The Influence of the Umbrella Learning Model on Improving Basic Volleyball Passing Techniques

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Abstract. The purpose of this study is to ascertain how the UMBRELLA learning paradigm affects the learning results of fundamental volleyball passing skills. The randomized pretest-posttest control group research design of the same subject is used in this experimental study. Thirty students from the Faculty of Sports Science made up the research sample. Simple random sampling was used to determine the sample. Data on learning outcomes was gathered beginning with the pretest and posttest. Using SPSS 2.0 for Windows, the t-test was employed for data analysis. The average value in the experimental group was 0.52. In contrast, the average value in the control group was 0.26. The significant value derived from the Independent Samples Test was p=0.000<0.05. Consequently, it can be said that the UMBRELLA learning paradigm has a substantial

Keywords: Learning Model, UMBRELLA,Volleyball Passing.

1 Introduction

Sports and physical education are essential components of the educational system.[1-3]. Physical education, sports and health (PJOK) is part of the overall education system which must be taught in schools and has an important role in the formation of the complete Indonesian human being. PJOK is learning that can support students' personal and physical formation and encourage students' intellectual intelligence both in academics and in their lives to become complete human beings through the learning process and the teacher's selection of appropriate learning methods. PJOK teachers need to understand several characteristics of PJOK learning itself and adapt it to the teaching material taught as an interaction process. One of the qualities of teachers in education is the ability to design and implement good and high-quality learning programs [4].

Medan State University (UNIMED) is a university that produces PJOK teachers through Faculty of Sports Sciences (FIK). PJOK teachers are produced through a learning process which is contained in the distribution of courses in the FIK curriculum which includes theoretical and practical courses in sports. One of the sports practice courses includes: subject

basic volleyball skills. Subject basic skills volleyball is subject mandatory for three academic programs: Sports Science (IKOR), Sports Coaching Education (PKO), and Physical Education, Health, and Recreation (PJKR). To learn the fundamental volleyball movements and technical skills, hands-on lectures are provided. Learning materials for fundamental volleyball skills involve psychomotor skills. Fundamental abilities Students must become proficient in volleyball's fundamental leg and body movements.

Basic skills in the game of volleyball is a basic, effective and efficient way in accordance with the rules of the game to achieve the expected goals. This is in accordance with that mastering basic techniques is the basis for improving skills in playing volleyball well[5]. States basic skills volleyball is a procedure that has been developed based on practice and has the aim of finding a solution to a particular movement problem in the most economical and useful way[6]. Basic game moves volleyball includes locomotor, non-locomotor movements and their combinations both with and without a ball. Basic techniques in the game Volleyball covering techniques passing below, techniques service float, technique passing above, technique smash, technique block, technique underhand service and tennis technique service[7].

Competency standards for fundamental skills volleyball is that students can correctly and correctly explain and perform the fundamental abilities in the game, specifically: (1) are able to explain and practice the fundamental motions in the game (3). In the game of volleyball, students can explain and practice fundamental tactics, such as passing below accept service float, passing above, smashing, blocking, underhand serve, and tennis method service. The degree of comprehension and improvement in student learning outcomes through competency standards subjects, which have been established during the learning process, demonstrate how well students are engaged in the learning process. This is consistent with learning design theory, which is defined as clear instructions on how to foster and support students' learning [8]. Three variables are included in this theoretical framework for learning design: conditions, treatment (methods), and outcomes.

 Learning conditions subject basic skills volleyball This study examines the basic concepts of knowledge, skills and value systems and attitudes in sports games volleyball. In this lecture, various theories and practices that are relevant to the learning and learning process, as well as various schools in the concept of learning and learning will be reviewed and analyzed critically. Students are also given the widest possible opportunity to carry out and analyze various repetition opportunities in practicing the five techniques volleyball good natured theoretical and practical, including carrying out various training techniques that refer to (passing down, top pass, smash, service and blocking), as well as providing new discourse for students who will receive teaching with the discovery of various more relevant volleyball sciences. All of this can be applied through a system of values and commendable attitudes in everyday life in society. The obstacles faced in this course is the weakness of the lecturer's ability to apply varied learning models by prioritizing learning models that emphasize students' critical, logical, analytical and structured thinking. The characteristics of students in learning carried out by lecturers are only focused on the lecturer, this makes the learning carried out in one direction.

