



Using Experiential Learning to Improve Basketball Skills of Nursing Students

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Abstract

The objectives of this study were 1) to use experiential learning to improve basketball skills of nursing Students and 2) to compare students' basketball skills, before and after implementation experiential learning is used. The simple group of this study consisted of 30 first-year nursing students of Wei fang Nursing Vocational College were sampled through random cluster. The research instruments included 1) lesson plan based on experiential learning and 2) basketball skills test. The assessment questions aim to assess four sub-variables within the dependent variable including: 1) experience, 2) share, 3) summarize, and 4) application. The data were analyzed by mean, standard deviation and t-test for dependent sample. The results revealed the following: 1. lesson to improve the basketball skill of nursing students which includes four steps: 1) experience, 2) share, 3) summarize, and 4) application; 2. the comparison of their innovative skills before and after implementation, the average score in pre-test evaluation was 66.27 of full score 100, and in post-test evaluation was 86 of full score 100. It was found that after learning was higher than before learning by statistically at the 0.01 level. That was consistent with the research hypothesis.

Keywords: Experiential Learning, Basketball Skills, Nursing Students

Introduction

With the popularization of higher education and the rapid development of national sports, the importance of physical education is increasingly recognized by people. However, nursing students have heavy learning tasks, high learning pressure, and long hours of classroom learning and practice, which can bring certain burdens to their bodies. Therefore, physical exercise can promote the physical and mental health of



nursing students, improve their physical fitness, and lay a good foundation for their future learning and work. Basketball, as a sport that can comprehensively exercise the body and teamwork ability, has become increasingly popular among nursing students (Yoo, M. S., & Kim, M. J., 2020).

With the popularization of higher education and the rapid development of national sports, the importance of physical education is increasingly recognized (Wurdinger & Carlson, 2010; Gentry & Dooley, 2014; Boud, Keogh, & Walker, 1985; Brookfield, 2017; Kuswandi et al., 2018). However, due to the lack of opportunities and time for physical exercise in nursing education and the lack of basketball skills, the quality of basketball among nursing students is uneven. Therefore, how to improve the basketball skills of nursing students has become an urgent problem. As future nursing professionals, nursing students need to have good health and physical fitness to cope with rigorous studies and future work. Basketball, as a comprehensive sport, can help nursing students improve their physical fitness, teamwork ability, and promote a healthy lifestyle.

Experiential learning methods have been shown to be effective in various educational contexts, including physical education. Wurdinger and Carlson (2010) provided five effective approaches to experiential learning, including problem-solving, project-based learning, collaborative learning, reflection, and action research. These methods can be applied in different disciplines and environments to enhance learning outcomes. Similarly, Gentry and Dooley (2014) highlighted the importance of integrating theory and practice in experiential learning through case studies and teacher experiences.

Research has demonstrated the benefits of experiential learning in enhancing students' understanding and application of knowledge. Liu, Lin, and Tsai (2016) found that field exploration and observation helped college students better understand complex scientific concepts. Lindgren and Johnson-Glenberg (2013) showed that using virtual reality could help elementary students learn new knowledge through personal experience. In medical education, Kolb and Kolb (2017) found that real-world experiences and practical activities significantly improved students' ability to apply their learning in practice.

These literature sources provide extensive information on the history, theory, and practice of experiential education, guiding educational practitioners in applying experiential teaching methods more effectively. Therefore, incorporating experiential learning methods, such as basketball, into nursing education can enhance nursing students' physical and mental health, improve their physical fitness, and lay a solid



foundation for their future learning and work.

The research would integrate of physical education, particularly basketball, into nursing education is increasingly recognized for its importance in promoting the physical and mental well-being of nursing students. Due to the heavy academic and practical workload, nursing students often lack opportunities for physical exercise, leading to varying levels of basketball skills. Addressing this, experiential learning methods, which include problem-solving, project-based learning, collaborative learning, reflection, and action research, have been identified as effective in enhancing educational outcomes across various disciplines.

