



## **Implementation of the Jigsaw Learning Model with the Assistance of E-Books and Audiovisual Media to Improve Sports Massage Learning Outcomes**

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### **Abstract**

Learning outcomes obtained by students is one of the factors that determine success in the learning process. However, it is very unfortunate that not all students get optimal learning results. This classroom action research aims to analyze the increase in student learning outcomes through the application of the jigsaw learning model in sports massage lectures. Implementation of the action consists of two cycles with each cycle consisting of 4 meetings. The research subjects consisted of 39 physical education students. Collecting research data using written tests and skills tests. Data analysis was performed using a quantitative description. The results of the study revealed that the average value of cycle 1 learning outcomes was 63.85 and classical completeness was 62.23%. While the average value of learning outcomes in cycle 2 is 80.08 and classical completeness is 87.18%. Based on the results of this study it was concluded that the application of the jigsaw learning model assisted by e-books and audiovisual media proved effective in improving student learning outcomes in sports massage lectures.



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## INTRODUCTION

Sports massage lectures provide teaching experience for students to get theoretical and practical material regarding various techniques that can be used to perform massage on athletes. Even though the goals of sports massage lectures look simple, in the lecture process not all students are able to follow them properly (Dahlan et al, 2021). These obstacles include difficulty understanding techniques and practicing these techniques on athletes' body parts, and lack of motivation in learning due to the lack of learning references or learning methods applied in class (Pujianto et al., 2022). To find out the learning barriers experienced by students, the researchers conducted further investigations through observation and interviews. From the observation results it is known that some of the data include: 1) In the process of learning sport massage students have used textbooks but have not used them optimally so student learning outcomes have not been optimal. 2) As many as 65% of students are less motivated to learn if they have to study independently by understanding the contents of textbooks. In other words, students tend to prefer studying in groups. 3) Students find it easy to get bored doing various sports massage techniques with a monotonous learning model. 4) As many as 70% of students feel less confident if they have to ask the lecturer about material they have not understood. 5) The distribution of study groups is less varied. Students who have good knowledge and skills usually tend to form their groups or vice versa. This resulted in the ability of the group to be heterogeneous. Students who have low knowledge and skills find it difficult to ask questions or share learning tasks with their group members.

The researcher also conducted interviews with 10 physical education

students regarding the learning barriers they experienced during the sports massage learning process. The facts from the interview stated that: 1) 70% of students need audiovisual learning media that can support existing textbooks so that material that is not yet understood can be completed in audiovisual learning media. 2) As many as 80% of students agree that the distribution of study groups must be varied both in terms of gender and knowledge and skills. 3) As many as 80% of students feel more comfortable if they ask group mates in detail about material they don't understand.

Less optimal learning outcomes for sports massage need to get concrete efforts to improve learning outcomes for sports massage through optimizing e-books and audiovisual media. The use of e-books and audiovisual media is quite effective in facilitating students in understanding lecture material (Stirling & Birt, 2014; Nicolaou et al., 2019). There are several conveniences obtained in using e-books as study references including being easy to access, usable with electronic media, and practical in use (Fojtik, 2015). While the benefits of audiovisual use include making it easier for lecturers to deliver lecture material and helping students understand the material delivered by lecturers (Fuadi & Mutalib, 2018). (Fuadi & Mutalib, 2018).

The use of e-books and audiovisual media will be more optimal if combined with the right learning model. Various types of learning models can be chosen by lecturers, one of which is cooperative Jigsaw. This learning model is formed with several study groups that are heterogeneous where in one group there is one person who is responsible for teaching material to group members (Nopiyanto & Raibowo, 2020). students get learning experience with various groups so that there is a change in the way of thinking, and guides students to act

creatively in the learning process through the jigsaw model (Halim & Syahrin, 2020). In addition, students will foster a culture of expressing opinions, positive interdependence, being able to interact well in learning, and increasing the spirit of collaboration between students (Nolan et al., 2018).

