

MASTERING BASIC MOTIONS OF BASKETBALL USING PERSONALIZED SYSTEM OF INSTRUCTION (PSI) MODEL BASED ON ELECTRONIC MODULES (E-MODULE)

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Abstract

Learning using a digital module-based Personalized System Instruction (PSI) model is one of the learning models that can replace the conventional learning process (teacher-oriented learning) into student-oriented learning. This research is aimed at determining whether the implementation of the PSI model based on electronic modules (e-module) influences the mastery of basic motion of basketball, especially in junior high school students. This research used an experimental method by conducting pre-test and post-test on the control group and the experimental group. The total sample was 40 students, of which 20 students were in the experimental group and 20 students were in the control group. The research instrument used was the basic motion control sheet on basketball games which consisted of mastering basic movements of passing, shooting, and dribbling. The duration of treatment was five meetings with the duration of 3 x 40 minutes per meeting. The results of this research showed that the PSI model based on digital modules was capable of influencing the mastery of students' basic motion in basketball games.

Keywords: *Basic Motion; Basketball Games; Digital Modules; Personalized System of Instruction (PSI)*

1. Introduction

Humans cannot be separated from education. Education is very important in human life and will affect the position or quality of human beings themselves. With education, humans will gain knowledge in the hope that knowledge will be useful during their lifetime. Someone who has received an education is expected to be a pioneer in community life. One of the kinds of education provided at school is education through physical activity. In physical education students are involved and equipped to be able to perform motion activities that are useful for developing movement skills, developing healthy life, and increasing mental strength and social abilities aimed at fostering students' physical and psychological growth.

Through physical activity, students have the opportunity to participate in learning through movement activities that have been arranged and planned in

such a way by the teacher. Regarding physical education, Priambodo (2013) states that:

Physical education in sports and health can provide opportunities for students to be directly involved in a variety of learning experiences through physical activity, playing and exercising in a systematic, directed and planned manner (Priambodo, 2013).

According to Mahendra (2008: 15), physical education is the process of education through physical activities, games or sports that are chosen to achieve educational goals. It can be concluded that physical education is an education carried out through motion activities by emphasizing the achievement of three domains, namely: cognitive, affective, and psychomotor.

Physical education is basically education through physical activities that are used as a medium to achieve a whole individual development. Through physical education, students are introduced to movement activities that are sports skills. Therefore, physical education is part of a comprehensive education and at the same time has a strategic potential to educate. Bucher (1972: 31) states that:

Physical education, an integral part of the total education process, is a field of endeavor that has as its aim the development of physically, mentally, emotionally, and socially fit citizens that have been selected with a view to realizing these outcomes.

Physical education is an integral part of education since learning physical education in schools has an impact on the development of aspects of physical fitness, social skills, emotional stability, and mental development. The impact of learning physical education in schools can be a result of student activities when they actively participate in learning.

Essentially, education is a process of human development that lasts a lifetime. Physical education, sports, and health that are taught in schools have a very important role to provide opportunities for students to be directly involved in various learning experiences through physical activity, sports, and health. As stated in the National Education System Law, Chapter X (2010) on the learning curriculum in schools Article 37m "Every primary and secondary education curriculum must contain several subjects including physical education". With the introduction of physical education in the National Education System Law, it means that

physical education lessons must be included in the curriculum. The students should be aware of the importance of physical education lessons because it is a medium to encourage physical growth, psychic development, motor skills, knowledge and reasoning, appreciation of values (attitude, mental, emotional, sportsmanship, spiritual, and social), as well as habituation of healthy lifestyles to stimulate growth and development of physical quality and balanced psychic.

The goals of physical education are classified into four categories of objectives as stated by Bucher (1964:30): "*Physical education is one phase of the total education process and that it utilizes activity drives that are inherent in each individual to developing a person organically, neuromuscularly, intellectually, and emotionally*". Therefore, physical education is one of the educational processes that can control an activity within an individual that can build psychomotor, affective, and cognitive aspects in an individual. The four goals as stated by Bucher explained that physical education is beneficial for the growth of students in school and the students need to realize, have encouragement, and have the readiness to take part in physical education at school.

A person who is skilled in an activity and clever in certain subjects cannot be separated from a process. Likewise, in physical education learning, a student who is proficient and understands physical education material cannot be separated from the learning and teaching process at school. Without a process, a change will never occur.