Objectives

1. To use experiential learning to improve basketball skills of Nursing Students.
2. To compare students' basketball skills, before and after implementation experiential learning is used.

Research Framework

Using experiential learning to improve basketball skills of Nursing Students. The research concept framework is as follows.

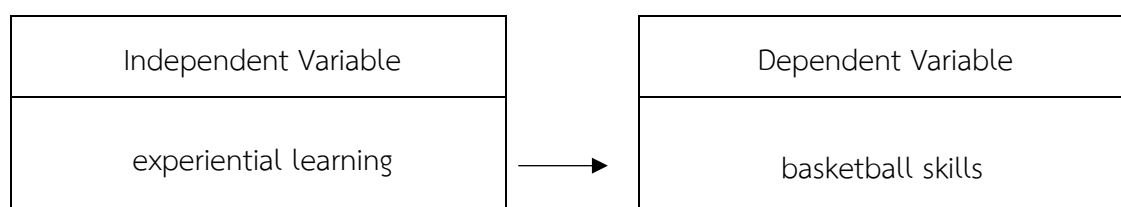


Figure 1: Research Framework

Methods

Research approach, population and samples

The methodology of this research was experiential learning to basketball skill with 1) lesson plan according to experiential learning and 2) basketball skills test.

There are 150 first-year nursing students at Weifang Nursing Vocational College, 5 classes with 30 students in each class.

And through random cluster sampling, 30 first-year nursing students at Weifang Nursing Vocational College were sampled.

Research instruments

The development of practical skills by robot experiment training activity for



undergraduate students. The research Instruments is as follows:

Creating and checking the quality of research instruments is shown as following.

1. Lesson plan according to experiential learning.

1.1 Introduction: The lesson starts with an introduction that helps the students understand the objective of the lesson, the importance of the topic, and how it relates to their previous learning. The introduction should grab the students' attention and engage them in the learning process.

1.2 Learning activities: The experiential learning lesson plan includes activities that are designed to engage students in hands-on learning experiences. These activities may include simulations, experiments, field trips, group work, role-play, or other activities that require active student participation. The activities should be structured to allow students to explore and discover new concepts and ideas.

1.3 Reflection: After the learning activities, students are given time to reflect on their experiences. Reflection activities can include group discussions, personal journaling, or other activities that help students process what they have learned and connect it to their previous knowledge.

1.4 Generalization: In this stage, the lesson plan helps students connect their experiences to broader concepts and theories. This stage includes discussion and analysis of the learning activities and how they relate to the larger topic of study.

1.5 Application: The final stage of an experiential learning lesson plan involves applying the newly learned concepts to real-world situations. Students should be encouraged to apply what they have learned to their lives, their work, or other contexts.

Overall, the experiential learning lesson plan is designed to be student-centered and hands-on, allowing students to explore new concepts and ideas through experiential learning activities. The lesson plan encourages students to reflect on their experiences, generalize what they have learned, and apply their new knowledge to real-world situations.

2. Basketball Skills Test

The Basketball Skills Test is an assessment tool used to evaluate a player's fundamental skills and abilities in basketball. The test is typically used by coaches, trainers, and scouts to assess a player's strengths and weaknesses and to determine how well they can perform on the court. The following are the steps to design the Basketball Skills Test Form:

2.1 Determine the skills to be tested: The first step is to determine the skills that will be evaluated. These can include shooting, dribbling, passing, rebounding, and defensive skills. The test should be designed to assess both the player's ability to



execute the skill and their accuracy and consistency.

2.2 Define the testing criteria: Once the skills have been identified, the testing criteria should be defined. This includes the number of repetitions or attempts required, the time limit for each skill, the scoring system, and the minimum standards for each skill.

2.3 Create the test form: The test form should include the following sections:

1) Player information: This includes the player's name, age, and other relevant information.

2) Testing instructions: This section provides the instructions for each skill to be tested, including the number of attempts, time limits, and scoring criteria.

3) Scoring sheet: This section includes a scoring sheet for each skill, where the evaluator can record the player's performance and calculate their score.