The obstacles felt by physical education students in understanding and practicing various movements in sports massage require appropriate handling. Through this research, an e-book-assisted jigsaw learning model is implemented where the e-book is prepared based on the material in the learning plan. Based on previous findings it was concluded that an increase in learning outcomes can occur optimally after applying the jigsaw learning model. However, this research has not used e-books and audiovisuals as learning media. What's more, the application of the Jigsaw learning model has not been widely applied in sports massage lectures, especially in the physical education study program at the University of Bengkulu. This prompted researchers to apply the jigsaw learning model assisted by e-books and audiovisuals to improve student learning outcomes in sports massage courses. The main objective to be achieved in this study is to analyze the increase in student learning outcomes through the application of the jigsaw learning model. The benefits derived from this research are to contribute to alternative innovative learning models to improve the quality of learning.

## **METHODS**

Classroom action research is used as a method in this study. The research stages used refer to the model (Kemmis et al., 2014), which consists of planning, action, observation, and reflection. This research was conducted from April to

May 2023. The research subjects consisted of 39 students.

## **Procedures**

Following the character of classroom action research, there are several procedures or stages of research carried out. The first stage is to review sports massage learning materials and their indicators, prepare semester learning plans, prepare research facilities and infrastructure which include learning resources and written tests as well as designing plans and elaborating information. The second stage is implementing the action. The implementation of the jigsaw learning model assisted by e-books and audiovisual media is presented in 2 cycles where each cycle has 4 meetings. The third stage is observation. When students do learn in class, researchers observe the behavior elicited by students when applying the jigsaw learning model. The student behavior observed among them is the ability to form heterogeneous groups, pay attention to presentations made, pay attention to explanations from group mates and between groups, the ability to express opinions, the ability to practice sports massage techniques. The fourth stage is reflection. Researchers reflect by discussing with colleagues at the end of each research cycle.

The e-book used is prepared based on the material in the learning plan, equipped with instructions for using the book, learning objectives, the material is presented in the form of pictures and narratives, and at the end of each book chapter, practice questions are provided to improve knowledge and skills.

## **Techniques and Instruments**

Collecting data regarding student learning outcomes is carried out through written tests and skills tests. The instrument grids used are shown in Table

1 and Table 2.

**Table 1.** Written test grid

Indicators	Number
Human anatomy and physiology	1
Sports massage effect	2
The category of implementing sports massage	3
Sports massage technique	4
Massage on body parts	5

**Table 2.** Skills test grid

Indicators	Descriptor
Stroking	Students are skilled in applying techniques stroking
Effleurage	Students are skilled in applying techniques effleurage
Petrissage	Students are skilled in applying techniques petrissage
Kneading	Students are skilled in applying techniques of kneading
Wringing	Students are skilled in applying techniques in wringing
Picking up	Students are skilled in applying techniques picking up
Skin rolling	Students are skilled in applying techniques of skin rolling
Friction	Students are skilled in applying techniques of friction
Tapping	Students are skilled in applying techniques by tapping
Vibration	Students are skilled in applying techniques of vibration
Shaking	Students are skilled in applying techniques of shaking

## RESULT

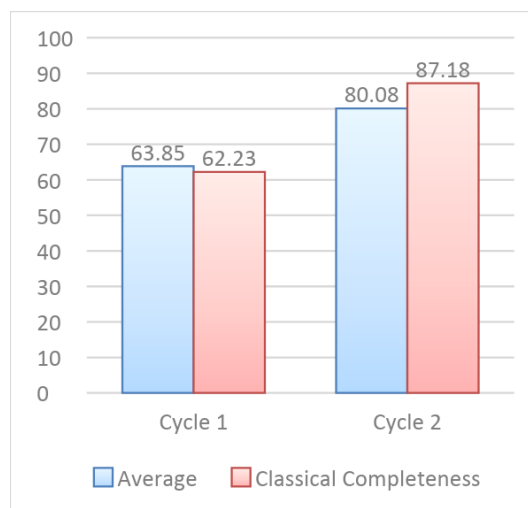
The results of the application of the jigsaw learning model assisted by e-books and audiovisual media are presented in tables and figures.

