

# Developing Teaching Media on Basic Volley Ball Technique for Junior High School Students

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**Abstract**—The objective of this research is to develop a teaching media on basic volleyball technique for junior high school students. Using research and development design, this research has developed a teaching media in the form of motion picture or video. Assessed quality from the video that have been achieved e.g. (1) according to both of the subject matter experts the media is qualified as “excellent with average score of 4.75, (2) according to media expert qualified as “excellent” with the average score of 4.48, (3) overall assessment by students qualified as “excellent” with average score of 4.47 and (4) assessed by three P.E teachers the media is qualified as “excellent” with average score 4.49. On the effectiveness test the teaching media reached the score 4.85 on the pre-test and increased on the post-test reaching the score as high as 8.23. There is an increase of 3.28 points on the average score after the post-test. Therefore, this research can conclude the development of teaching media on basic volleyball techniques for junior high students is effective to elevate the knowledge of Junior High School Students on the teaching process on the volleyball subject matter.

**Keywords**—media, junior high school, basic volleyball technique

## I. INTRODUCTION

In the perspective of education, the role of media is seen as a strategic instrument that can determine the success of teaching and learning process. Due to the dynamic it creates towards the students. The word media derives from Latin word of “medius” that literally translates as “middle”, or intermediary, or conveyor. In Arabic, it translates as the conveyor of messages to the recipients.

Technology development goes hand in hand with the advancement of science. Science and technology are the element to mould human resources. Indonesia is a developing country. One of the developing points is science and technology. The needs and demands each individual induct human being to continuously develop skills in professional manner. Living needs should be the main priority in this modern era.

Teaching method in educational field can be presented using some props or usually called as teaching media. However occasionally the props used are repugnant due to their monotonous and unattractive traits. One of the methods developed recently is to utilize computer technology as teaching media.

The rest of this paper is organized as follow: Section II describes the notion of teaching media. Section III describes

the proposed method. Section IV describes the proposed discussion. Finally, Section V presented the obtained conclusion and following by suggestions.

## II. TEACHING MEDIA

Media is a communication involving two parties; the source and the recipient. Teaching media is advantageous to re-enforce the interaction between teacher and student, therefore the teaching and learning activity can be more effective and efficient.

Teaching media is Bruner’s theory that explains the use of media can gain the new experience in learning for students. According to Bruner in [1] there are three main stages of learning modes, which are enactive, iconic, and symbolic. The three stages interact with each other in effort for students to gain new experience, skills, or attitude.

Dale argued that the results of learning through visual sensory 75% of the matters can be acquired, meanwhile through audio, through audio sensory around 13% and other sensory around 12% [2]. The stages of learning experience from the Bruner theory is depicted by Dale as a communication process [2], known as the Cone of Experience which one of the most used images as the reference on using media in teaching and learning process. Below is the illustration of Dale’s Cone of Experience [2].

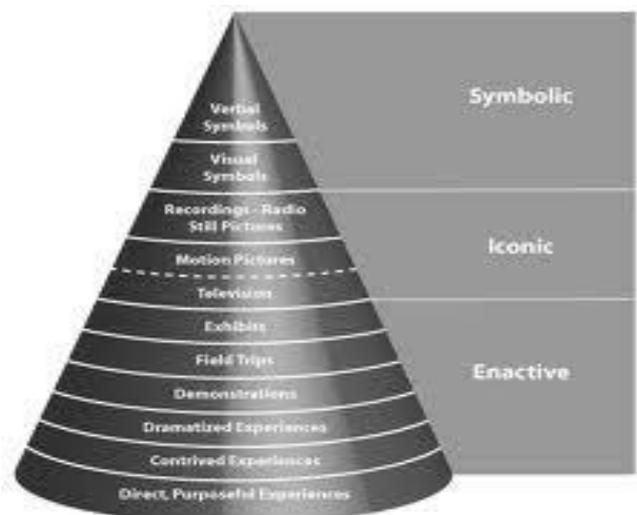


Fig. 1. Dale’s Cone of Experience

From Figure 1, the Dale's cone of Experience is a detailed elaboration of Bruner's three stages of experience theory. There are many ways used to classify media. One of them is to emphasize the technique used in the making of the media. There is also one that based on the way it conveys the message, and many other specifications that can differ one media to another, therefore it's not easy to put together a single classification that can conclude all kinds of medias.

#### A. Physical Education

Physical Education and Sport (P.E) is one of the subjects in school that uses movements as teaching media to accomplish the objective of the Education. Wuest and Bucher in [3] said "Movement is the Keystone of Physical Education and Sport." It has been clearly explained that movement is the key of physical education and sport. According to Lutan in [4] learning process to move and learning through movement is two ideas that need to be held on tight in P.E.