The instructional approach employed in this course follows a traditional model, beginning with a warm-up phase, followed by drills, and concluding with a closing segment. This

educational approach emphasises the verbal transmission of information from an instructor to a cohort of students, with the objective of ensuring that students achieve optimal mastery of the subject matter. The challenges encountered pertain to treatment, specifically in the areas of organising strategies, delivery strategies, and management strategies. If a lecturer successfully implements this treatment, the resulting learning method will encourage students to engage in creative thinking; the treatment in question pertains to the delivery of learning content.

In line with this, student learning outcomes in subject basic skills volleyball are also not satisfactory. This can be seen from percentage value acquisition subject students' basic volleyball skills over the last two years are as shown in Table 1 below:

Table 1. Final Value Subject Basic SkillsVolleyball

	No	Mark	2018/2019 Academic Year		2019/2020 Academic Year	
			Regular	Extension	Regular	Extension
	1	A	15,0%	15,0%	15,0%	20,0%
	2	B	40,0%	45,0%	45,0%	35,0%
	3	C	45,0%	35,0%	40,0%	45,0%
Source:	5	AND	0,0%	5,0%	0,0%	0,0%
	Unimed Faculty of Sports Sciences					

Based onTable 1. It can be seen that the learning outcomes obtained subject basic volleyball skills have not increased significantly, this can be seen from the final value of basic skills in basic course volleyball in the year of teachings 2018/2019 and 2019/2020 experienced a decrease in the final grades of basic skills subjects volleyball. Apart from that, it was also found that there were students who got very good grades but there were also students who got very low grades. This may have something to do with the learning model designed by the lecturer which is not optimal, less interesting and less varied.

Considering the outcomes of the data presentation, it is essential to acknowledge several factors that impact the implementation of the learning model. The UMBRELLA learning model utilised in its development focuses not solely on the lecturer; rather, it has evolved to prioritise student-centeredness in the teaching and learning process of physical education, thereby enhancing the role of students in their own learning journey. The implementation and development of diverse learning models tailored to student characteristics and the teaching materials are essential. The absence of effective PJOK learning models, particularly in the context of volleyball education, presents a significant challenge that requires resolution by educators. Consequently, the researchers have developed a comprehensive learning model to address this issue. An umbrella featuring three distinct stages: Handrail, Roof, and Fastening. The handle comprises a structure (Showing), the stem includes structures (Matter, Warming Up, Exercise, Analysis, Cooling Down), and the roof encompasses a structure (Evaluation). This learning model is structured to enhance students' capabilities in the volleyball learning process, focusing on the effective, cognitive, and psychomotor aspects of their potential development. Designed learning is interconnected, ensuring that the focus is not solely on the lecturer, but also on the students themselves. Learning that aims to inspire students to engage in critical thinking and enhance their analytical skills, in addition to acquiring knowledge. Umbrella This approach is anticipated to enhance the engagement of students in the learning process, as it is designed to be structured and systematic. It encourages students to prepare the

material in advance, as there is an evaluation component that prompts them to equip themselves with the necessary understanding of the content presented by the lecturer through the Semester Learning Plan (RPS) prior to the class sessions.

This learning model was first discovered through research implemented on students of the sports science faculty to be used as a learning model capable of improving basic volleyball technical skills [10]. The basic technique focused on this research is to see to what extent the learning model is applied is able to improve basic volleyball technical abilities, especially basic overhead passing techniques, in line with this, several learning models can improve basic volleyball technical abilities[10]. According to the experiment, the comparison of the two averages prior to the treatment of the experimental and control classes reveals a calculated t value of -0.922, alongside a t table value of 2.015. The calculated t value being less than the t table indicates a significant impact of the Student Team Achievement Division (STAD) cooperative learning model on the learning outcomes of class VIII students at SMP Negeri 1 Gembong. The study's results indicated that the implementation of the TGT learning model led to a notable improvement in the experimental group, with increases of 48.12% and 49.10%. In contrast, the control group experienced increases of only 1.09% and 14.87% [11]. This demonstrates that the implementation of the TGT learning model significantly impacts the learning outcomes for both lower and upper passing in volleyball. Through data analysis and discussion, it is concluded that the implementation of the STAD type cooperative learning model significantly impacts ($p<0.05$) the enhancement of students' learning outcomes in basic volleyball passing techniques [12].