One of the physical education learning materials contained in the 2013 curriculum content standard, revision number 24 of 2016 concerning Core

Competency (KI, *Kompetensi Inti*) and Basic Competency (KD, *Kompetensi Dasar*) of Junior High School, is big ball games which is recorded as KD point 4.1. The big ball games are soccer, volleyball, and basketball. Each teacher has the right to choose the sports that will be taught to students.

However, basketball is still popular with students compared to volleyball. Even in developing countries, basketball games are still favored by students in the process of learning motion. This is supported by Dusan (2012: 215): "... interested in swimming (51.33%), then in basketball (48,00%), mountaineering (40.00%), fitness (36.33%), volleyball (36%), From the results of research conducted by Mitic Dusan, Stojiljkovic Stanimir, Pantelic Sasa & Cokorilo Nebojsa. (2012). it is clear that basketball is still popular compared to volleyball.

According to Komarudin (2010), basketball is a sport that is played by two teams that aim to shoot as many balls as possible into the opponent's basket and prevent the opponent from shooting the ball. Basketball games are easy to learn because they have a relatively small field size and the ball used is large enough for students to dribble, throw, or pass to their friends. It is by Komarudin. (2010) that basketball is easy to learn because the ball is large, so it is not difficult for the player to dribble or throw the ball. Basketball games have many techniques that must be understood by students and every physical education teacher teaches are than one technique in basketball learning.

Basketball learning is still conducted in schools, both at the junior high school and at senior high school. Basketball is one of the sports chosen by physical education teachers. Many ways and materials can be taught by physical education teachers during the basketball

game learning in schools. Even though basketball learning is still a material favored by students, the current condition of physical education, learning for basketball game material has not much developed. Physical education teachers do more monotonous learning methods and tend to do a teacher-centered learning process. For example, the teacher prefers to implement a Regarding the 2013 curriculum concept, physical education teachers must be innovative, provide creative learning, and demand students to be active.

Innovative, creative learning and demanding students to be active cannot be separated from the implementation of learning strategies, which are the tasks of each teacher. By applying the correct learning strategies, the students can become true learners. To create a learning process that focuses on the activities of students as individuals who have a true learning spirit or student-centered learning process, it is necessary for the teacher to apply the learning strategy in the learning process so that students have experience and knowledge of the learning process carried out in school. Learning strategies that can be applied by the teacher are the implementation of learning models. According to and Bruce (2004:7):

Models of teaching are really models of learning, as we help students acquire information, ideas, skills, value, ways of thinking and means of expressing themselves.

Innovative and creative learning requires students to be active is a learning process that can demand the students to think, discuss and decide what has been learned through the application of learning models and media , From many models of physical education learning, there is one model

learning that can require students to play an active role, think, analyze, and decide what to do by the students during learning. From the implementation of this learning model, students can learn independently, and the teacher can develop aspects of responsibility and discipline in his students, namely the Personalized System of Instruction (PSI) learning model.

PSI learning model, according to some research results, is revealed to be the most effective model that can be used in the physical education learning process. Metzler (2005:222) reveals that “...*the PSI and PSI-like techniques were always shown to be at least as effective as other teaching methods, and often more effective*”. Metzler (1986) cited in Metzler (2005:223) stated that “*reported the same positive results for the student process, along with a more important finding that the PSI students had significantly higher learning gains over the students who had direct instruction*”. According to Metzler, cited in Kalaivani (2014:29) “*Personalized system of instruction (PSI) is one of the recent innovations which has been successfully introduced in higher education to individualize instruction. This system of instruction which is person oriented*”. It was revealed that the PSI learning model is the most effective learning model to shape students' chemistry in the learning process.

Student independence can be formed by implementing instructional media that support the learning process such as applying the PSI model. Several examples of media that can support the learning of the PSI model are computers, e-learning systems, or Web-based learning media that are attractively packaged so students are interested to carry out the learning process independently. As stated by

Cregger (1994) cited in Metzler (2005: 223) “...*design an animated PSI-Computer Assisted Instruction (CAI) MODULE for student learning*...”. Cregger's research basically applied the PSI model by utilizing computer-based animation as a learning media, in which the research revealed that the application of the PSI model using computer media was able to help the implementation of learning more effectively, yet the study did not compare the PSI model by using computers with the PSI model by utilizing MODULE or other learning media. Montazer (2009) and Rae et al. (2011) explained that that the Web-based PSI model can be used as an alternative use of learning media by applying the PSI model.