4) Overall assessment: This section provides space for the evaluator to provide an overall assessment of the player's skills, including their strengths and weaknesses.

2.4 Pilot test the form: Before using the test form, it's important to pilot test it with a small group of players to ensure that the instructions are clear and that the scoring system is accurate.

2.5 Administer the test: Once the test form has been finalized, it can be administered to the players. It's important to ensure that the testing environment is suitable and that the players have adequate time to perform each skill.

2.6 Evaluate the results: After the test has been completed, the results should be evaluated to determine the player's strengths and weaknesses. The results can be used to develop a personalized training plan to help the player improve their skills.

In summary, designing the Basketball Skills Test Form involves determining the skills to be tested, defining the testing criteria, creating the test form, pilot testing the form, administering the test, and evaluating the results. By following these steps, coaches, trainers, and scouts can assess a player's skills accurately and develop a plan to help them improve.

The development process of Checklist form about quality of Research Instruments:

1) Studied the concept and development process of checklist form.

2) Drafted the checklist form. At the end of each section, there is a space for experts to write suggestions that can be helpful in improving students' basketball skills.

3) Experts verified the validity of checklist concept and development process. Taking the instrument to 3 experts to consider. The test consistency the index of congruency is between 0.60-1.00, the level of consideration is as follows:

Rating is +1 There is an opinion that "Corresponds to definition/measurement



objectives.”

Rating is 0 There is an opinion that “Not sure it corresponds to definition/measurement objectives.”

Rating is -1 There is an opinion that “Inconsistent with definition/measurement objectives.”

4) Modify checklist form according to suggestion.

Results

Symbol and Abbreviations

Represent data analysis results based on symbols and semantics. The details are as follows:

\bar{X}	means	average value
SD.	means	standard deviation
n	means	number of students
D	means	scores of differences between pre and post test
df	means	degree of freedom
t	means	statistical data for t-test value
**	means	statistical significance at level .01

Part 1 Results of development of Basketball Skills of Nursing Students by using

Experiential learning is an educational theory and method that emphasizes acquiring knowledge and skills through firsthand experiences and practical activities. Students engage in real projects, on-site observations, and hands-on activities, directly confronting problems and challenges to deepen their understanding through reflection.

In the context of basketball teaching, experiential learning proves to be an effective instructional approach. Students participate in actual basketball games, observe matches of proficient teams, or apply basketball skills and tactics through simulated games and project-based learning. Such direct experiences not only enhance students' profound understanding of the sport but also cultivate their decision-making and problem-solving abilities during matches.

Within basketball education, experiential learning underscores the importance of students' reflective processes. By reviewing their performances in games, students gain a comprehensive understanding of their strengths and weaknesses, while simultaneously improving communication and collaboration skills within team cooperation. This practice-oriented learning approach enables students to integrate theoretical basketball



knowledge with actual gameplay, preparing them to tackle various match scenarios and opponent challenges.

The implementation of experiential learning in basketball education can take diverse forms, such as organizing real matches, conducting simulated tactical drills, and participating in team projects. This diversity caters to the different learning needs of students, sparking their interest and making basketball education more engaging and effective. Overall, integrating experiential learning into basketball teaching enhances students' basketball skills, tactical awareness, and team collaboration, ultimately making them more competitive in actual matches.

This study focused on 30 first-year nursing students from the Weifang Nursing Vocational College as research subjects, aiming to improve the first students' learning skills using the experiential learning. The detailed results of the pre-test and post-test applying the experiential learning to the Basketball course were shown in Table 1.

