

# Blended Development Learning of Soccer Courses for Education in Physical Health and Recreation Students

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## ABSTRACT

The purposes of this study were to produce a teaching material for soccer courses based on blended learning (face to face, offline, online) and test the effectiveness, efficiency, and attractiveness of development products. The specifications of soccer courses teaching material arranged based on blended learning, following face-to-face methods using printed books, offline methods using interactive multimedia autoplay media studio 8.0, and online methods utilizing virtual classes Edmodo. From the trial teaching material study, the percentage of three components (effectiveness, efficiency, and attractiveness) obtained on small group trials was 87.50% and 88.15% from large group trials. The effectiveness test carried out three times obtained the overall average results of 88.59% with a very complete category. The efficiency tests carried out with six chapters of material in three meetings obtained an overall average time of 02:38:49, when compared with the amount of time used by lecturers by 1:40:00, then time efficiency has occurred in the learning process. The overall results of the average attractiveness test of product development teaching materials using face to face, offline, and online methods obtained percentage results of 93,5% with very interesting criteria

**Keywords:** *Development, Teaching materials, Soccer courses, Blended learning, Health and recreation physical education students.*

## 1. INTRODUCTION

The development of the world of technology at this time is hard to stop. This also has an impact on the education world. Today by following the development of an increasingly advanced era, it can be said that education is very difficult to separate from technology. Physical education is one of the areas affected by the advancement of technology development. Educators have the main role to create a better education environment. Educators have so far been delivering more material to students using conventional methods. Today's educators must have an understanding that the learning process must be delivered as well as possible to students.

The lecturer as an educator has a big enough role so that he is demanded to have high creativity and skills to apply technology to the material used in learning. By using technology, the learning process can take place

effectively and efficiently. This reinforced by the statement that the use of technology in delivering the subject matter to students in exploring material is better than conventional learning methods [1]. Learning resources are not only teachers, but also in the form of materials that can be realized in textbooks, audio-visual, computer, and integrated technology [2]. The learning process itself consists of several components, each of these components cannot run alone, but are interrelated towards the achievement of objectives. Audiovisual tools (AVT), videos, teaching software (CD/DVD) can increase participant involvement in undergoing teaching and learning and physical education learning processes will be better if there are interactions of various variables [3]. Based on that, the motivation of students in learning cannot be separated from a teaching material that contains the scope of related knowledge.

Talking about learning certainly cannot be separated from the teaching materials used. Teaching materials are materials used by instructors in carrying out learning activities [4]. The teaching material used can be developed based on the needs of educators and students. If it can be used properly and correctly, it can improve the quality of learning itself [5]. An educator must be able to make the teaching and learning process enjoyable for students. This can be realized by using teaching materials that can attract the attention of the students. It is very necessary to design learning resources to make the teaching and learning process is more effective, efficient, and interesting. Teaching materials can be printed and non-printed teaching materials.

The renewal of teaching material models that utilize technology development and communication needed to increase learning variation. One of them is the blended learning model. Blended learning is a combination of learning that is done directly and virtually. Blended learning is a strategy of delivering learning material face-to-face with the creation of online learning opportunities, computer-based (offline), and computer online (internet and mobile learning) [6], [7], [8].

To maximize the learning outcomes of students teaching materials using blended learning can be used as an alternative method of teaching materials that are felt appropriate. Based on the benefits of blended learning, it provides opportunities for students to control their learning success. There are several reasons blended learning is very suitable in learning, including (a) increasing the effectiveness of education, (b) increasing access and comfort, (c) greater cost-effectiveness [9]. The advantages of blended learning are: (1) expanding the reach of learning, (2) ease of implementation, (3) cost-efficient, (4) optimal results, (5) adjusting student needs, (6) increasing attractiveness learning, while the lack of blended learning, including: (1) a lot of media is needed, so it is difficult to apply if the facilities and infrastructure do not support, (2) facilities owned by students are not evenly distributed, such as computers and internet access, (3) lack of public knowledge on technology utilization [6].

Soccer is the most popular sport among many sports. In Asia, 10 of the 14 cities in which soccer exists is the most popular and most watched and read sport [10]. Soccer is a sport that uses a ball that is played by two teams with 11 players each [11]. Soccer is also one of the courses taken by students in the Department of Physical Education and Recreation (PJKR) IKIP Budi Utomo Malang. Football lecture material is a basic technique and rules of soccer games (arbitration).