Based on the result of previous research, a research is needed on new variables regarding technology-based PSI learning model that has not been widely developed and applied in Indonesia by implementing the PSI learning model based on multimedia in the form of electronic MODULES.

In the era of globalization, multimedia is not something unfamiliar thing to be applied in the world of education, as well as in the process of learning physical education, especially in learning basic basketball. Currently, the use of multimedia in teaching physical education has not been appropriately applied, due to the lack of multimedia-based learning media defined multimedia as a collection of computer-based media and communication systems that have a role to build, store, deliver and receive information in the form of text, graphics, animation, and video. In developing countries, the application of multimedia has become a common practice in the learning process. After the 2013 curriculum was implemented in Indonesia, the government continued to socialize

physical education teachers to use multimedia as part of the learning process even though it was only limited to the use of YOUTUBE. Undeniably, the current globalization era demands people to familiar with the use of technology as well as in the process of learning physical education today.

Therefore, this research experimented on the application the digital module-based PSI learning model (E-Module) to the basic motion learning process of basketball. This is considered important to do because the condition of physical education learning, especially basketball learning which still tends to be monotonous where students have not actively participated such as looking for learning material about motion, studying motion material, analyzing motion material and deciding what motion material which must be done. During this time, the learning process is still teacher-oriented. In line with technology that continues to grow in this era of globalization, the government has also developed an electronic school MODULE (BSE) program that can be used for the learning process. With the application of a multimedia-based PSI learning model, it is expected that the learning process of physical education in schools will be increasingly diverse and multimedia-based electronic MODULES will be used by students to begin to carry out the learning process with full responsibility and be able to make them active and developing learners from the cognitive, affective, and psychomotoric aspects.

2. Method

The population in this research were the students of SMPN 47 Bandung. The sampling technique used was random sampling technique. This research used the experimental method with the pre-test and post-test in the design group. The number of samples used was divided into two groups: the

experimental group, that was given treatment (implemented Personalized System of Instruction based on digital modules (E-Module) and the control group that was not given special treatment. The scenarios of the learning process carried out in the experimental group and the control group is presented in Table 1.

This research is aimed at determining whether the PSI model based on digital modules (E-Module) can influence the mastery of basic motions in basketball games. The variables in this research consisted of independent variables (X) namely PSI models based on digital modules and the dependent variable (Y) namely the students' mastery of basic motions in basketball games. The data collected were from the students' scores of basic mastery of motion on basketball games. The design of the study is depicted in Figure 1.

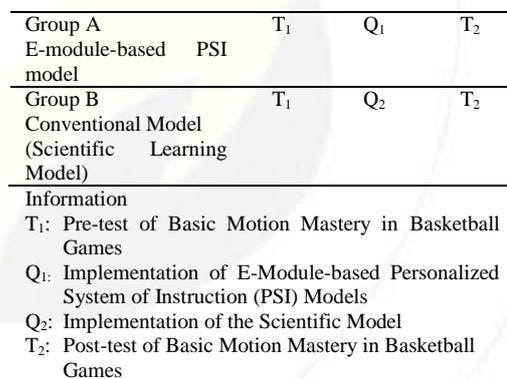


Figure 1. Design of the study

3. Result and Discussion

In the description of the data, the variables in the study were discussed. The first variable was the independent variable (X) that was the PSI model based on digital modules, and the dependent variable (Y) was the basic motions in basketball with the research design using "Pre-test and Post-test Group Design", which was conducted at SMPN 47 Bandung. The samples of the study were students who took basketball learning, with two classes

consisting of 20 people in the control group and 20

to calculate the average and standard deviation. The results are depicted in Table 2 and Table 3.