Teaching P.E is taught with various skills on movement technique, and sport strategies, internalizing sportsmanship, and team [5]. Through movement students are guided to discover how to make a certain movement and its function, also to show positive behaviours throughout the teaching process that hoped to be actualized in their everyday lives.

In the P.E subject in middle school's volleyball practice is one of the sports used as the movement teaching. American Sport Education Program in [6] said that Volleyball is unique in that it is a game of errors where the objective is to get the ball to hit the floor on the opponent's side of the net or force the opponent to make ball handling error. Thus, most points scored in volleyball are result of an error.

The objective of P.E is for the students to acquire knowledge e.g. (1) Develop the skill of self-maintenance in effort to grow and nurture physical fitness and wellbeing through selected physical activity and sports, (2) develop a better physical and psychological growth (3) Increase the basic movement ability and skill, (4) Lay to foundation of a strong moral character through internalizing the values inside the physical, sports, and health education, (5) Develop sportsmanship, honesty, discipline, responsibility, confidence, and democracy, (6) develop the skill of self, others, and environment's survival. (7) Understand the concept of physical and sport in a clean environment as an information to achieve perfect physical growth, healthy life and fitness, skilled, and positive attitude.

In order to collect the evidence of the achievements on students' learning outcomes, a volleyball game in Junior High School is involving an upgrade on the basic volleyball techniques. Volley ball relies on basic skill technique to be able to play properly. Basic techniques include serve, smash, and block. Through Volleyball practice it is hoped for the life values such as honesty sportsmanship, tenacity, and responsible.

On the field of education, the role of media may help and ease the teaching and learning process. The use of computer as teaching media will be effective and efficient when the delivery is enriched through video; therefore, the need to

develop teaching media in the form of interactive multimedia is apparent.

The outcome produced later can be utilized as a catalyst to ease the delivery of the matter in the teaching of basic technique on volleyball. Content of the subject matter in the teaching media are in the forms of pictures, and videos on basic techniques of volleyball. The whole matters are projected with attractive visualization thus can attract the target audience of this product and the main points of the matter can be easily perceived.

#### B. Volleyball

Volleyball game is a form of sport that can be played by all from children to elder and men or women. Playing volleyball can not only exercise the physics and techniques but also to enrich the mind especially self-control, discipline, teamwork, and responsibility towards the action done in the process.

Barbara and Ferguson in [7] Claimed that in the real game basic and systematic skills are very much needed. It means that, volleyball is a sequence consists of serves, that is followed by the passes called the bump, and the volley, and then passing to the striker and hitting the ball to opponent's field, and at the same time the opponent prepares to set a defense using blocking techniques, with a receiver in the back field, these sequences are continuously done in a set of the game.

Volleyball is an interactive game and can be divided into the two main phases of attack and defense, each having three or four sequential skill events that are expected to occur sequentially in a hierarchical order [8]. This definition shown that volleyball is an interactive game that can be divided into two phases which are attack and defense phase where each phase has at least three to four sets of skills that complement each other. The skill mentioned can be defined as the players are positioned as striker, feeder, and defense. Main principal of volleyball is handling the ball by volleying and attempting to drop the ball to opponent's field by crossing the net and at the same time to keep the ball away from dropping into the players' field.

### III. PROPOSED METHOD

This research uses Research and Development method which produce an outcome of a certain product. The procedure of the development done in the product development process refers to Borg & Gall that has been simplified by researchers into five steps e.g. : (1) Conducting needs analysis, (2) developing research assessment instrument, (3) developing and determining substance of the subject matter, (4) designing and conducting formative evaluation, (5) final product forming.

Instrument data used to collect the data are: interview guidelines, questionnaire, and test items. Interview guideline consists of list of questions which the basic outline of the subject is to be questioned. Interview is conducted openly so the informant can find out that a research is being conducted and the informant is one of the means of information source, therefore all the data related as critiques and suggestions are beneficial to the final product's quality.

Instruments in the form of questionnaire is to determine the final product quality. Questionnaire is used to assess on the validation by the subject matter experts, media expert, and the small and big scale tests. Test items are for the effectiveness test of the product which is done by pre-test and post-test. This research uses Likert scale with 5-point scales; (1) Poor (2) Fair (3) Average (4) Good (5) Excellent. Likert Scale is a scale to assess opinions, attitude, and view.

Quantitative data analysis technique used in this research is descriptive statistical analysis, which consists of the notions of poor, fair, average, good, excellent which is modified into 5 scales quantitative data with scoring from 1 to 5. The stages of data analysis e.g.:(a) rough data collection, (b) scoring, (c) converting the data into 5 scales scoring presented in the Table I [9]. Collected data from test activities are classified into two. quantitative and qualitative data. Qualitative data are suggestions from the media expert, and students which are collected to improve this teaching media. Data analysis technique in this research is done through two stages; analyzing data related to its validity and determining the product of teaching media which was being developed [10,11].