2 Method

Experimental research seeks to explore potential causal relationships by exposing one or more experimental groups to specific treatment conditions and subsequently comparing the outcomes with one or more control groups under unknown treatment conditions [13].
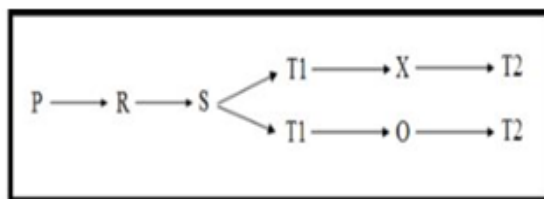
Fig. 1. Research Design

Sampling employs a random sampling technique. This sample is appropriate for research that does not involve generalisations. The sample was determined using lottery results, designating class A as the treatment group and class B as the control group. Prior to conducting tests, data collection methods are employed to gather information. The collected data must then undergo testing for normality and homogeneity. The data analysis for this research will be conducted using the SPSS 20.0 for Windows programme.

3. Result and Discussion

This research is executed on two groups: the experimental group and the control group. During this investigation, the experimental group was administered treatment using the UMBRELLA learning model, while the control group was administered treatment using a conventional learning model. The experimental group and the control group underwent examinations to acquire data on the learning outcomes of fundamental volleyball passing techniques. The data analysed is the gain score value, which is a summary of the analysis of data on the learning outcomes of fundamental volleyball passing techniques in the experimental and control groups.

Table 2. Summary of Data on Learning Results for Volleyball Passing

| | Variable | GSn | |
		Experimental Group	Control Group
1	Many Students	10	20
2	Mean	0.52	0.26
3	Std Deviation	0.14	0.13

The average score for the experimental group is 0.552, while the average score for the control group is 0.26, as indicated by the results of the post-test and pre-test in table 2. The experimental group's standard deviation is 0.14, while the control group's are 0.13. In order to guarantee that the research subjects were distributed ordinarily, data distribution normality testing was implemented.

The Kolmogorov-Smirnov test was employed to assess the normality of data distribution at a significance level of 0.05. If $p > 0.05$ and the distribution is normal, conversely, if $p < 0.05$, the data is not normally distributed. The study conducted with SPSS 20.0 for Windows yielded the data presented in Table 3.

Table 3. Normality Test Results

| | Class | Kolomogrov-Smirnov | | | Shapiro Wilk | | |
		Statistic	df	Say.	Statistic	df	Say.
N-Gain	Experiment	0.112	10	0.200	0.918	10	0.051
	Control	0.102	20	0.200	0.902	10	0.631

According to Table 3, it can be inferred that all significant variables in the Kolmogorov-Smirnov test exceed 0.05, indicating that the data distribution is regularly distributed. The homogeneity of variance test was conducted by categorising according to learning models, specifically the UMBRELLA learning model and traditional learning models. The homogeneity of variance test among groups was conducted utilising SPSS 20.0 for Windows, employing Levene's Test of Equality of Error Variance.

Table 4. Homogeneity Test Results

F	Df1	Df2	Say
0.289	1	50	0.526

Upon the completion of the assumption test, the subsequent step is to evaluate the hypothesis of this research to determine if there are disparities in the learning outcomes of fundamental volleyball passing techniques instructed through the conventional model as the control group and the UMBRELLA learning model as the experimental group. The outcomes of evaluating the initial hypothesis are presented in Table 5 as follows:

Table 5. First Hypothesis Test Results

		Test for Independent Samples				
		t-test for Equality of Means				
	Homogeneous Variances	**t**	**df**	**Say. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Upper Passing Learning Outcomes	are presumed Homogeneous Variances are not	6,904	78	0,000	4,475	0,648
	assumed	6,904	77,647	0,000	4,475	0,648

According to the test results, with a confidence level of 95%, the significance value is 0.00, which is less than 0.05. Consequently, the null hypothesis (Ho) is rejected, indicating a significant difference in the learning outcomes of basic passing techniques between students instructed using the conventional model and those taught with the UMBRELLA learning model in volleyball courses. It is fundamentally a comprehensive learning approach. Volleyball courses are conducted to facilitate the acquisition of volleyball skills and knowledge through cognitive, emotional, and psychomotor dimensions that students are required to master. The concepts of physical education must effectively encourage the formation, development, and enhancement of cognitive, emotional, and psychomotor qualities. This aligns with the objectives of physical education, which seeks to cultivate persons who are well-rounded in affective, cognitive, and psychomotor domains. The research indicates that a scientific approach to the learning process engages three domains: attitudes (affective), knowledge (cognitive), and abilities (psychomotor), hence enhancing student learning processes and outcomes [14]. Researcher-developed volleyball courses based on umbrella

training models have undergone three phases: 1) Preliminary Study, 2) Model Development, and 3) Product Validity Testing.