3.1. Calculating Average and Standard Deviation

After the raw data has been obtained, then the first step that must be done was

Table 1: Experiment Group and Control Group Learning Scenario

| Learning Stages | PSI Model (Source: Mezler, 2015) | Scientific Learning Model (Source: Trilling and Fadel, 2009 cited in Yunus, 2014) |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Initial Activity | <p>First Stage: Starting Class All students get ready to start the class.</p> <ol style="list-style-type: none"> 1. Lining up 2. Praying 3. Checking attendance list 4. Static and dynamic warming up <p>Second Stage: Bringing equipment to Class The teacher brings the equipment needed by students from the inventory room into the field.</p> <p>Third Stage: Dispersing and returning equipment Students take the required equipment</p> <p>Fourth Stage: roll Call (If needed)</p> | <ol style="list-style-type: none"> 1. Students line up 2. Pray Time 3. Checking the attendance list 4. Warming up: static and dynamic 5. Submission of learning objectives and competencies that must be achieved. 6. Submission of the learning process |
| Core Activity | <p>Fifth Stage: Presentation task Students read or understand modules that contain learning material.</p> <p>Sixth Stage: task structure Students organize tasks that will be practiced/learned based on the instructions contained in the module.</p> <p>Seventh Stage: Assessment Students verify and report the learning on their respective modules.</p> <p>Eighth Stage: Monitoring learning progress Students decide whether to continue or remain on the module/unit being studied The teacher monitors students' learning progress periodically in the student module.</p> | <p>First Stage: Asking Questions Students observe certain objects. Based on the observations, students make questions that must be answered through research activities</p> <p>Second Stage: Test Questions Students conduct testing activities on the questions they have made. In this activity, students make or submit a problem formulation.</p> <p>Third Stage: Making Hypothesis Students make temporary answers to the questions they have made, by optimizing students' initial knowledge so that the deductive reasoning process occurs</p> <p>Fourth Stage: conducting experiments Students carry out experimental activities or conduct a series of simple activities. Based on the results of these activities students make a conclusion</p> <p>Fifth Stage: Analyze data and make conclusions Students analyze and interpret the research data. The interpretation of the data can be done by comparing the results of the analysis with the theory/teaching material in the textbook. Then students make one conclusion.</p> <p>Sixth Stage: Creating and communicating reports Students report the results of their research or findings.</p> |
| Final Activity | <ol style="list-style-type: none"> 1. cooling down 2. praying | <ol style="list-style-type: none"> 1. Cooling down, the teacher questions what the benefits are. 2. Reflect on what has been achieved and has not been achieved in accordance with the goals that are generally set and errors that still often arise when conducting learning activities. 3. The teacher informs students, groups or students who are best at their appearance during the learning of soccer games. 4. The teacher assigns students to make conclusions about specific motions Pray is led by one of the students and sends greetings. 5. Students return to the class which is conducted in an orderly manner, and for students who are tasked with returning equipment to its original place. |

Table 2: Average Values and Standard Deviations of Experimental Group

| Types of Tests | Period | Average Score | Standard Deviation |
|---------------------|-----------|---------------|--------------------|
| Basic Motion Skills | Pre-test | 26.9 | 3.91 |
| | Post-test | 35.1 | 4.20 |

Table 3: Average Value and Standard Deviation of Control Groups

| Types of Tests | Period | Average Score | Standard Deviation |
|---------------------|-----------|---------------|--------------------|
| Basic Motion Skills | Pre-test | 26.3 | 3.69 |
| | Post-test | 32.5 | 3.90 |

The data showed that the scores obtained from the sample of the experimental group in the pre-test (initial test) as follows: Number of samples = 20 students, mean value = 26.9, and standard deviation = 3.91. While the experimental group in the post-test (final test) is as follows: Number of samples = 20 students, average = 35.1, and standard deviation = 4.20.

While the control group in the pre-test (initial test) as follows: Number of samples = 20 students, mean value = 26.3, and standard deviation = 3.69. While the Control group in the post-test (final test) as follows: Number of samples = 20 students, average = 32.5, and standard deviation = 3.90.

3.2. Calculating Average and Standard Deviation

After the average value and standard deviation of the experimental group and the control group were obtained, the processed value was then tested for normality test. The normality test itself aimed at finding out whether the data is normal or not. Then the data were tested for the homogeneity test. The following is data on the normality and homogeneity test of the experimental group and control group pre-test.

a) Normality Test

The results of the normality test in the experimental group showed that the pre-test results had L_{count} value of 0.1474, and the results of the post-test had L_{count} value of 0.1064 smaller than the result of the pre-test. From the data above, the L_{crit} value obtained was 0.190. It means that the data distribution of the experimental group was normal because L_{count} was smaller than L_{crit} .