TABLE I. VALIDITY ASSESSMENT INSTRUMENT

Assessment	Avg	Category
Expert 1	4.79	Excellent
Expert 2	4.72	Excellent
Total	9,51	
Total Average	4.75	Excellent

Conditions:

( $\bar{X}_i$ ) : Ideal average score

$$\frac{1}{2} (\text{max score} + \text{min score})$$

( $Sb_i$ ) : Ideal standard deviation score

$$\frac{1}{6} (\text{max score} - \text{min score})$$

X Ideal : Empirical Score

#### A. Product Test Outcome

Based on the Research and Development objectives, the results of this research consist of 3 aspects e.g.: (1) Analysis of needs, (2) product development, (3) test run & (4) Effectiveness Test.

##### 1) Analysis of needs

Analysis of needs is conducted to determine the problems happening in the field related with the volleyball teaching process. Researcher conducts teaching observation with volleyball subject matter.

The results of observation and interview show that the utilization of computer in P.E teaching is yet to be maximized. Therefore, researcher develops teaching media on basic volleyball technique for Junior High School students.

##### 2) Product Development

The product of teaching media is in accordance to the stages of product development. Aspects as the material for experts' validation e.g.; (1) content aspect, (2) teaching aspect, (3) visual aspect, (4) programming aspect. Experts' validation acts as the tool to collect the data. Data collected used as reference in revision stage. This product of teaching media has been revised gradually based on the suggestion from subject matter and media experts. Based on the data analysis obtained through validation and test stage according to both subject matter experts, the teaching media that is being developed is deemed as "excellent" with overall final average score of 4.75 and deemed as fit to be used in the test run. Subject matter validation is done by two experts. The whole result is presented in Table II.

TABLE II. SUBJECT MATTER EXPERT ASSESSMENT

Assessment Aspect	Total Average	Avg	Category
SMP N 3 Kaliwiro	13.41	4.47	Excellent
SMP N 1 Kaliwiro	13,45	4.48	Excellent
Total		8,95	
Total Average		4.47	Excellent

##### 3) Test Run

According to media expert, the teaching media in development is deemed as "excellent" with final average score 4.48 and deemed as fit to be used in test run. Media validation is conducted by media expert. Whole result is presented in Table III.

TABLE III. MEDIA EXPERT ASESSMENT

Value	Criteria	Score	
		Formula	Calculation
A	Very good	$X > \bar{X}_i + 1,8 SB_i$	$X > 4.21$
B	Good	$\bar{X}_i + 0,6 SB_i < X \leq \bar{X}_i + 1,8 SB_i$	$3,40 < X \leq 4.21$
C	Pretty good	$\bar{X}_i - 0,6 SB_i < X \leq \bar{X}_i + 0,6 SB_i$	$2,60 < X \leq 3,40$
D	Not Good	$\bar{X}_i - 1,8 SB_i < X \leq \bar{X}_i - 0,6 SB_i$	$1,79 < X \leq 2,60$
E	Very less	$X \leq \bar{X}_i - 1,8 SB_i$	$X \leq 1,79$

According to test run in the research and development model, this research consists of (1) Small scale test (2) Large scale test and (3) Effectiveness test.

##### a) Small Scale Test

In the small scale test the assessment on the teaching aspect it's been obtained the average score of 4.51 in the category of "excellent". Overall, on this small-scale test it has been obtained score of 4.48 in the category of "excellent" and presented in the Table IV.

TABLE IV. TOTAL SCORE FROM SMALL SCALE TEST

Assessment Aspect	Total Avg	Avg	Category
Visual	43.58	4.35	Excellent
Content	32.17	4.59	Excellent
Teaching	49.60	4.51	Excellent
Total		13.45	Excellent
Total Average		4.48	

*b) Big Scale Test*

In the overall big scale test in the two Junior High School of SMP N 3 Kaliwiro and SMP N 1 Kaliwiro it has been obtained the average score of 4.47 in the category of “excellent”. The scores are presented on Table V below.

TABLE V. OVERALL SCORE OF BIG SCALE TEST

Assessment Aspect	Total Average	Avg	Category
SMP N 3 Kaliwiro	13.41	4.47	Excellent
SMP N 1 Kaliwiro	13.45	4.48	Excellent
Total		8.95	
Total Average		4.47	Excellent

*c) Effectiveness Test*

Effectiveness test in this research is done by conducting pre and post-tests to determine the effect of the teaching media towards students’ comprehension and to enforce the concluded proper and fit quality of the product of teaching media. Despite conducting the pre and post-test, this step is not done thoroughly as in an experimental research by presenting control class as a comparison.