During the preliminary study phase, the activities conducted include: a) field survey, b) literature review, c) needs assessment. Observations of the ongoing learning process indicate that instruction in basic volleyball abilities employs both face-to-face and practical strategies. As usually happens,the subject of basic skills volleyball always spends more time on the field practicing. Students are also usually more interested in direct practice, so theory is often put aside. Apart from that, due to time constraints, delivery of theory and practice subject basic skills of volleyball are often inadequate.

Numerous research have examined the impact of learning models on fundamental volleyball technical skills, identifying various models that can enhance these abilities. The similarity experiment of the two averages prior to the treatment of the experimental and control classes yielded a calculated t value of -0.922 and a t table value of 2.015. The estimated t value is less than the t table value, indicating a substantial effect of the Student Team Achievement Division (STAD) cooperative learning model on the academic performance of eighth-grade students at SMP Negeri 1 Gembong. The study's results indicated that the implementation of the TGT learning model resulted in a substantial enhancement in the experimental group, with increases of 48.12% and 49.10%, whereas the control group exhibited increases of just 1.09% and 14.87% [11]. This demonstrates that the implementation of the TGT learning paradigm significantly impacts the learning results of both lower and upper levels in volleyball. Data analysis and discussion indicate that the STAD cooperative learning paradigm significantly enhances students' learning results in basic volleyball passing methods (p<0.05)[12]. The research findings indicate a significant impact of game modification on top passing learning outcomes, with an increase of 18.36% in post-test scores compared to pre-test scores. The test exceeds the pretest value[16]. The analysis of the hypothesis withdrawal test indicates that the t-count value of 9.50 exceeds the t-table value of 1.695, signifying a significant impact of game alteration on students' learning results in volleyball passing.

Learning executed in the control group is conducted by the application of traditional learning models. The control group engages in learning through a lecture approach, wherein the teacher presents the information, illustrates the lesson, and assigns students to practice the content being taught. This task aims to enable students to comprehend and execute the actions accurately. The researcher's findings during the learning process indicate that the conventional model utilised in the control group effectively facilitated students' comprehension and execution of motions accurately. Nevertheless, employing the lecture model for course delivery results in teacher-centered learning, leading to diminished student engagement. This leads to insufficient overall student engagement in the educational process, with only more capable students actively participating, thereby impeding the comprehension and proficiency of all students in executing fundamental soccer passing techniques using both the inside and outside of the foot.

The implementation and development of diverse learning models tailored to student characteristics and the instructional materials are essential. The deficiency of PJOK learning models, particularly in volleyball education, constitutes a significant issue that lecturers must address; hence, the researchers devised an Umbrella learning model

comprising three stages: Handrail, Roof, and Fastening. The handle comprises a structure (Showing), the stem encompasses multiple structures (Matter, Warming Up, Exercise, Analysis, Cooling Down), and the ceiling contains a structure (Evaluation). This educational model is intended to enhance students' capabilities in the volleyball learning process, focusing on the effective, cognitive, and psychomotor dimensions of their ability. Designed learning is interrelated, focusing not solely on the lecturer but primarily on the students. Instruction aimed at inspiring students to engage in critical thinking and enhance their analytical skills, in addition to acquiring knowledge about Umbrella. This is anticipated to enhance the engagement of learning, as the process derived from this educational model is organised and methodical, compelling students to prepare the material prior to instruction due to an evaluation that necessitates their readiness to comprehend the content presented by the lecturer through the RPS (Semester Learning Plan) before the lecturer delivers the material in class.

4 Conclusion

The Independent samples test yielded a significance value of p=0.000, which is less than 0.05. The UMBRELLA learning paradigm significantly influences the learning outcomes of basic volleyball passing methods among sports science faculty students. Therefore, it is advisable for educators to implement the UMBRELLA learning paradigm as an alternative approach for teaching substantial content, including volleyball passing.