Table 4: Normality Test of Experimental Group

| Type of Test | Period | L_{count} | L_{crit} Table | Result |
|--------------------------------------------------|-----------|-------------|------------------|--------|
| Basic Motion Skills shooting in basketball games | Pre-test | 0.1474 | 0.190 | Normal |
| | Post-test | 0.1064 | 0.190 | Normal |

Table 5: Normality Test of Experimental Group

| Type of Test | Period | L_{count} | L_{crit} Table | Result |
|------------------------------|-----------|-------------|------------------|--------|
| Basic Shooting Motion Skills | Pre-test | 0.1324 | 0.190 | Normal |
| | Post-test | 0.1552 | 0.190 | Normal |

The normality test in this research was done by Liliefors Test approach on pre-test and post-test in the experimental group and the control group. The pre-test score obtained from the control group had L_{count} value of -0.1324, and the post-test value obtained was -0.1552. Both values were lower than the 0.190 L_{crit} . From the data, it can be said that the distribution of data in the experimental group is normal because L_{count} was smaller than L_{crit} .

It can be concluded that the data from the control group has a normal value or normal distribution.

b) Homogeneity Test

From the homogeneity table (Table 6), the largest variant value obtained in the experimental group was 15.6, and the

smallest variant was in the control group at 15.3, the f test approach was 1.01, while the hypotheses were $H_0, \emptyset = \emptyset$ and $H_1, \emptyset \neq \emptyset$. The results above were obtained from the calculation of

statistics $F = \frac{Big\ Variance}{Small\ Variance}$, then proceed with the criteria for rejecting.

Table 6. Homogeneity Test with Liliefors Approach

| Assessment Aspect | Period | Variant | Fcount | Ftable | Result |
|------------------------------|--------------------|---------|--------|--------|-------------|
| Basic Shooting Motion Skills | Experimental Group | 15,6 | 1,01 | 2,21 | HOMOGENEOUS |
| | Control Group | 15,3 | | | |

| Assessment Aspect | Period | Variance | Fcount | Ftable | Result |
|-------------------|--------------------|----------|--------|--------|------------|
| Basic Shooting | Experimental Group | 15.6 | 1.01 | 2.21 | Homogenous |
| Motion Skills | Control Group | 15.3 | | | |

the hypothesis (H_0) if $F > F_\alpha$, The limit of the criteria for rejecting and accepting hypotheses is $dk_{numerator} = n-1$ (20-1) and $dk_{denominator} = n-1$ (20-1) results in 19 and 19 seen from F-table with a value of $\alpha = 0.05$, which is 2.21, because F-count (1.01) < from F_α (2.21). Then the hypothesis was accepted with the conclusion that the data of experimental group and control

group have homogeneity variants.

3.3. Hypothesis Testing Results

This test was conducted to find out whether there was a treatment effect or how big the effect of basketball modification treatment on shooting free throw motion skills. The results are depicted in the following table.

Table 7: Hypothesis testing

| Assessment Aspect | Period | Average Scores | Standard Deviation (S) | t_{count} | T_{crit} | Result |
|------------------------|--------------------|----------------|------------------------|-------------|------------|----------------|
| Shooting motion skills | Experimental Group | 35.1 | 3.93 | 2.0967 | 1.72 | Have an effect |
| | Control Group | 26.3 | | | | |

From the results of the tests, the average value of the experimental group after being given the treatment was 35.1, and the average value of the control group with normal exercise without giving the treatment was 26.3. The standard deviation of the two tests was 3.93, the value of t_{count} was 2.0967 and the T_{crit} value was 1.72. Thus, it can be concluded that H_0 was rejected.

learning using basketball modification has an influence than conventional learning.

From the analysis and calculation results, the average value of the experimental group was greater to the average value of the control group. Because the t_{count} value was greater than the T_{crit} , so it can be concluded that

The implementation of the PSI model allowed students to study independently and they did not wait for instructions from the teacher. This is as expressed by Metzler (2005: 28) that "...PSI enable students to become independent learners and at the same time allowing teachers to use high levels of interaction with students who need it."

