The Influence of Case Based Learning Methods Towards Learning Outcomes on Technical and Tactical Tennis Training Method Subject

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Abstract. These research aims to determine the impact of case-based learning exercises on student learning outcomes on methods on tactical techniques training tennis lectures in Sports Coaching Education Departmen. These research is an experiment using pre and post-test designs. Research subjects were 17 students in the fourth semester of 2021/2022 academic year with a total sample of 16 people. These samples were taken using random sampling and the instrument used is an essay questions to measure learning outcomes obtained by students before and after the intervention. The analysis used in this study is a parametric test, namely paired t-test to determine learning results before and after the intervention by testing the normality and homogeneity first learning results data. The test results show that df value = 15 and the standard deviation is 1.668, the sig value obtained (2 tailed) is 0.000 so that the value of sig. <0.05 or the value of t count is > t table (5.694> 2.13). From these results, it can be concluded that there is a significant effect of case-based learning style on student in the field tennis technique and tactical training study.

Keywords: Learning outcomes, tennis courts, case based learning, tactical techniques tennis training methods.

1. Introduction

The Unimed Sports Coaching Education Department has a vision in providing education to shape graduates who has the ability to train sports. In order to achieve this, Sports Coaching Education establishes several sports lectures specialization which students are required to choose one of these specialization sports that will be focusing on their development. In these specialization lectures, there are several lectures that must be completed, one of them is technical and tactical training methods. Field Tennis is one of the expertise or specialization lectures, and with this curriculum, graduates are being prepared to become field tennis coaches. Graduates from this department are expected to become coaches in clubs where they become professionals who can apply the knowledge they have learned during study and get money from what they do. Professionalising sports management is essential to obtain positive results in the face of increasingly demanding users who want to receive good value for money [1]. To coaching a tennis players, achievement of course starts from the club where coaching is carried out on an ongoing basis. So that the existence of the club is important in addition to fostering athletes who can also develop and apply the talents of graduates of the sports coaching study department to become coaches in tennis clubs. It is concluded that local clubs are playing a significant role in creating a massive pool of talent and developing grass-roots players into high performance/elite national tennis athletes [2].

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The method for training field tennis techniques and tactics is a course that explores how to train techniques and also tactics for playing tennis in which to win a match this has an important role. With this study, it is hoped that students who chooses field tennis specialization will be able to train their technical and tactical skills in playing tennis and how to develop drill techniques, tactics or playing strategies in both singles and doubles games. Problem solving, reasoning and communication skills are very important in technical and tactical training implementation. Tennis coach is expected to be able to design trainings that can facilitate athletes or trainee students to develop abilities in tennis game. Based on observations results made in several tennis clubs and also interviews with several coaches, there are several problems, including the trainer's ability to develop a training program is also a willingness to learn continuously. Describe the problems are number of coaches, quality of coaches who involve in early tennis development, and income for coaches who work at beginner level [3]. This also results in the implementation of the exercises given by the coaches still providing exercises that do not specifically solve the problems experienced by the trainees or athletes. They have not been involved in constructing their maximum knowledge where practice is still drilling or hitting the ball repeatedly without solving problems or obstacles experienced when carrying out any of these techniques or tactics while playing. In these tennis learning method, it is necessary to prepare their abilities so that when they trained, they can apply problem-based exercises so that the cases experienced by the trainee student or athlete can be resolved quickly. Hopefully, this will avoid dragging the same mistakes that can potentially lead to permanent error. One of the lessons that actively involving students is Case Based Learning (CBL) [4].

CBL is a constructivist-oriented learning approach with active participation from students so that they can form their own knowledge [5]. In CBL, students are given a realistic problem scenario, a case, which can be studied retrospectively by testing how the case is solved or interactively trying to solve the case [6]. Using cases presented in CBL, students are given the opportunity to practice their ability to solve found cases. Cases are closely related to problems, so students can improve problem solving skills. In addition, a case certainly contains many things, can link several concepts at once, so that students can practice their abilities related to the connection of various problems to be solved.