The initial observation of researchers conducted in the Department of Physical Education and Recreation

IKIP Budi Utomo Malang on October 16, 2018, researchers obtained interviews with lecturers who teach soccer subjects consisting of basic techniques and rules of the game (arbitration). The teaching method carried out to date was only face-to-face methods, assignments, practices accompanied by questions and answers. From the interview, it can be concluded that blended learning (face to face, offline, and online) could be a solution to help lecturers in delivering the material. Utilizing blended learning can attract students to take part in the learning process of soccer courses.

Results of the needs analysis by distributing questionnaires to students who have taken soccer courses amounted to 50 students, the results obtained were 57,4% of students experiencing difficulty in attending soccer courses, 57,8% of students revealed the availability of teaching materials for soccer courses inadequate, 77,45% stated that media required for teaching soccer material as a conveyor of information, and 84,31% agreed that if developed soccer teaching material was developed using blended learning.

Teaching material for soccer courses uses blended learning that is applied to physical education, health, and recreation students using three instructional media, namely: face to face, offline, and online. In face-to-face teaching materials will use textbooks to deliver and explain material in class, in offline teaching materials will use the auto-play media studio 8.0 application that can be accessed by students on laptops, and in online teaching materials will use virtual classes Edmodo. Researchers use these three media after conducting a needs analysis so that the media used are suitable for the needs of students and lecturers and can be useful in the learning process. The use of teaching materials on soccer courses based on blended learning is expected to be beneficial for students and lecturers of physical education, health, and recreation and using technology in the world of education is expected to be able to bring renewal in the learning process.

## 2. METHOD

The development of teaching materials in soccer courses uses blended learning for students majoring in physical education, health, and recreation IKIP Budi Utomo Malang based on blended learning based learning designs [6]. Stages of blended learning model are: (1) analysis of problem- solving needs, (2) identification of learning resources and constraints, (3) identification of learner characteristics, (4) setting objectives of learning, (5) selecting and determining learning strategies, (6) developing sources, (7) trials, (8) revisions, and (9) prototypes of blended learning-based soccer teaching material design for students majoring in physical education, health, and recreation IKIP Budi Utomo Malang.

Research and development of teaching materials on soccer courses based on blended learning used

quantitative research with pre-experimental design methods. Several types of research designs that are familiar for use in pre-experimental design methods, namely one-shot case study, one group pretest-posttest design, and intact-group comparison [12]. The one-shot case study design was chosen by the researcher because it suits the needs. A one-shot case study is one of the research designs in which only one group of subjects was given further treatment the results obtained in further analysis.

Data analysis techniques in research are qualitative and quantitative data analysis techniques. There are 3 indicators to be able to know the learning outcomes of students, including 1) effectiveness, 2) efficiency, 3) the attractiveness of learning [13]. Indicators of effectiveness have the aim to determine the effectiveness of teaching materials that have been used in the learning process. Learning efficiency aims to measure the efficiency of teaching materials used in learning, the indicators refer to the time, personnel, and learning resources used. The attractiveness of learning as a result of teaching materials used in learning is closely related to the attractiveness of teaching materials products.

The final results seen from the minimum completeness of the performance that has been achieved is formulated in the percentage formula as follows [14].

$$V = [TSEV / (S - \max)] \times 100\% \quad (1)$$

If the data is in the form of a percentage, then conclusions can be drawn, adjusted to the problem, while the classification of the percentage in question is as follows [14].

**Table 1. Classification of data processing percentage**

No	Percentage	Category	Information
1	81.00 – 100.00	Very Valid, very effective, very complete Quite valid	Can be used without repair
2	61.00 – 80.00	Valid enough, Effective enough, complete enough	Can be used but needs minor repairs
3	41.00 – 60.00	Invalid, less Effective or incomplete	Needs major repairs, recommended not to use it
4	21.00 – 40.00	Invalid, ineffective, incomplete	Can not be used
5	0.00 – 20.00	Very invalid, very ineffective, very incomplete	Can not be used

In this study there is only one research subject. The subject was then treated with the use of teaching

material development products. At the end of the treatment, subjects were given a test using the developed product and filling out a questionnaire to determine the required results described in Table II below.