Since PSI learning model required students to study independently, the

progress of each student in participating in learning were different. As stated by Metzler & Sebolt cited in Metzler (2005:30) that "...PSI is the progress of students as fast as they can do or as slowly as they need." So, with the implementation of this PSI learning model, the process and hard work of each student while participating in learning were noticeable. Reichman and Grasha cited in Metzler (2005:31) explained that "...PSI will most often work best from students who are classified as avoidant, competitive, or dependent." Metzler (2005:31) revealed that "...PSI will work better for disciplined students and independent students."

Therefore, the implementation of the PSI model shaped and improved students to become more independent in the learning process. Additionally, the PSI learning model made the students more responsible in carrying out the learning process. This is in line with the goal of PSI that students are able to have a sense of responsibility and are able to become independent learners. Kalaivan (2014) described the purpose of PSI as follows:

- a) To form better personal–social relationship in the educational process.
- b) To provide frequent reinforcements for learning.
- c) To provide increased frequency and quantity of feedback to the instructors which the consequent benefit of a basis for meaningful revision in program, content, and instructional procedures.
- d) To reduce dependency on the lecture for presentation or critical information utilizes different techniques for instructional purposes.
- e) To evaluate on the basis of a fixed standard mastery in a variable time period at the acceptable level of performances of the students.

According to Metzler (2005: 28), the objectives of the PSI learning model are as follows is to enable students to become independent learners and at the same time allowing teachers to use high levels of interaction with students who need them.

The learning process that uses the PSI model always provides opportunities and flexibility for students to develop the interests and motivation of students. As stated by Keller and Sherman cited in Hannon et al. (2008), the characteristics of the PSI learning model are as follows:

- a) The capability to view creative and interesting learning materials.
- b) Regular, tangible progress toward course goals.
- c) Immediate assessment of learning.
- d) Individual attention from the teacher.

Opportunities and flexibility of students in developing interest and motivation in each learning process are in line with what is the advantage of the implementation of the PSI model. As for the advantages of the PSI model described by Karen cited in Noviololita (2014) are as follows:

Students argue that with PSI models, they get more information during the learning process. Teachers care about student achievement and expect student participation in learning. Learning materials are perceived to be easier to understand by using the PSI model. Students also have greater responsibility for learning in class. Students play a role in the learning process which is the main control in student success. Students express their responsibilities by completing their assignments in

class. The PSI learning model allows students to have effective time management. In the PSI class, the role of the teacher is not eliminated. In fact, teachers are more involved in the learning process compared to conventional classes because teachers evaluate each student directly, provides material and encourages each student (Karen in Sarji, 2014).

The PSI learning model in this research was carried out by giving a digital-based learning module (E-Module) which was equipped with visual media in the form of pictures and text to convey materials to students. This is in line with Kusnadi (2011: 104) who stated that visual media is the visualization of messages, information, or concepts that want to be conveyed to students and can be developed in various forms, such as photos, pictures/illustrations, sketches/line drawings. Using visual media will affect the learning motivation of students in carrying out the learning process because the learning process will be more interesting and easily understood by students. In addition, Mumtahanah states the benefits of visual media are as follows:

- a) The learning process will attract more students' attention;
- b) Teaching materials will be more easily understood by students;
- c) The learning method will be more varied because the learning process media will not be verbalism;
- d) Students will be able to do activities, because students not only listen but can also observe, demonstrate, portray, and others.

In addition to some of the benefits of visual media described above, visual media also has a role in the learners

memory in understanding the material or information provided. This is in line with the results of research conducted by the Sovocom Company from America (cited in Warsita, 2008:125) which revealed that there is a relationship between the types of media with human memory that is:

.... It was found that memory ability through visual media was 40% while the level of ability to store messages based on visual media was less than three days 72% (Warsita, 2008:125).

From the explanation, it can be concluded that visual media helped the students understand the learning materials easier and attracted their attention because of the images and text that allow students to read and view images at the same time during the learning process. By including visual media in learning, it provided benefits to students including increasing student motivation in following the learning process, making it easier for them to understand and remember the material presented.

