Development of Basketball Skills Test Based on Shooting Techniques for Sport Sciences Students

Ibrahim Wiyaka (1)
Sports Coaching Education
State University of Medan
Medan, Indonesia
Ibrahimwiyaka10@gmail.com

Adhikahriani (3)
Faculty of Engineering
State University of Medan
Medan, Indonesia

Nustan Hasibuan (2)
Sports Coaching Education
State University of Medan
Medan, Indonesia

Abstract—Basketball shooting skills test on the existing student and is often used inadequate again so it needs to be refurbished. This research was conducted with the aim of developing an evaluation tool, the new scale of assessment norms basketball shooting skills in students. The population in this study is students Unimed Nikken who are following courses of basketball and the students who have graduated, as well as a basketball player Unimed many as 200 students. Census sampling technique. How data retrieval techniques shooting test (free throw, jump shoot, shoot and lay up). Data were analyzed by the technique: Normality Test, frequency distribution with Chi Quadrat; Test the validity of the technical part and the total; Hoyt reliability test formula, Formulation score scale by using a T score with tables. While the preparation of assessment norms using the mean and standard deposits. The study concluded that: normality test data for all normal frequency distribution; Test the validity of the test free throw high of 0.77, 0.76 test shoot high jump, and shoot lay-up test of 0.70 is high. While the results of reliability test test free throw grains of 0.88 is very high, shoot jump test of 0.80 is very high and shoot lay-up test of 0.83 is very high. Had to development assessment norms basketball shooting tests, including tests each shooting (free throw, jump shoot, shoot and lay up).

Keywords: instruments, test shooting, basketball

I. INTRODUCTION

Teachers as educators must try to develop their competencies in order to achieve educational goals [1]. Physical education in its understanding is a process of education utilize physical activity to produce holistic changes in individual qualities, both in terms of physical, mental, and emotional. Education the body treats the child as a whole, total being, rather than just think of it as someone who is separate physical and quality mentally [2]. Schools are one place in shaping character [3]. On the other hand that training activities are a fundamental factor if you want to get the peak performance. This condition forces anyone who wishes to do performance training exercises to understand the training procedures themselves in order to achieve the expected goals [4]. Education is a basic need of every human being to ensure his life to be more dignified [5]. Improving the quality of human resources is a serious problem from every country including Indonesia [6].

The fundamental problem experienced is shooting skills evaluation tools that exist today are generally applicable and tend to elite athletes, so it needs to be thought of making a suitable instrument for students. Additionally, the existing instrument to the demands of increasingly advanced game started inadequate. Therefore, there should be a study to develop an evaluation tool, scale scores and norms fresh assessment of the test shooting skills in the game of basketball to students. Based on these facts, it is necessary to research on "The Development of Basketball Shooting Skills Test For Student"

For the development of the measuring instrument had been described by Scriven that instrument or measuring instrument must first be calibrated before [7]. Further stated that essentially the same reliability with consistency for reliability [8]. Refers to the consistency with the which a test measures whatever it, s measuring. However, consistent measurement in education can be divided into three terms, namely: 1) the stability, consistency of the results of how many times the measurement, 2) alternate form, the consistency of the measurement results of two or more measuring devices, and 3) internal con sistensi, the consistency of grain question.

II. METHOD

The research was conducted at the Faculty of Sport Sciences, State University of Medan, in August s / d November 2019. Preparation of the samples tested in this study with the Phase I trial phase (pilot small stage) and phase II test (test use) Samples were taken courses basketball as many as 20 students. While the data came from students who have passed the advanced basketball as many as 180 people in 2017 and 2018, so the overall sample of 200 students. The method used in this research is the Research

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and Development (R & D)[9]. The purpose of this development study resulted in a shooting test instrument products. Changes basketball shooting skills studied were composed of: (1) Free throw, (2), Jump shoot, and (3), Lay-up shoot.

The shape of the instrument and the unit of measurement is:

- **Skills Free Throw**, with free throw tests, performed behind the free throw line. Unit of measurement is the sum of the values obtained berdaskan ball into the ring for 1 minute.
- **Shoot Jump skill**, the jump test shoot, done outside the lines started dribbling from three-point range, then jump shoot in the area as far as the free throw line. Unit of measurement is the sum of the values obtained by the ball into the ring for 1 minute.
- **Skills Lay Up Shoot**, shoot the lay-up tests, carried out starting with dribbling from the outside of the three numbers, then lay up shoot, unit of measurement is obtained based on the value ball into the ring for 1 minute.

