Developing Physical Fitness Test Parameter for Students with Speech Impaired Aged 13-15 Year Old

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Abstract—Physical fitness is a very fundamental need for all people, includes students with special needs. With good physical fitness, it will make students easier to carry out activities optimally. Physical education curriculum of normal students compared to students with special needs is essentially same, but there is main distinction in the evaluation process because it is viewed from different characteristics and physical needs. Speech Impaired students are kind of students with special needs who have obstacle in speaking or communication ability with others so that their persepctional in receiving information is constrained. However, compared to other extraordinary students, Speech Impaired students's movement develop faster. The parameters test of physical fitness to Speech Impaired students (TKJI-T) was designed to evaluate the physical fitness for Speech Impaired students of 13-15 years old by making parameters according to the needs, abnormalities and characteristics of the students. The items used in TKJI-T include (1) sprint 50 m, (2) pull up, (3) sit up, (4) vertical jump, and (5) 1000-meter run for male and 800-meter run for female.

Keywords—Parameters, tests & measurements, physical fitness.

I. INTRODUCTION

Physical fitness is physical condition which is related with the ability and function in optimal and effective working. According to Trudeau & Shepherd (2005) [1] the excellence of physical education program can help in maintaining body condition which is absolutely positive and increasing physical activities, also it can be human provisions to reach life goals [2]. Intentionally or not, actually physical fitness is one of human needs because physical fitness is completed with human life.

Physical welfare of someone is one of life quality indicators [3]. Physical fitness is related with human activities when they are doing some jobs and moving, someone can be said has a good physical fitness if he or she fill the good physical fitness degree based on the certain parameters [4]. Physical fitness of everyone which is used to move and do some jobs are different, based on moving and characteristics of that one. A good physical fitness degree is very needed for every student [5]. For students, physical fitness is very important to help their growth and development [6]. Physical fitness which is needed for special students is different from normal students commonly because if we see from level of needs are individual and special, include Speech Impaired students.

To recognize and evaluate the level of Speech Impaired students’ physical fitness, we have to do a measurements. The measurements of physical fitness is based on Indonesia Physical Fitness Test (TKJI) as one of the instrument to measure physical fitness level. However, the parameters and physical need are suitable with the characteristics and the Speech Impaired students needs. In physical fitness workshop 1984, TKJI has been agreed and decided as an instrument which is applied in all of Indonesia’s area. The basic consideration is this instrument is arranged with the students of Indonesia’s needs. TKJI is divided into 4 groups of ages, there are 6-9 years old group, 10-12 years old, 13-15 years old, and 16-19 years old.

This research is specified for Speech Impaired students of 13-15 years old. The parameters also be valid for Speech Impaired students of 13-15 years old. So, this parameters cannot be used to measure physical fitness level of Speech Impaired students which are not included based on the groups of ages.

TKJI research on students of 13-15 years old is very good and appropriate to be used in schools and other education institutions, because at that time students be a real one in their schools/institutions. Physical fitness is one of materials which is applied in every level of physical education and sports [7]. From that, we can see what kind of school curriculum which is applied. In the curriculum, it is written that one of speficis goals at physical education and sports is increasing physical fitness. Physical education take an important role in reaching education goals. According to Eurydice report about physical education in Eropa [8], all of countries in eropa realize how important physical education in school. According to Rezaharoon (2013) [9], the development of physical education should consider: 1) basics of development program, 2) growth and


The Novelty of Researches Result

This study was designed on the basis of previous researches, the following were previous researches became a benchmark in designing this study:

1. Research of Dwi Gansar Santi Wijayanti[12]. The instrument was Indonesia physical fitness testing research for junior high school mentally disabled students of 13-15 years old. The tests which was used to find out physical fitness were: 1.) Sprint 50 meter, 2.) Pull Up, 3.) Sit Up, 4.) Vertical Jump, 5.) Run 1000 meter.

2. Fredericus Suharjana’s research[13]. Physical fitness had to be fostered and developed since childhood, because physical fitness was very needed for growth and development. Tests which was used on this research were: (1) normalization (relaxation, extension, strengthening, dan releasing), (2) balance, (3) energy, (4) strolling and running, (5) jumping.

3. Reasearch of Susilodinata Halim[14]. Physical fitness tests which was used in this research were several kinds of physical tests: 1. Run test 2.400m,2. Lan test,3. Stroll test 4.800 m, 4. Run test c. 5. Moving up and down bench (Har, artl sr.: moving up and down benchSharke’ method, moving up and down bench Kash method, 8. Static test according to Astrand, 9. Treadmill test.

4. Novi Setyawan Putra’s research[15] was arrangement of mentally disabled students intrumnt which produced 5 instruments of physical fitness, they were used to determine physical fitness of mentally disabled status. The results of previous research were: (1) speed was measured with sprint 50 meter, (2) strength and endurance of forearm muscle and shoulder muscle used pull up test instruments; (3) strength and endurance of abdominal muscles were measured using sit up 60 seconds; (4) eksplosif power of leg muscles was measured using vertical jump instrument; (5) endurance of lungs – heart were measured using run 1000 m and 800 m test.

From those several test items, they would be reseacher’s references to develop initial product which had been discussed by expert in FGD forum. Total experts who were invited in FGD forum are 3 people, there were: 2 adaptive physical lecturers, 1 physical teacher at SLB.

II. MATERIALS AND METHODS

This research is conducted by using research and development method (R&D) [16]. R&D is a kind of research method to produce certain productand examine the effectiveness of that method. The steps of this developmental research use Borg & Gall model[17]. And data analysis technique uses prosentas descriptive Anas Sudijono [18].