In addition to the presence of visual media in the digital module, the E-Module used was also equipped with a video about the mastery of the motion of each material in the basketball game. Indirectly, the PSI model applied in this research utilized multimedia because the E-Module contained several types of media. According to Munir (2015: 2), multimedia is related to the use of learning media more than one type of media in the provision of information. Gayeski (1993) cited in Munir (2015: 2) defines multimedia as a collection of computer-based media and communication systems that have a role to build, store, deliver and receive information in the form of text, graphics, audio, video and so on. It is

supported by Obliger (1993) cited in Munir (2015: 2) defining multimedia as the union of two or more communication media such as text, graphics, animation, audio, and video with the characteristics of the interactivity of the computer to produce an interesting presentation.

The use of multimedia in the learning process must also pay attention to the characteristics of other components used in multimedia such as objectives, materials, strategies, and the evaluation process. According to Daryanto (2016: 70), the characteristics of multimedia learning are having more than one convergent medium, for example combining audio and video elements; interactive, in the sense of having the ability to accommodate user responses; and is independent in the sense of providing ease and completeness of content so that users can use it without the guidance process. In addition to these characteristics, multimedia itself has a function that is able to strengthen the user's response as soon as possible and as often as possible; can provide opportunities for students to control the speed of their own learning, and notice that students follow a clear and controlled sequence.

The use of multimedia in education or in the learning process is one of the signs of the learning process movement from conventional to modern, where the learning process utilizes or involves various kinds of technical elements in it. Similarly, the implementation of the PSI model through the application of digital modules based on Android applications is one proof of the shift in the educational process from conventional learning to the modern learning process. PSI models are also evidence of technological developments in the learning process, especially physical education learning. Technology is currently developing quite rapidly and will continue to grow.

Almost all sectors of life have involved technology in it. Likewise, technology has begun to penetrate and become part of the development of educational science in various developing countries as well as Asian region. The development of technology in the world of education that is widely applied in the learning process is expected to produce a learning process that is more developed and up-to-date. The use of technology in the learning process includes the use of learning videos, electronic modules, the use of technology media in the form of laptops and smartphones. This is in line with Deni (2012: 5) who reveals that there are two advantages that can be obtained from the use of technology in education, namely:

First, as a stimulant of the education community (including teachers) to be more appreciative and proactive in maximizing educational potential. Second, giving students a wide opportunity to utilize every potential that can be obtained from unlimited sources (Deni, 2012: 5).

Technology-based learning has been widely applied in various subjects. Recently, it has also been applied in physical education learning by utilizing various learning videos displayed on laptops or smartphones as one of the technology-based learning media used in the learning process of physical education in schools. The use of multimedia in digital module applications is expected to help students understand and receive information clearly. Rahyubi stated that the stages of information processing that occur in learning processes that utilize both visual and audiovisual learning media are as follows:

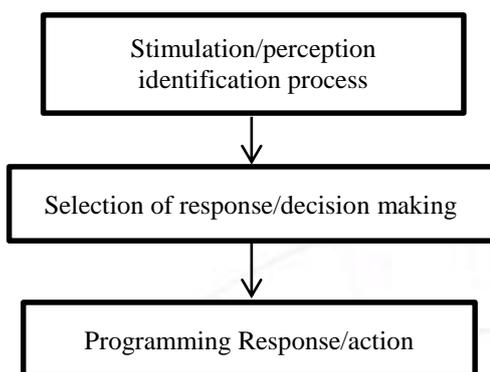


Figure 2. Information Processing Scheme Charts
(Source: Rahyubi (2012: 325))

Rahyubi explained that each of the information processing stages described above is as follows:

The first stage is the stimulus identification process which is also called the perception stage. The second stage is the response processing stage. In this stage, there is what is called decision making. Then, the third stage is the response programming stage. In this third stage, there has been a response or action of a motor learner.

Based on the information of processing theory above, there are several steps that students take to learn action in information processing. The first stage is stimulus identification where students observed the basics motion skills of basketball, which is delivered through audiovisual media in the form of text and video modules. The second stage is response processing where students understand the basics motion skills of basketball and can imagine how the basic movement skills of basketball in the form of passing, shooting and dribble starting from the beginning to the end which is delivered through audiovisual media. The last stage is the response in which students do the process of trying or practicing

the basic motion of basketball delivered by electronic module media.

4. Conclusion

The digital module-based PSI learning model (E-Module) had a very high influence on the improvement of basic basketball skills on students. The results of this research are expected to be able to contribute to the development of education, especially in the process of learning physical education which should begin to develop from the traditional learning process to the learning process that follows the developments in the modern era.

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