CBL begins with a problem and teaches the essence in the context of the problem [7]. Cases in CBL takes form of cases found when giving training to athletes where there is a technical error in hitting a tennis ball. The advantages of using these case selection in CBL-based learning are 1) the problems found can be used as copies of the concepts, basics, and theories being taught, and are related to the students' understanding memory; 2) problems found during the exercise can be used as examples of cases that students must find solutions to and become a good practice strategy; and 3) problems encountered during training can be a forum for students' reflection to measure their ability to understand a case. These presented learning cases found during the exercise will shape the memory of students. They are accustomed to experiencing and understanding various cases for themselves in practicing technical and tactical of playing tennis in which the solutions of these cases have various kinds of solutions. This will have an impact on students' memory of a stronger concept of theory in tennis techniques and tactics training methods compared to direct learning exercises.

The selection of learning methods is very influential on the results achieved by students in learning. Therefore, the selection of learning methods is very important to be done in accordance with the achieved objectives. Especially in the field tennis course, which has a broad

scope because it consists of several disciplines. There are varied learning models, one of them is case based learning which is the appropriate approach used in this research.

1.1 Case Based Learning (CBL)

The CBL model uses real-life concepts that have been thoroughly documented as a learning tool. In discussion activities, students must explore and identify problems and solutions from cases given under the instruction of the teaching staff. (1) trainee students can express cases or problems and use cases related to new situations in this CBL model. (2) Students have the ability to analyse, collaborate, and communicate effectively. (3) Students are more involved in learning. (4) Case-based learning can help students improve their communication, speaking, and critical thinking skills. Trainee will easily use basic skills in solving cases given by educators in the learning process through discussion using the CBL learning model. In addition, by understanding the students' concept of learning material which is marked by the activeness of students in solving cases through discussion, lecturer will only acts as a facilitator and moderator in the discussion process. Students can freely develop their abilities in solving factual cases presented by teaching staff. The objectives of CBL learning are mastering content, collaborative learning, and improving the ability to think, communicate, research and act [4].

1.2 Learning Outcomes

Learning is an activity in the process where the success or failure achievement of educational goals really depends on what is done and experienced by students. Learning results are certain competencies or abilities, both cognitive, affective and psychomotor achieved or mastered by students after participating in teaching and learning process. Shown abilities obtained by students can be seen from five categories, (a) verbal information (b) intellectual skills, (c) cognitive strategies, (d) attitudes, and (e) motor skills. In terms of the expected learning results, these abilities need to be distinguished because of the variety of human performances, and also the conditions for acquiring these abilities are different.

Therefore, learning results are abilities that students have after experiencing the learning process. The formulation of educational goals in the national education system suggests both curricular and instructional goals, using Bloom's classification of learning outcomes which are divided into three domains, the cognitive, affective and psychomotor domains. These three domains become the assessment objects of learning outcomes. Six aspects related to intellectual learning outcomes in the dimensions of cognitive processes are knowledge or memory, understanding the application, analysis, synthesis and evaluation. The first and second aspects are called low-level cognitive and the next four aspects included in high-level cognitive learning outcomes

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So, learning outcomes are abilities that students have after they experience the learning process or learning. The formulation of educational goals in the national education system suggests both curricular and instructional goals, using Bloom's classification of learning

outcomes which are broadly divided into three domains, namely the cognitive, affective and psychomotor domains. These three domains become the object of assessment of learning outcomes. Six aspects related to intellectual learning outcomes in the dimensions of cognitive processes, namely knowledge or memory, application understanding, analysis, synthesis and evaluation. The first and second aspects are low-level cognitive and the next four aspects are high-level cognitive.

The factors that influenced learning are divided into three aspects, they are internal factors, external factors, and learning approach factors. 1) Internal factors (factors from within students), the physical and spiritual conditions of students. 2) External factors (factors from outside the students), the conditions of the learning environment, family and society. 3) The learning approach factor (approach to learning), the type of student learning effort which includes the strategies and methods used by students to carry out learning activities of learning subjects.