**Table 2. One shot case study effectiveness test**

Subject	Treatment (X)	Observation (O)
Students Department of Physical Education and Recreation Faculty of Health, Science Education and Sports Eksakta Budi Utomo Malang Teachers' Training Program Course Football take as many as 40 people	The application of teaching materials in soccer courses based on <i>blended learning</i> groups being the subject of research (3 meetings)	Results obtained from the final test to measure the achievement of learning outcomes (effectiveness, efficiency, and attractiveness)

### 3. RESULTS

The results of the effectiveness test showed that from 3 meetings namely face-to-face, offline, and online it was concluded that after conducting an effectiveness test on 40 students majoring in physical education, health, and recreation experienced growth and improvement during the implementation of teaching material based on soccer subject matter in blended learning effectiveness, efficiency and attractiveness of learning. Overall results data are explained in Table 3

**Table 3. One shot case study effectiveness test**

No.	Component	Results
1	Effectiveness	Results Effectiveness results <ul style="list-style-type: none"> <li>The scores obtained by students at the first meeting for material chapters I and chapter II obtained the following values: (1) the lowest value of 70 credits B, (2) the highest value of 100 credits A, and (3) the overall value obtained an average of</li> </ul>

		<p>86,50 credits A.</p> <ul style="list-style-type: none"> <li>The scores obtained by students at the second meeting for material chapters III and chapter IV obtained values as follows: (1) the lowest value of 75 B + credit, (2) the highest score of 100 credit A, and (3) the overall value obtained an average of 89,13 credits A.</li> </ul> <p>The scores obtained by students at the third meeting for material chapter V and chapter VI obtained values as follows: (1) the lowest value of 75 B + credit, (2) the highest value of 100 credit A, and (3) the overall value obtained an average of 89,88 credits A.</p> <ul style="list-style-type: none"> <li>Each meeting obtained an increase in value, namely: (1) at the first meeting to the second meeting an increase of 2,63%, (2) the second meeting to the third meeting increased 0,75%. The overall score of all meetings with the results of the value of 88,59 credits A. According to the IKIP guidelines Budi Utomo Malang at least 59 or C grades are still categorized as complete or credit recognized so that from the data obtained by students they are said to be complete.</li> </ul>		<p>students in the first meeting using face-to-face teaching materials for material chapters I and chapter II obtained the longest time 01.35.49 or one hour thirty-five minutes forty-nine seconds and the fastest time 01.21.32 or one hour twenty-one minutes thirty two seconds.</p> <ul style="list-style-type: none"> <li>The time required for students in the second meeting using offline teaching materials with material in chapter III and chapter IV obtained the longest average time 01.38.55 or one hour thirty-eight minutes fifty-five seconds and the fastest time 01.25.37 or one hour two thirty five minutes thirty seven seconds.</li> <li>The time required by students at the third meeting using online teaching materials in the material in chapter V and chapter VI obtained the longest average time 01.36.28 or one hour thirty-six minutes twenty eight seconds and the fastest time 01.23.52 or one hour twenty three minutes and fifty two seconds.</li> <li>The amount of time obtained for each student in 3 meetings is obtained for the longest time</li> </ul>
2	Efficiency	<p>Efficiency test results obtained.</p> <ul style="list-style-type: none"> <li>The time required for</li> </ul>		

		<p>04.47.33 or four hours forty-seven minutes thirty-three seconds and the fastest time is 04.21.54 or four hours twenty-one minutes and fifty-four seconds.</p> <ul style="list-style-type: none"> <li>Each time efficiency meeting is obtained, namely: (1) between the first meeting with the second meeting time difference is 00.02.16 or two minutes and sixteen seconds, (2) between the second meeting with the third meeting time difference is 00.01.03 or one minute and three seconds. When compared with the time used by lecturers in football courses for 2x50 minutes, it can be concluded that there is time efficiency obtained in studying the material and working on evaluation questions in each meeting.</li> </ul>
3	Attractiveness	<ul style="list-style-type: none"> <li>Based on the test results of the attractiveness of teaching material products, the results obtained from 3 meetings through the distribution of questionnaires consisting of 17 questions: (1) at the meeting I (face to face) obtained results of (92,9%), (2) on second meeting</li> </ul>

		<p>(offline) results obtained (92,2%), (3) in the third meeting (online) results obtained (95,8%). According to (Akbar, 2013) with a percentage of 75.01% - 100.00% with very interesting criteria and the product is used without revision.</p> <ul style="list-style-type: none"> <li>Based on the results of these data it can be concluded using the product development of teaching materials for soccer courses based on blended learning students has increased during the treatment process (treatment) is given through teaching materials based on blended learning that is in terms of effectiveness, efficiency, and attractiveness towards teaching material products.</li> </ul>
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**4. DISCUSSION**