Technique of this research is purposive sampling. This technique examines sample based on selecting characteristics, those are Speech Impaired students of 13-15 years old at SLB.

After doing the analysis, so the researcher conducts the developmental model or product by doing test that have been compiled before. After the model is created then the next step is a test of the variables which already determined by researcher in order to ensure the success of the product that would be created.

This research uses test and measurement design as a trial. The arrange mentof this trial has 2 steps, small group test with 2 different characteristics students, those are normal and Speech Impaired students at SLB Ungaran total 8 students and SMP 22 Semarang total 30 students with time allocation 1 meeting, and big group test at SLB Semarang total 26 subjects with time allocation 1 meeting.

This trial is conducted to reveal the important thing for revision, how effective the product is, and also the benefits of the product which is developed. This trial correlated several subjects, such as: (1) 2 lecturers (adaptive physical expert), (2) 1 adaptive physical teacher, (3) SLB Ungaran students and SMP 22 Semarang students (small group trial) and all of SLB Semarang’s students (field trial).

III. RESULT AND DISCUSSION

The development of initial product was taken from the result of previous studies through interview, review literatures, and FGD (Focus Group Discussion).
Next, after getting information through field trial, the researcher did review literatures related with previous studies and FGD to get more data using previous study of Novi Setyawan Putra 2014 as one of references to arrange TKJI testing parameter for Speech Impaired students.

The previous research was about the arrangement of mentally disabled students’ instruments which produced 5 physical fitness’ instruments to examine the status of physical fitness at mentally disabled students. The result of previous research were: (1) speed was measured with *sprint 50 meter*; (2) strength and endurance of forearm muscle and shoulder muscle used *pull up test* instruments; (3) strength and endurance of abdominal muscles were measured using *sit up 60 seconds*; (4) eksplosif power of leg muscles was measured using *vertical jump instrument*; (5) endurance of lungs – heart were measured using *run 1000 m and 800 m test*.

Those 5 test items were made as references for researcher to develop initial product which was discssued by some experts at FGD forum before. Total experts who invited were 3 people: 2 adaptive physical lectures, 1 physical teacher of SLB.

Product trial in small scale was purposed to examine how effective of utilising product and getting suggestions. Targets of product trial in small scale are 2 adaptive physical expert and 1 physical teacher of SLB also SLB students’ questionnaire result. Below were the result of product trial in small scale.

**TABLE 1. EXPERT EVALUATION RESULT**

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspects</th>
<th>Testing parameters</th>
<th>Scales</th>
<th>Total respondens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Speed</td>
<td>Sprint 50 meter</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Strength and endurance of forearm muscle and shoulder muscle</td>
<td>Pull up test (male)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Strength and endurance of abdominal muscles</td>
<td>Sit up 60 seconds</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Eksplosif power of leg muscles</td>
<td>Vertical jump</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>Endurance of lungs – heart (kardiovaskular)</td>
<td>Run 1000 m (male)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Run 800 m (female)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td></td>
<td>6.67%</td>
<td>33.33%</td>
</tr>
</tbody>
</table>

*Source: Research*

**TABLE 2. EXPERT EVALUATION PERCENTAGE**

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspects</th>
<th>Testing parameters</th>
<th>Scales</th>
<th>Total respondens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Speed</td>
<td>Sprint 50 meter</td>
<td>66.67%</td>
<td>100%</td>
</tr>
<tr>
<td>2.</td>
<td>Strength and endurance of forearm muscle and shoulder muscle</td>
<td>Pull up test (female)</td>
<td>33.33%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pull up test (male) 60 seconds</td>
<td>33.33%</td>
<td>100%</td>
</tr>
<tr>
<td>3.</td>
<td>Strength and endurance of abdominal muscles</td>
<td>Sit up 60 seconds</td>
<td>66.67%</td>
<td>100%</td>
</tr>
<tr>
<td>4.</td>
<td>Eksplosif power of leg muscles</td>
<td>Vertical jump</td>
<td>66.67%</td>
<td>100%</td>
</tr>
<tr>
<td>5.</td>
<td>Endurance of lungs – heart (kardiovaskular)</td>
<td>Run 1000 m (male)</td>
<td>33.33%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Run 800 m (female)</td>
<td>33.33%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Source: Research*

Based on the implementation of product trial about physical fitness’ testing parameter in small scale which include TKJI test instruments categorized Speech Impaired students on the table 6 showed total value of scale 4 (excellent) was 5 with total percentage 33.33%. Whereas, total value of scale 3 (good) was 9 with total percentage 60%. Next, total value of scale 7 (less good) was 1 with percentage 6.67%. So, it can be concluded from small scale trial towards testing parameter of physical fitness (see table 7) about orientation and arrangement of TKJI test instruments categorized Speech Impaired students is significant. We could see from several aspects 1) *run sprint 50 m* with percentage 33.33% was excellent and 66.67 % was good, 2) *pull up with* percentage 100 % was good, 3) *sit up 60 seconds with percentage* 33.33% was excellent and 66.67 % was good, 4) *vertical jump* with percentage 66.67 % was excellent and 33.33 % was good, 5) *run 1000 (male) and 800 m (female)* percentage 33.33 % was excellent, 33.33 % was good, and 33.33% was less good.
IV. CONCLUSION AND SUGGESTION

A. Conclusion

Based on the result above, it can be concluded that testing parameter of Indonesia physical fitness categorized Speech Impaired students of 13-15 years old is significant if it is used for physical fitness testing.

B. Suggestion

Teachers are suggested to use this parameter to assess and evaluate physical fitness of Speech Impaired students during learning process.

REFERENCES