Assessment of learning outcomes is carried out by lectures after teaching and learning process. Through assessment activities, teaching staff will acknowledge students developments in various ways, such as intelligence, special talents, social relations, attitudes and their personality. Learning outcomes assessment is essentially aimed at measuring the success of students in the assignment of predetermined competencies. Thus, the assessment is very important because teaching staff can reflect and evaluate the quality of lectures that has been done. In addition, the assessment of learning outcomes also aims to see whether the methods, strategies, media, learning models and other things that has been done in the teaching and learning process are appropriate and effective [Muhibbin Syah, 2006].

Assessment of learning outcomes can also be used as a tool or benchmark for the success of learning carried out by teaching staff, as well as the level of student competencies achievement that have been carried out. To do assessment activities, it is necessary to use assessment tools, both tests and non-tests that are suitable to the extent on which learning objectives are achieved. In relation to the preparation of these assessment tools, it is necessary to pay attention to several steps that must be taken, determining the scope of the question; (2) formulating the assessed abilities; (3) make an assessment grid, (4) arrange questions and (5) determine answers. The purpose of the assessment is to determine the achievement level of learning process and results, to be used as correction material for future learning. Given the importance of this assessment, when carrying out the assessment it is necessary to pay attention to important things that have become the principles of the assessment itself.

1.3 Technical and Tactical Tennis Training Method

The subject for field tennis techniques and tactics training method is one of the major subject for specialising in the sport, which is tennis. The basic competence of this subject is that students are able to practice the techniques and tactics of playing tennis in the field, especially for novice players. The material studied in this subject is how to develop technical skills in the form of groundstroke both forehand and backhand, volley, service and also smash as well as development function in tennis games in the form of consistency, precision, speen, speed, variation, tempo, under pressure anticipation playing, court coverage and camouflage. As for the ability to tactical play in the form of single play tactics and also double play tactics.

1.4 Application of CBL in Study of Tennis Techniques and Tactics Training Method

The method subject for training tennis techniques and tactics is subject that able to create student competence in order to provide training for tennis players, both beginners and

advanced, and also both competence in training techniques and playing tactics. In these learning methods implementation to train tennis techniques and tactics where not only it takes concepts about the knowledge being studied but also generalizes from the problems encountered by the trainees, so that studies are needed to overcome existing problems in order to improve the ability to play tennis both technical skills and tactical plays. By applying the case-based learning method in lectures, the teaching staff no longer applies the lecture learning method. Teaching staff only facilitate the students to develop their minds, solve problems and intellectual skills by involving them in real experience using found problems when giving training and the solutions to resolving these problems.

The implementation of tennis techniques and tactics learning methods using the case-based learning method is more optimal because students have the same opportunity to find information and work together on solving existing problems. Each group can also exchange information about problems and how to solve them so that students become more active, creative, independent and understand the provided material well. Good understanding of these materials can establish good learning outcomes as well. The learning stages of case based learning are dividing students into small groups, setting cases, analyzing problems, seeking information and making steps towards completion, conclusions, presentations and improvements [8].

Table 1. Stages of Case Based Learning

No	Learning Stages	Student Activities	Lecturer Activities
1	Divide Group	Students Dividing Group	Supervise Students
2	Case settings	Determine cases from those that are often experienced when practicing playing technique skills and providing facts related to the context of the problem	Conduct a careful study and analysis of the cases experienced by group members and analyze the facts of the problem
3	Analyzing Problems	Defining the problem and perform analysis using clear parameters	Encourage and guide students to understand the problem and define the problem with clear parameters
4	searching for information and making steps to solve it	Manage the information that has been obtained by referring to (1) known information (2) needed information (3) what can be done with the existing information	Guiding students to find or manage information and make completion steps in various ways or methods
5	Making conclusions, presenting results and improvements	Make conclusions and solutions, then present and make improvements	Provide input or improvement for the perfection of solving cases carried out by students

In his research, Handika Andrianto said that the advantage of using case based learning is that students are not easily bored and are more motivated to take lessons. This learning model makes students more active in solving various cases given in the studied material. This is because in the learning process students are always active and can think critically in solving problems or cases that they will face in their daily lives. In addition, the students curiosity is increasing because this learning model is not boring.