References

[1] Akhmad, I. (2016). Standar Kompetensi Mata Pelajaran Pjok. Kemendikbud Direktorat Jenderal Guru Dan Tenaga Kependidikan, 1–8

[2] Dewi, R., & Verawati, I. (2021). The Effect Of Manipulative Games To Improve Fundamental Motor Skills In Elementary School Students. International Journal Of Education In Mathematics, Science And Technology, 10(1), 24–37. Https://Doi.Org/10.46328/Ijemst.2163

[3] Supriadi, A., Mesnan, M., Akhmad, I., Dewi, R., & Suprayitno, S. (2022). The Effect Of Learning Manipulative Skills Using Ball Thrower Learning Media On The Ability To Throw And Catch The Ball In Elementary School Students. International Journal Of Education In Mathematics, Science And Technology, 10 (3), 590–603. Https://Doi.Org/10.46328/Ijemst.2441

[4] Mustafa, P. S., & Dwiyogo, W. D. (2020). Kurikulum Pendidikan Jasmani, Olahraga, Dan Kesehatan Di Indonesia Abad 21. JARTIKA Jurnal Riset Teknologi Dan Inovasi Pendidikan, 3(2), 422–438. Https://Doi.Org/10.36765/Jartika.V3i2.268.

[5] Syahrial, B. (2015). Merancang Pembelajaran Gerak Dasar Anak. In Unp Press (Vol. 1).

[6] Hidayat, A. (2017). Peningkatan Aktivitas Gerak Lokomotor, Nonlokomotor Dan Manipulatif Menggunakan Model Permainan Pada Siswa Sekolah Dasar. Jurnal Pendidikan Jasmani Dan Olahraga, 2(2), 21. Https://Doi.Org/10.17509/Jpjo.V2i2.8175.

[7] Subiantoro, F., & Hidayat, T. (2013). Penerapan Model Pembelajaran Cooperative Learning (Jigsaw) Terhadap Hasil Belajar Service Bola Voli (Studi Pada Siswa Kelas VII SMPN 2 Tembelang Jombang). Jurnal Pendidikan Olahraga Dan Kesehatan, 1(2), 265–273.

[8] Sinulingga, A., Bangun, S., & Wicaksono, Y. (2023). Is Scientific Learning Better Than Conventional Learning On Creativity And Student Learning Outcomes? Journal Coaching Education Sport, 4(1), 45–58. Https://Doi.Org/10.31599/Jces.V4i1.1903.

[9] Endriani, D., Akhmad, I., & Daulay, B. (2022). Development Of E-Book Based Volleyball Learning Model. Kinestetik : Jurnal Ilmiah Pendidikan Jasmani, 6(2), 363–370. Https://Doi.Org/10.33369/Jk.V6i2.21915

[10] Endriani, D., Sitompul, H., Mursid, R., & Dewi, R. (2022). Development Of A Lower Passing Model For Volleyball Based Umbrella Learning Approach. International Journal Of Education In Mathematics, Science And Technology, 10(3), 681–694. Https://Doi.Org/10.46328/Ijemst.2508.

[11] Borizkha Utomo Putra, N. I. (2018). Pengaruh Model Pembelajaran Kooperatif Tipe Teams Games Tournament(Tgt) Terhadap Hasil Belajar Passingbawah Dan Passingatas Bola Voli Pada Kelas Vii Di Smp Muhammadiyah 8 Tanggulangin. Jurnal Mahasiswa Unesa , 7(1), 15–18. Http://Jurnalmahasiswa.Unesa.Ac.Id/Index.Php/Jurnal-Pendidikan-Jasmani/Issue/Archive.

[12] Ketut Rai Ardinata, I., & Putu Dwi Sucita Dartini, N. (2018). Pengaruh Model Pembelajaran Kooperatif Tipe Stad Terhadap Hasil Belajar Teknik Dasar Passing Bola Voli. Jurnal Penjakora, 5 (1), 54–63.

[13] Prof. Dr. Sugiyono. (2010). Prof. Dr. Sugiyono, Metode Penelitian Kuantitatif Kualitatif Dan R&D. Intro (Pdfdrive).Pdf. In Bandung Alf (P. 143).

[14] Akhmad, I., & Mesnan. (2019). Model Learning Approach To Spike A Volleyball Play For Junior High School Students. Journal Of Physics: Conference Series, 1387(1). Https://Doi.Org/10.1088/1742-6596/1387/1/012057.

[15] Pratama, C. M. W., Hartati, H., & Waluyo, W. (2020). Pengembangan Model Pembelajaran Passing Bawah Bola Voli Berbasis Pendekatan Saintifik. Journal Of Sport Education (JOPE), 3(1), 14. Https://Doi.Org/10.31258/Jope.3.1.14-25.

[16] Robiansyah, M., Supriatna, E., & Puspa Hidasari, F. (2019). Pengaruh Modifikasi Permainan Terhadap Hasil Belajar Passing Atas Bola Voli. Jurnal FKIP Untan Pontianak, 1(1), 1–9.