**Table 3.** The result of cycle 1

No	Interval	f	%
1	85-100	16	41.03
2	80-84	5	12.82
3	75-79	5	12.82
4	70-74	1	2.56
5	65-69	1	2.56
6	60-64	1	2.56
7	55-59	0	0
8	45-54	1	2.56
9	0-44	9	23.08

**Table 4.** The result of cycle 2

No	Interval	f	%
1	85-100	24	61.54
2	80-84	6	15.38
3	75-79	2	5.13
4	70-74	2	5.13
5	65-69	1	2.56
6	60-64	1	2.56
7	55-59	0	0
8	45-54	0	0
9	0-44	3	7.69



**Fig 1.** Average and classical completeness

## DISCUSSION

Based on the results of data analysis, it is known that the average value of physical education students' learning outcomes in cycle 1 is 63.85 and classical completeness is 62.23%. This indicates that the achievements in cycle 1 are not following the targets set. Therefore, researchers reflect on analyzing the causes of low student learning outcomes and mastery.

The results of the reflection show that students find it easy to understand the material presented by the lecturer, and the discussion process is going well. However, in the implementation of cycle 1, there were still various obstacles including students requiring adaptation with more time during the learning process using the jigsaw method, students still did not fully believe in the answers from their group members, students had not optimized the role of members in their groups, students were not actively active. independently in finding answers to material that is not yet understood, ebooks are not optimally used by students. Based on the reflection results of cycle 1, several steps were taken to improve learning outcomes in cycle 2. The first step was to balance the allocation of study time between material explanations, discussions, and practicum. The second step is optimizing classroom management. The third step is to motivate students to use ebooks as learning resources. The fourth step is to provide learning materials with various variations or combinations from various internet sources and massage learning videos from YouTube.

The reflection results from cycle 1 were applied to cycle 2 and had a positive impact on the learning process. This positive impact can be seen from the increased student enthusiasm in-home group discussions and expert groups,

students can adapt to jigsaw learning, and the learning process becomes more communicative between lecturers and students and between students. In addition, students can independently search for learning materials to complement the material studied in the e-book. Learning activities that occur in cycle 2 provide an increase in student learning outcomes. In cycle 2 the average value of learning outcomes was 80.08 and classical completeness was 87.18%.

Increasing student learning outcomes through the jigsaw model because students get the opportunity to openly participate actively in discussions and communicate between groups (Nopiyanto et al., 2021; Drouet et al., 2022). Students learn collaboratively in small groups that have a homogeneous character both in terms of gender and academic ability (Chang & Benson, 2022). In the discussion process, each student gets a proportional opportunity to express his opinion (Saputra et al., 2019; Legrain et al., 2019). During practicum learning, students can learn from each other and teach the skills they already understand (Nau & Djalo, 2019; Laila et al., 2022).

The application of the jigsaw learning model with the help of e-books is considered more effective in improving student learning outcomes. Using an e-book that is designed according to the needs of student lectures has proven to make it easier for students to understand learning material because the material has been comprehensively presented in the e-book (Majid et al., 2019; Nopiyanto et al., 2023). Given that students' need for technology is getting higher in this century, the use of e-books as a learning resource is the right effort to facilitate student learning (Hadaya & Hanif, 2019; Hartati et al., 2020). Deficiencies in sports massage e-books can be overcome by students through audiovisual media.

The use of audiovisual media in the learning process is not only able to improve learning outcomes cognitive but also learning outcomes in terms of skills in practical courses (Irmade & Jumanto, 2022; Sulfemi & Kamalia, 2020; Waluyanti & Santoso, 2015).

## CONCLUSION

There is an increase in learning outcomes and learning completeness classically through the application of ebook-assisted jigsaw learning models and audiovisual media in sport massage lectures. Even so, there are still students who have not finished. Therefore, it is suggested to future researchers add learning activities through additional cycles to accommodate the needs of students.

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