The disadvantages of using case based learning includes; (1) will be constrained when students have low interest in solving problems or considered unable to solve the problem. (2) With this low interest, students will find it difficult to try so that it takes a longer time in the implementation of learning. (3) Without understanding why they are trying to solve the problem being studied, they will not learn what they need to learn. (4) The teaching staff is no longer

the main resource person and only acts as a facilitator of the learning process. (5) need to adapt to learn independently with the application of case based learning. (6) The lack of understanding from students about learning objectives with the application of case based learning or the purpose of solving the problems being studied makes learning topics less interesting and therefore making learning outcomes will not be maximized.

2. Methodology

This research is an experiment using pre and post-test designs by providing treatment for case based learning in 3 meetings with the length of each meeting is 100 minutes. The research subjects were 17 students in the fourth semester of the 2021/2022 academic year with a total sample of 16 people, where the sample was taken using random sampling. This research was carried out from February to June 2022. This research was carried out in the Sports Coaching Education Program which took part in the Teaching Method of Tennis Techniques and Tactics. The instrument used is essay questions to measure learning outcomes obtained by students before and after being given the intervention. The analysis used in this study is a paired t-test parametric test to determine learning outcomes before and after the intervention by first testing the normality and homogeneity of the learning outcomes data.

3. Research Result

This study is an experimental study that aims to determine the effect of case based learning styles implementation on student learning outcomes in lectures on methods of training tennis techniques and tactics. In learning activities, learning stages are carried out in case based learning, namely dividing small groups, determining cases in training tennis techniques and tactics, then analyzing the problems encountered, seeking information and making steps to solve the problems found, making conclusions, and present the results of problem solving and improvement. In this learning activity, the lecturer supervises students while learning and if they encounter obstacles, they can become a facilitator or providing solutions to solve problems encountered by students. The description of the research data in the form of pre-test and post-test where the average value of the pre-test was 83.81 and the average value of the post-test was 86.19. The standard deviation is 1,424 in the pre test and 1,905 in the post test.

Table 2. Description of Research Data

Paired Sample Statistic				
	Mean	N	St. Dev	Std. Error (Mean)
Post Test	86.19	16	1.905	0.476
Pre Test	83.81	16	1.424	0.356
Correlation		N	Correlation	Sig.
		16	.530	.035

From the results of the normality test using the Shapiro-Wilk, it is known that the sig. 0.495 in the pre-test and 0.831 in the post-test where both test results are > 0.05, therefore it can be concluded that the pre-test and post-test data are normally distributed. While the homogeneity test using the Levene test obtained the value of sig. .297 therefore it can be concluded that the value of sig. > 0.05 (.297>.05 is a research sample came from a homogeneous variant. Since the parametric test requirements have been met, namely sampling from the population is done randomly and the data is normally distributed and homogeneous, then the hypothesis testing uses paired t-test. With a df of 15 and a standard deviation of 1.668 and a sig. (2 tailed) of 0.000 then the value of sig. <0.05 or the value of t count > t table (5.694>

2.13). From the results of data analysis conducted, it can be concluded that there are a significant influence of the case-based learning style on student learning outcomes in field tennis technique and tactics training course.