After going through the procedures that have been explained related to research and development of teaching materials in soccer courses using blended learning with the aim of optimizing student learning outcomes. Then the resulting product consists of three teaching material products as learning media, including: (1) face-to-face teaching materials (printed books), (2) offline teaching materials (interactive multimedia/autoplay), and (3) teaching materials online learning (edmodo). Analysis of needs using a questionnaire of physical education, health, and recreation IKIP Budi Utomo Malang students as many as 50 students. The results of the needs analysis are obtained: (1) students answer that there are obstacles in undergoing soccer courses, (2) students state that the availability of teaching materials in soccer courses is inadequate, (3) students state that media for teaching materials is needed in soccer courses to deliver

information, (4) students agree if course material developed for soccer based on blended learning is developed. The results of the needs analysis with the physical, health, and recreation lecturers at IKIP Budi Utomo Malang obtained: (1) the teaching materials used in the process of learning soccer already exist but are still minimal, (2) it takes teaching materials for soccer courses based on blended learning to help lecturers' performance in the process of delivering soccer material, (3) have never applied blended learning in soccer teaching materials.

Learning expert validation results which were carried out in May 2019 with a questionnaire instrument of 32 questions were obtained: (1) 92,97% included in the category of very valid, (2) suggestions and input from learning experts, namely: interactive multimedia is not full screen, audio in the basic technique of dribbling is less clear. Football Material Expert Validation carried out in May 2019 with 32 questionnaire instruments obtained: (1) 89,84% were included in the very valid category, (2) suggestions and input provided by soccer material experts, namely: the front cover of the book should use an image of an Indonesian player, the presentation of the material must be more systematic, and the order in which the material is presented must be considered. Media Expert Validation which was carried out in May 2019 with 29 questionnaire instruments was obtained: (1) 93,97% included in the category of very valid, (2) suggestions and input provided by media experts, namely: optimization of visual design aspects, for example the design of the front cover of a soccer printed book (text/title, back ground, color, and lay out). From the results of a small group trial conducted in May 2019 to find out the feasibility of the product, for the clarity and suitability criteria a percentage of (88%) was obtained, for the effectiveness criteria a percentage of (88,13%) was obtained, for the convenience criteria a percentage of (87,25%), and the attractiveness criteria obtained a percentage of (87,19%). From the overall average percentage obtained (87,50%) with very valid criteria, so that it can be used as a reference to continue the next stage, namely a large group trial. The results of a large group trial conducted in May 2019 to determine product viability, for clarity and suitability a percentage of (87,21%) was obtained, for effectiveness criteria a percentage of (89,38%) was obtained, for the convenience criteria obtained the ease of obtaining a percentage of (86,90%), and for attractiveness criteria a percentage of (90%) is obtained. From the overall average, a percentage of (88,15%) is obtained with very valid criteria, so we get the product development of teaching materials for soccer courses based on blended learning and can be continued in the future, namely the effectiveness, efficiency, and product attractiveness test.

Based on the results of the feasibility test for the development of the product, the following results are obtained: (1) the criteria of clarity and suitability are obtained by a percentage of (87,21%), (2) the effectiveness criteria obtained by a percentage of

(89,38%), (3) the ease of criteria obtained by a percentage (86,90%), and (4) the attractiveness criteria obtained a percentage of (90%). Overall, the average percentage obtained (88,15%) is very valid category. So we get the results of the development of teaching materials soccer subjects that are ready to use. Products that are ready for use have advantages, namely: (1) soccer course textbooks equipped with QR Barcodes based on blended learning that do not yet exist in the departments of physical education, health, and recreation, (2) soccer teaching materials using interactive multimedia and edmodo as alternative learning resources can increase student motivation and learning outcomes, and (3) provide additional references for students or lecturers in understanding soccer learning materials.

In blended learning soccer course teaching material products are divided into three teaching material products, namely: (1) printed books, (2) interactive multimedia in the form of autoplay, (3) edmodo virtual online classes. In the printed book product soccer teaching materials consist of several materials, including: (1) blended learning, (2) history and infrastructure of soccer, (3) basic soccer skills, (4) rules of the game of soccer, (5) stretching and technical training soccer, (6) physical, mental and tactics training in soccer. In textbooks printed soccer courses have the advantage that there is a QR Barcode to access learning videos that have been uploaded to YouTube in accordance with the material in the book. In the printed book there is an evaluation question at the end of each chapter in the form of multiple choice which has the aim to measure the achievement of student learning outcomes in soccer learning. Learning resources using printed books are very effective in increasing learning achievement [15]. The benefits of textbooks as a source of learning are very diverse including 53,33% responded saying strongly agree that learning to use books can increase understanding, 16,67% agree, 47,78% evaluation learning can be improved by using books, 51,11% is evaluated as effective learning material and 1,11% is less agree [16].

