagers		
Appropriateness of Presentation Time	Comparative Evaluation of Presentation	Sincerity of PBL Presentations
Satisfaction with Q&A	Fields	
Possibility of Knowledge Expansion	Critical Thinking and Positive Development	Project Execution Performance
Future Alternatives and Directions	Directions	Knowledge Expansion and

Discovery of Differences Between Overseas and	Discovery
Domestic Contexts	•

As time passed, some students carefully evaluated whether the composition and content of reports or one-pagers were accurate and well-prepared, and some discussed whether presentation times were adhered to. Additionally, many innovative attempts were made to ask various questions about each team's organized topics. By asking about creative ways to improve solutions or problems, or by opening channels for different thoughts on what might be better, heated discussions emerged that allowed for the adoption of better methods. In many cases, the discussions extended beyond class time, reflecting the students' growing passion and dedication to their presentations as the project progressed.

"Regarding the policy areas that need improvement, we suggested increasing expertise in specialized fields. Do you have any thoughts on how to approach this?" (Team E).

"Some projects involve welfare centers as well, so why were these centers created differently and differentiated from others?" (Team B).

"We used the example of organizations opposing hate facilities with external stimuli and organization, but couldn't we have cases where the organizational power supporting hate facilities was weak, forcing them to be created reluctantly?" (Team J).

In the category of critical thinking, various competencies were demonstrated, including analysis of presentation media, discovery of creative ideas, appropriateness of Q&A sessions, and expansion into new knowledge areas. Through this, students experienced trial and error, advanced comparative evaluations, and developed critical thinking, thereby positively achieving project performance outcomes.

IV. Conclusion And Recommendations

This study attempted to use the problem-based learning (PBL) teaching method in the Community Welfare course, a major subject in social work education, to provide foundational data for cultivating future-oriented and creative social workers capable of applying their skills in actual work environments. The new paradigm for nurturing future talents, driven by the Fourth Industrial Revolution, demands individuals who can think independently, embrace challenges, and execute original ideas in response to rapid societal changes [8]. This paradigm is highly significant and necessary in the current field of social welfare.

Today, where community-integrated care and deinstitutionalization are emphasized, frontline social workers encounter diverse and complex needs and problems in communities. Addressing these issues often requires creative and novel solutions that differ from traditional approaches, as well as tackling multifaceted problems that cannot be resolved solely within existing welfare domains [9]. The coexistence of unique situations such as the COVID-19 pandemic further underscores the importance of cooperation, critical thinking, and, more importantly, creative and open-minded problem-solving abilities as essential core competencies for professional social workers practicing in the community [10].

The researcher applied the PBL methodology to the Community Welfare course and sought to verify its potential through qualitative research based on the students' project outcomes. The study analyzed three main areas: "Problem-Solving Ability," "Mutual Cooperation," and "Critical Thinking," and presented several discussions and conclusions based on these analyses.

Firstly, the study found that students enhanced their ability to identify, analyze, and solve social problems. This improvement provided them with opportunities to effectively handle various issues and enabled them to become creative talents who can proactively address unexpected problems in their professional practice without avoidance by leveraging positive experiences from problem analysis and resolution processes.

Secondly, students who participated in the course engaged in reflective journals and peer evaluations, which helped them to understand how their problem-solving approaches differed from others. Through discussions, they expanded their thinking and generated new ideas for solutions. By sharing their challenges and concerns, students developed the ability and opportunity for deep empathy and diverse communication, thereby enhancing their cognitive expansion, innovative idea development, and cooperation skills.

However, there were limitations. A small number of students exhibited passive tendencies or reluctance toward team projects. Unlike traditional teaching methods, the PBL approach requires self-directed learning to solve problems, which may pose adaptation challenges for students unfamiliar with such methods. Additionally, being part of the COVID-19 generation, students often lacked adequate skills in data exploration and analysis [11], and there was a tendency to rely heavily on internet information, causing significant delays in the initial stages of team collaboration. Furthermore, navigating a hybrid environment that combined face-to-face and remote activities posed considerable challenges throughout the semester. Consequently, the final presentations of teams with enthusiastic and proactive members tended to stand out prominently.

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In conclusion, as students graduate and enter society, these various team collaboration projects are expected to form the foundation of their social lives and drive substantial collaborative achievements in their respective professional fields. Based on this study, team-based community problem-solving learning is believed to effectively cultivate creative future talents with integrative thinking abilities. Future research should focus on characteristics tailored to the COVID-19 generation and promote participant-driven learning to further enhance the efficacy of such educational approaches.

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