Table 1: Learning skills score between pre-test and post-test

Learning achievement	n	Full Scores	Pre-test		Post-test		D
			\bar{X}	SD.	\bar{X}	SD.	
1. Basic rules of basketball	30	15	8.97	0.836	13.1	1.248	4.13
2. Basic movement of basketball	30	10	6.5	0.764	8.53	0.884	2.03
3. Basketball holding	30	10	7.03	0.657	8.6	0.554	1.57
4. Basketball dribbling	30	10	7.43	0.559	9.03	0.657	1.6
5. Basketball shooting	30	10	7.03	0.795	8.73	0.772	1.7
6. Basketball passing	30	10	6.03	0.752	8.33	0.745	2.3
7. Basketball rebounding	30	10	5.53	0.562	7.77	0.667	2.24
8. Basketball defensive skill	30	25	17.73	0.772	21.9	1.165	4.17
Total		100	66.27	1.97	86	2.160	19.73

As could be seen from Table 4.1, the changes in the scores of eight basketball skills of nursing students using the experiential learning were as follows: 1) basic rules of basketball: The average score before learning was 8.97 points, and the average score after learning was 13.1 points, with an average difference of 4.13 point. 2) Basic



movement of basketball: The average score before learning was 6.5 points, and the average score after learning was 8.53 points, with an average difference of 2.03 points. 3) Basketball holding: The average score before learning was 7.03 points, and the average score after learning was 8.6 points, with an average difference of 1.57 points. 4) Basketball dribbling: The average score before learning was 7.43 points, and the average score after learning was 9.03 points, with an average difference of 1.6 point. 5) Basketball shooting: The average score before learning was 7.03 points, and the average score after learning was 8.73 points, with an average difference of 1.7 points. 6) Basketball passing: The average score before learning was 6.03 points, and the average score after learning was 8.33 points, with an average difference of 2.3 points. 7) Basketball rebounding: The average score before learning was 5.53 points, and the average score after learning was 7.77 points, with an average difference of 2.24 points. 8) Basketball defensive skills: The average score before learning was 17.73 points, and the average score after learning was 21.9 points, with an average difference of 4.17 points. After learning, the scores for each item were higher than before learning. Therefore, adopting experiential learning could improve the basketball skills of undergraduate students, achieving the research objective.

Part 2: Results of comparing students' learning basketball skills before and after using experiential learning

The analyzed data collected by researcher from the pre-test and post-test of learning basketball skills. It conducted data analysis using measures like mean, standard deviation, and the t-test dependent for correlated samples. The results of this analysis were presented in Table 2.

Table 2: Comparison of basketball skills by pre-test and post-test with experiential learning

Learning achievement		n	Full Point	\bar{X}	SD.	t	p
Total score	Pre-test	30	100	66.27	1.965	9.98**	.00
	Post-test	30	100	86	2.16		

**Statistically significant at the level .01 ($p < .01$)

From Table 2, it could be observed that the students' post-test scores were higher than their pre-test scores, which was statistically significant at the 0.01 level. The average score of students before using experiential learning was 66.27 points, and after using



experiential learning, it increased to an average of 86 points, with an average difference of 20.27 points. The results indicate that after adopting experiential learning, nursing students' basketball skills has improved compared to before. The findings were statistically significant.

Learning Behavior

It used experiential learning to improve nursing students' basketball skills. To validate the result, it would be observed the throughout the teaching and students learning process. The study shows that the researcher taught nursing student basketball course from 5 classes with 30 first-year students in each class in Weifang Nursing Vocational College, the students' behaviors were observed and recorded during the four teaching process of Experience, Share, Summarize, and Application. The changes in student behavior indicate that throughout the learning process, the students' learning basketball skills consequently improved. The record of students' learning behavior during the teaching activities was as follow:

Step 1, Experience

At this stage, in the experiential learning approach to a basketball course, the initial step involves guiding students to experience the fundamental rules and basic movements firsthand. This includes activities such as positioning, passing and receiving the ball, basic dribbling, shooting, and rudimentary defensive maneuvers. Through practical engagement, students directly sense the application of rules and the execution of actions, laying a foundation for subsequent learning. Simultaneously, in the realm of basketball skills, students personally execute skills like ball handling, dribbling, shooting, passing, rebounding, and defensive techniques, gaining a profound understanding of each skill's application and operational details.

Step 2, Share

In this stage, students have the opportunity to share their experiences and insights from the activities. This includes their understanding of basic rules and movements and their reflections on skill execution. Through group discussions and team feedback, students can examine basketball's foundational elements from different perspectives, learning from each other and gaining new insights. The collective learning atmosphere during the sharing process promotes a deeper level of understanding.