Researchers also developed an offline teaching material product for soccer courses using blended learning that is packaged using interactive multimedia in the form of autoplay media studio 8.0. The material of the teaching materials for soccer courses using interactive multimedia autoplay media studio 8.0 consists of menus: (1) a menu of soccer course material consisting of basic skills, technical training, and soccer referees, (2) electronic books of soccer courses, (3) edmodo, (4) references, (5) evaluations in the form of quizzes, and (6) developer profiles. The advantages of soccer teaching material products are using blended learning which is packaged using interactive multimedia autoplay media studio 8.0, which is a soccer course book in the form of a flipbook and a video about soccer material contained in the book. Attractive multimedia with the contents of soccer learning materials and

loading learning videos can increase student motivation in analyzing problems during the learning process.

There is also an evaluation question in the form of a quiz in the autoplay media studio 8.0 application, the results of which can be known immediately after the problem is completed. Learning by utilizing interactive multimedia has become the world standard of education at this time. In the world of sports, interactive multimedia has been used to teach practical aspects of specialty, namely skills in basic or manipulative motion [17]. The existence of videos in interactive multimedia can help increase motivation, learning outcomes, and improve students' ability to understand the material [18]. Learning methods using multimedia are more appropriate in paying attention to the achievement of learning goals [19].

In addition to developing development products in the form of printed textbooks and autoplay interactive multimedia, researchers also utilize online media teaching materials through virtual edmodo classes as an alternative learning resource for students that can be used anytime and anywhere while connected to the internet. Edmodo virtual classrooms are used as an alternative source of online learning that focuses on providing material that will be discussed later in the learning process. The advantages of the virtual Edmodo class are: 1) the interaction process can be done anytime and anywhere, 2) can send files, save files, and make an opinion poll to other users both from educators or students, 3) educators can take advantage of quiz facilities that have some features such as time limitation that serves to limit students in working on the problem and can be seen how much time it takes students to complete the evaluation problem so that it can be used in measuring the efficiency of students in the learning process. Edmodo is used as a learning resource to optimize learning outcomes because the learning process is not time-bound. Edmodo can provide special space or groups for educators and students to share ideas, files, events and tasks in a safe environment [20], [21]. Learning by using edmodo is effective for increasing students' level of thinking [22]. By utilizing online learning the teaching and learning process continues to be spread and led to a more flexible direction of place and time [9], [23].

The process of learning soccer in the Department of Physical Education, Health, and Recreation IKIP Budi Utomo Malang mostly uses practice in the field. There are several obstacles that often occur in the learning process, namely students find it difficult to get the latest printed learning resources as well as offline learning sources. So most students are still looking for the learning resources they need through the internet from Wordpress and BlogSpot. The aspects of pedagogy using interactive multimedia were effective in supporting learning activities, various learning activities were also conveyed through printed books with a face-to-face approach and the material was also presented via

the web with the support of an online approach [24].

The overall results of this study are by using teaching materials based on soccer courses that can improve blended learning interest, motivation, and student learning outcomes in soccer learning that includes aspects of effectiveness, efficiency, and attractiveness. This opinion is in line with the results of research from Ceylan & Elitok Kesici (2017) which says blended learning improves learning outcomes to be more effective through learning technology using the web that is currently developing in the learning environment [25]. Other research from Obiedat, Nasir Eddeen, et al. (2014) states that there is a significant and positive impact of learning with a blended learning approach on achieving student academic value [26]. Blended learning in an efficient manner can create flexibility of time, place, and acceleration of access to learning and provide independence for students who are consistent with interesting features [27]. Furthermore, the results of other studies from Wichadee (2017) show that blended-based learning is more effective than traditional learning both verbal skills and motivation [28].

## 5. CONCLUSION

The learning process of soccer courses for students majoring in physical education, health, and recreation IKIP Budi Utomo Malang is still conducted using face-to-face methods and learning is carried out conventionally in the process of learning materials at each meeting. Appropriate teaching material to be applied is to combine teaching materials with current technology that divides teaching materials through face to face, offline, and online with the goal of all areas of competence can be achieved to the maximum. Overall results of this study apply teaching materials using blended learning that combines face-to-face teaching materials using printed books equipped with QR barcodes, offline teaching materials using interactive multimedia autoplay media studio 8.0, and online teaching materials using edmodo social networks. Blended learning is proven to increase motivation, interest, and learning outcomes of students in soccer learning including aspects of effectiveness, efficiency, and attractiveness.

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