Table 3. Normality and Homogeneity Test Results

Test of Normality			
Shapiro-Wilk	Statistic	df	Sig.
Pre Test	.950	16	.495
Post Test	.970	16	.831*
Test of Homogeneity of Variance with Levene Test			
Levene Statistic	df1	Df2	Sig.
1.128	1	30	.297

The results shows that case-based learning style can significantly improve learning outcomes for students who attend lectures on methods of training tennis techniques and tactics. This topic discusses the ability to develop playing techniques in the form of groundstrokes both forehand and backhand, volley, serve and smash as well as function development in tennis games in the form of consistency, precision, speed, variation, tempo, anticipation on playing under pressure, court coverage and camouflage. As for the ability to play tactics in the form of single and double play tactics. The techniques and tactics in the tennis game are the determinants of victory so that every player must always improve their technical skills and playing tactics. When viewed from the substance, this topic contains many concepts that need to be remembered and understood.

Table 4. Results of Hypothesis Testing with Paired t-test

Paired Sample Test

Mean	Std. Dev	Std. Error (Mean)	t	df	Sig. (2 Tailed)
2.375	1.668	.417	5.694	15	.000

The case based learning method provided requires students to explore their own knowledge or the concept in question from the problem to be solved. Students are divided into several heterogeneous groups, given activity sheets and analyze the problems. The more active the student, the more concepts will be found, while passive students may gain knowledge in small amounts. From the learning activities on the pre-test data obtained an average value of 83.81 and the average post-test score is 86.19 where from these results can be seen that there is a significant increase in student learning outcomes.

During the lecture process with the Cased Based Learning method, students are more active working in groups. They discuss the problems given by the lecturer and prepare reports. The lecturer here acts as a facilitator. Lecturers can provide services more optimal because energy is not drained as much as during regular lectures. In addition, with this cased based learning method, students can maintain their ability to develop their own concepts in order to find and solve problems found. In terms of learning styles, case-based learning methods tend to direct students to solve problems either individually or in group discussions. This resulted in tendency of students not showing the most dominant learning style of each. Therefore, cased based learning styles can significantly affecting student learning outcomes.

4. Conclusion

Based on the results of these conducted research, it can be concluded that there is a significant effect of the cased-based learning style on student learning outcomes in lectures on methods of training tennis techniques and tactics. CBL is a constructivist learning approach where the problems are presented in case-based learning. In CBL, students are given a realistic problem scenario, a case, which can be studied retrospectively by testing how the case was solved or interactively trying to solve the case. The characteristics of CBL are the presence of cases, study questions, group discussions for case resolution, and evaluation of learning outcomes. The benefits of CBL, among others, are so that students can master concepts, improve thinking skills, communicate, and research. Therefore, the authors suggest to further researchers to examine in more depth about the benefits of CBL both qualitatively and quantitatively. The benefits of CBL in question are related to students' abilities, both for cognitive and affective abilities [8].

5. Discussion

Learning activities should be able to create interactions teachers and students and also student and student [9]. So far the problem that has occurred is that the way lecturers deliver learning is still conventional, teacher center, teacher explaining the material in front of the class and being less interesting.Another problem is that the activeness of students in participating in learning is still lacking.These problems are due to the selection of an inappropriate learning model by the teacher.From the results of research that has been carried out where the application of the cased based learning model in the field tennis training method subject can improve student learning outcomes. Case based learning is a learning model that is designed and developed in order to develop students' ability to solving a problems [10]. By using the cased based learning model, students can develop critical thinking skills in solving a problem given by the teacher. In addition, the application of this case based learning model can foster student motivation in learning.

One of the advantages of the cased based learning model is that students can feel the benefits of learning because the problems faced by student are related to real life, this can increase motivation and interest in the material being studied. Thus, when students do the application of practicing tennis, they already understand the problems encountered and how to solve these problems. When applying the problem based learning model, the stage that must be considered is orienting students to the problem because this stage determines the success of the implementation of the problem cased learning model [11]. The problems faced are problems that are in accordance with the real life of students such as mistakes that are often made by beginner tennis players and how to overcome these problems so that there are no protracted errors.Lecturers or teaching staff should be able to create a pleasant learning atmosphere and di rect learning in accordance with the principles of cased based learning [12] .

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