Pre-test was conducted before the teaching process using media with an objective of determining initial ability of the students. It is conducted using a multiple-choice test in 10 minutes. Post-test is done after the teaching process using the teaching media in order to assess the students’ ability after being exposed to the teaching media. The value is smaller than 0.05 (Sip, 0.05). Comparison between the result of pre and post-test is presented in Table VI.

TABLE 6. EFFECTIVENESS TEST ON PRE-TEST AND POST- TEST RESULT

Group	Avg	t ht	Sig	difference	%
Pre-test	4.8517	21,019	0.000	3.37	69.48
Post-test	8.2275				

Based on the *t*-test on Table VI above, significant value of  $p < 0, 005$ . Due to significance  $< 0, 05$ , therefore this result shows a significant difference. Average score from the pre-

test done by the students before the use of the teaching media is 4.85. After the students used the teaching media on volleyball, average score Of 8.23 is obtained on the post-test. Product’s effectiveness shown on the achievement of the difference of 3.28 points in the score between pre-test and post-test. This proved that there is significant increase in students’ comprehension on the subject matter of volleyball. The increase of the average score also shows that the product of Teaching Media on Basic Technique of Volleyball for Junior High School Students is effectively influencing for the subject matter of volleyball.

IV. DISCUSSION

Development of Teaching Media on Basic Technique of Volleyball for Junior High School Students using Adobe Flash CS6 as the main software has been finished developing in accordance of test sequence to obtain data as the base to do revision of the product.

Teaching media produced in this development process are: (1) Content of the program: (a) the product is named as Teaching Media on Basic Technique of Volleyball for Junior High School Students (b) this teaching media consists of basic technique in volleyball which are, passing techniques of the bump and the valley, upper and low serves, blocking, and the combinations. (c) Teaching media is completed with evaluation test related to the matter, d) the matter in the teaching media acted by model and presented in the format of video, supported by attractive design and easy to use by the students and teachers and can pique the students’ interest in learning (2) Physical Aspect: (a) Teaching media is packaged in a compact disc that contain text, pictures, video, and animation. The media can be operated on any computer with CD-ROM. Content of the media is arranged systematically from the intro and main menu consist of introduction, starter, material, profile, and evaluation. This teaching media can be operated using computer with the minimum specification of Windows XP resolution of 1024 x 800-pixel, processor Pentium IV 1,66 Ghz, 512 Mb of RAM, VGA on board 32 Mb, HDD 40 Gb, and installed adobe flash player version 9.0.b. The product of teaching media produced according to the stages of product development. Aspects as the material to be assessed by the experts e.g.; (1) Content, (2) Teaching, (3) Visual, and (4) Programming. Experts’ validation and test run as the vessel to collect data. Collected data used as the reference on the revision stage. Teaching media product has been revised gradually based on the suggestion from the subject matter and media expert. (c)The use of Teaching Media on Basic Technique of Volleyball for Junior High School Students can be used maximally using hard drive with minimum specification of Windows XP, Pentium IV, RAM 512 Mb, CD Room, Speaker and installed adobe flash player version 9.0.b.

## V. CONCLUSION AND SUGGESTION

This section presents the conclusion and highlights suggestions.

### A. Conclusion

The final product of research and development producing Teaching Media on Basic Technique of Volleyball for Junior High School Students especially in grade 8th can improve the students' comprehension in the subject matter of volleyball. Overall result of the research can conclude the following matters. Validation and assessment by both of the subject matter experts the media is qualified as "excellent with average score of 4.75. According to media expert qualified as "excellent" with the average score of 4.48, overall assessment by students qualified as "excellent" with average score of 4.47 therefore can be concluded Teaching Media on Basic Technique of Volleyball for Junior High School Students especially in grade 8th is in the "excellent" category with 4.49 or fit to be used in the process of teaching and learning.

Second, the teaching media of basic technique of volleyball for Junior High School Students is effective to improve students' knowledge on teaching and learning process on the subject matter of volleyball. According to the result of effectiveness test significance value of  $p < 0,005$ . Due to significance  $< 0,05$ , therefore this result shows a significant difference. Average score from the pre-test done by the students before the use of the teaching media is 4.85. After the students used the teaching media on volleyball, average score of 8.23 is obtained on the post-test. Product's effectiveness shown on the achievement of the difference of 3.28 points in the score between pre-test and post-test. This proved that there is significant increase in students' comprehension on the subject matter of volleyball. The increase of the average score also shows that the product of Teaching Media on Basic Technique of Volleyball for Junior High School Students is effectively influencing for the subject matter of volleyball.

### B. Suggestion

Based on the conclusion above, researcher gives some suggestion. (1) For P.E. Teachers, this media can be utilized in the teaching process; therefore, the process can be more attractive and variative. (2) For Junior High School Students, they can utilize this media as one of the alternative sources of self-learning. (3) In order for the self-learning process to go without a hitch and interesting, please note the minimum requirements to operate the program.

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