Step 3, Summarize

In this stage, regarding the basic rules and movements of basketball, either the teacher or students summarize key points, emphasizing the important concepts learned during the activities. Providing summaries of rule overviews and action techniques helps ensure that students understand and can retain this crucial information. In terms of



basketball skills, students and teachers jointly summarize the essential steps and considerations for each skill, reinforcing the students' comprehension of these skills.

Step 4, Application

In this stage, students are encouraged to apply the acquired knowledge to new situations. For basic basketball rules and movements, students apply rules and actions to practical game scenarios, solidifying their understanding. In the context of basketball skills, students apply ball handling, dribbling, shooting, passing, rebounding, and defensive skills in simulated games, real-life situations, or problem-solving activities, cultivating their ability to translate skills into operational competence during actual games. Through a continuous cycle of experience, sharing, summarizing, and application, students progressively deepen their understanding and mastery of basketball skills and tactics.

In summary, the application of experiential learning to a basketball course involves four key steps: Experience, Share, Summarize, and Application. In the Experience step, students actively engage in basketball activities, gaining firsthand experience with basic rules, movements, and skills. The Share step encourages students to exchange insights and reflections, fostering a collaborative learning environment. Summarizing key points in the third step solidifies the understanding of rules, movements, and skills. Finally, in the Application step, students are prompted to apply their acquired knowledge to new situations, enhancing their ability to translate theoretical concepts into practical actions on the basketball court.

This approach not only emphasizes practical engagement and personal experience but also promotes collaborative learning through sharing and summarizing. By cyclically repeating these steps, students gradually deepen their understanding and proficiency in basketball, ensuring a well-rounded learning experience. In conclusion, the incorporation of experiential learning into a basketball course proves effective in developing practical skills, critical thinking, and teamwork among students, ultimately enhancing their overall competence in the sport.

Conclusions and Discussion

Using experiential learning to improve basketball skills of Nursing students was experimental research that has the research objective as follows:

1. To using experiential learning to improve basketball skills of Nursing students.
2. To compare students' basketball skills, before and after the implementation of experiential learning is used.

The research instruments were used in this study which were 4 lesson plans



based on the basketball skills with 1) basic rules of basketball, 2) basic movement of basketball, 3) basketball holding and dribbling skills, and 4) basketball shooting, dribbling, passing, rebounding, and defensive skills.

Conclusion

According to the research topic, the study on improving the basketball skills of nursing students through experiential learning is summarized as follows:

1. Using experiential learning to improve basketball skills of Nursing Students which includes four steps: 1) Experience, 2) Share, 3) Summarize, and 4) Application. By using experiential learning and observing students' learning behaviors, it is found that students have improved in clarifying the purpose of the basketball course, explaining basic rules of basketball, doing the basic movement of basketball, and basketball holding, dribbling, shooting, passing, rebounding, and the defensive skills to meet the research objective.

2. Comparing of basketball skills of nursing students before and after learning with the experiential learning, the average score of first-year students in pre-test evaluation was 66.27 of full score 100, and in post-test evaluation was 86 of full score 100. It was found that after learning was higher than before learning by statistically significant at the .01 level. This was consistent with the research hypothesis.

Discussion

Research on using experiential learning to improve basketball skills of Nursing Students was conducted in the first semester of the 2023 academic year. It involved the study of academic performance cultivation for 30 first-year nursing students in Weifang Nursing Vocational College using the experiential learning method. This research can be discussed from two aspects:

1. Using experiential learning to improve basketball skills of Nursing Students, the researchers divided the lesson plan writing into four steps according to the flipped classroom teaching model: 1) Experience, 2) Share, 3) Summarize, and 4) Application. The assessment of learning achievement performance was tested through eight sub-skills: 1) Basic rules of basketball, 2) Basic movement of basketball, 3) Basketball holding, 4) Basketball dribbling, 5) Basketball shooting, 6) Basketball passing, 7) Basketball rebounding, and 8) Basketball defensive skill. Data analysis was conducted by three experts who evaluated the quality of lesson plans based on the experiential learning, with the results presented by experts evaluating the lesson plan quality. Using the experiential learning model to improve basketball skills was necessary. Under this teaching model, students become the main body of learning, with teachers acting as



guides and helpers. Through mutual assistance and cooperation, this learning was conducive to students' basketball skills, enhancing basketball basic rules, basic movement of basketball, basketball holding, dribbling, shooting, passing, rebounding and defensive skill. According to the research findings, the experiential learning model (Kolb, D. A., 1984) has demonstrated significant effectiveness in enhancing the basketball skills of nursing students. Students, engaging in four sequential steps of experiential learning—namely, Experience, Share, Summarize, and Application—manifested comprehensive progress in the realm of basketball. This affirms the positive impact of the student-centric learning model, underscoring the pivotal role of guiding teachers in facilitation and assistance (Bonwell, C. C., & Eison, J. A., 1991).

2. The Comparison of students' basketball skills before and after the implementation experiential learning model. Researchers studied many literatures and research related to the experiential learning model and conducted research based on the nursing students experiential learning model. According to the research results, adopting the experiential learning can promote nursing students to improve their learning achievement in basketball course. The results showed that the average score before learning was 66.27 points, and the average score after learning was 86 points, with an average difference of 20.27 points. The results show that, the average score of nursing students in pre-class assessments was 66.27 (SD = 1.965), and in post-class assessments, it was 86 (SD = 2.16). The post-class assessment scores were significantly higher than pre-class assessment scores at a statistical significance level of 0.01. This aligns with the research hypothesis. In this study, three experts were engaged to assess the curriculum plans implemented under the experiential learning model, aiming to enhance the basketball skills of first-year nursing students.

This comprehensive approach to curriculum evaluation, guided by established educational theories, contributes not only to the effectiveness of the experiential learning model but also to the broader discourse on enhancing teaching quality. The utilization of expert assessments rooted in these foundational works ensures a rigorous and systematic evaluation process, reinforcing the significance of clarity, appropriateness, and alignment within the instructional design of the experiential learning model.

By implementing these recommendations, it could be comprehensively integrated the experiential learning model into the basketball course for nursing students, enhancing their practical skills, teamwork, and overall capabilities. This holistic learning experience contributes to providing students with a richer and more meaningful education.



Suggestions for further research

In addition to the suggestions, here are some further recommendations to better leverage the experiential learning model in teaching basketball courses for nursing students:

Integrating experiential learning into the basketball training of nursing students can significantly enhance their practical skills and teamwork abilities. Emphasizing practical skill training, such as first aid, emergency response, and teamwork during basketball activities, allows students to practice responding to different situations in tense environments, thereby enhancing their operational skills. Utilizing role-playing to simulate real nursing scenarios, where students assume roles as nurses, patients, and doctors, can further cultivate communication and collaboration skills. An interdisciplinary approach that integrates basketball courses with nursing-related fields, such as sports medicine and rehabilitation, promotes collaboration and knowledge exchange.

Field observations at medical institutions or sports medicine centers provide students with a deeper understanding of real working environments, igniting their interest in the field. Project-based learning, where students design and test rehabilitation plans for sports injuries, fosters teamwork and problem-solving skills. Engaging students in community sports projects to provide medical support strengthens practical skills and instills a sense of community responsibility.

Encouraging reflection and sharing through group discussions, written tasks, or presentations helps students internalize their experiences. Personalized learning plans that cater to individual learning styles and interests increase engagement and learning effectiveness. Collaborations with professional basketball coaches and healthcare professionals offer valuable industry insights and inspire student interest in both nursing and basketball.

By implementing these recommendations, it could be comprehensively integrated the experiential learning model into the basketball course for nursing students, enhancing their practical skills, teamwork, and overall capabilities. This holistic learning experience contributes to providing students with a richer and more meaningful education.

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