To analyze the data that has been collected using analytical techniques as follows:

- **Normality test data** with the frequency distribution Chi Square technique [10].
- **Test the validity of the content validity**, which s based on logical validity and statistical validity. Test the validity of the test items with a total engineering section [11]
- **Reliability test instrument** with Hoyt formula [11]
- **Preparation of assessment norms** by using mean and standard deposits. Conditions of acceptance and rejection at the 5% significance level

### III. RESULTS AND DISCUSSION

From the results of tests conducted on all students in long jump athletes, using sensors on the long jump, it is very effective and can help the jury to see the success or not jumping every athlete. In addition, the sensor is also in accordance with advances in digital technology so that it is more relevant.

Data obtained from this study is a secondary data gathered from the results of a test of skill shooting since 2016 and 2019 consisting of three test items, namely: (1) Free Throw, (2) Jump Shoot, and (3) Lay Up shoot. The results of the data analysis are presented as follows:

- **Overview summary of the minimum, maximum, mean and standard deviation of test result**

| Type of Shoot | N | Min | Max | Mean | Std Dev |
|---------------|---|-----|-----|------|---------|
| Free Throw    | 200 | 16  | 29  | 19.0900 | 1.98788 |
| Jump Shoot    | 200 | 7   | 13  | 9.1300  | 1.22499 |
| Lay Up Shoot  | 200 | 7   | 13  | 9.3850  | 1.27472 |
of 1.98788. Based on these results can be arranged free throw assessment norms as follows:

| TABLE VI. NORMA RATE FREE THROW |
|----------------------------------|
| Category | Code | Raw Score |
| Very good | A   | > 22     |
| Good      | B   | 20-21    |
| Moderate  | C   | 18-19    |
| Less      | D   | 16-17    |
| Ver less  | E   | < 15     |

2) Jump Shoot
Jump test shoot is standing behind the three-point shot line then dribbling the ball to the limit mark ditentukan then melompat then do the shooting. For 1 minute. Figures recorded is the number of balls into the ring. The results of data analysis on a T score shoot jump test items for students obtained the lowest value and the highest value 7 13 average 9.3850, and a standard deviation of 1.22499. Based on these results can be compiled norm shoot jump votes as follows:

| TABLE VII. NORMA RATINGS JUMP SHOOT |
|-------------------------------------|
| Category   | Code | Raw Score |
| Very good  | A    | > 13      |
| Good       | B    | 11-12     |
| Moderate   | C    | 9-10      |
| Less       | D    | 7-8       |
| Ver less   | E    | < 6       |

3) Lay Up Shoot
Lay Up Shoot test is to stand behind the line of three-point shots, then dribbling followed-step jump up and down, shoot for 1 minute. Figures recorded is the number of balls into the ring. The results of the data analysis T scores on the test items Lay Up Shoot for the students obtained the lowest value and the highest value 7 13 average 9.1300, and a standard deviation of 1.22499. Based on these results can be compiled norm Lay Up Shoot ratings as follows:

| TABLE VIII. ASSESSMENT NORMS LAY UP SHOOT |
|------------------------------------------|
| Category       | Code | Raw Score |
| Very good      | A    | > 12      |
| Good           | B    | 10-11     |
| Moderate       | C    | 8-9       |
| Less           | D    | 6-7       |
| Ver less       | E    | < 5       |

The validity of the test instrument basketball shooting skills in students is valid and reliable.
Based on statistical calculation of the validity of the test instrument, known to have a high degree of positive correlation, so the instrument is valid and can be used to capture data on a wide scale. Based on analysis of these factors can be concluded that these instruments have a good construct validity, meaning that the instrument can be used to measure in accordance with defined symptoms.

Preparation of a scale score basketball shooting skills implemented by changing the rough numbers of each item into a score T. Further tests prepared an assessment norms based achievement test shooting skills by way of summing a T score of 3 samples of the tests performed. Based on the frequency distribution of the number of T score of each sample, grouped into "Very Good", "Good", "Medium", "Less" and "Less than once".
Preparation of assessment norms of the individual test items, Namely: Free Throw, Jump shoot, and lay up shoot.

IV. CONCLUSION
Testing shooting skills with technical free throw is with the validity 0.77 and reliability of 0.88, Test shooting skills to shoot jump technique is the reliability of the validity of 0.76 to 0.80, Test shooting skills to shoot a lay-up technique is the reliability of the validity of 0.70 and 0.83. recommendation are:
- Students can train longer free throw shooting technique, jump shoot, as well as the lay-up shoot
- The other lecturers can develop test instrument for other sports.

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