



Development of Assessment Instruments for Tennis Aptitude Tests Using Tonnis Game Methods for Elementary School Students

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Abstract

The current assessment instrument cannot be used to assess objective tennis talent for student in primary school. The aims of this research is to develop the assessment of tennis talent of the primary school students intenship with standardize. The method of this research was used research development with four steps development. The contents validity was analyzed by experts using Aiken's formula, the reliability was analyzed by the experts using Two way Anova and re-analyzed using the Hoyt formula. The construct validity was analyzed using exploratory factor analysis and reliability was analyse using Alpha Cronbach. The result of the validity of the content shows that there was thirty grains which have value > 0.3 with the total percentage of feasibility of 87% means the soft skill assessment instrument was feasible to be used, the result of the reliability based on the expert's test shows the value of 0.82 which means each rater agreed in judging. The KMO results on the instrument test in the Field shows a value of 0.779, $MSA > 0.5$ and Bartlett's test significance of 0.000 this means data was eligible for further analysis. The exploratory factor analysis shows nine factors from 30 statement items. The value of factor loading on each item that existed on each factor is > 0.3 which signify the whole item was valid. Based on the reliability test using Alpha Cronbach obtained value of 0.985 so that the instrument is reliable. The conclusion shows the assessment of tennis aptitude tests for elementary school students that are developed is valid, reliable and worthy to use. This research can be useful for PJOK teachers and tennis trainers as an effort to find potential athletes for tennis.

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INTRODUCTION

Development assessment instrument is an activity to develop an existing assessment instrument to become more qualified. Instruments have a very important role in determining the quality of information for an assessment. The instrument function is to reveal facts into data, so that if the quality of the instrument is used well, then the data obtained is in accordance with the actual facts.

In this study, researchers were interested in the field of tennis. The lack of sports enthusiasts in the tennis in the Elementary School in Jepara Regency become a problem that will be stretched by researchers in this study.

At the age of the elementary school students, tend to like to play in a race situation, this is as revealed by (Husdarta & Kusmaedi, 2010: 88). Through this research researchers want to try to make an instruments to look for potential of tennis athletes through game forms. The form of the game used in this study is a game of tonis.

Tonnis is a sport finding in the form of a combination of badminton with tennis which was introduced by Sri Haryono and Tri Nurharsono, Faculty of Sports Science (FIK) Semarang State University (Unnes). A tonnis game uses small balls and paddles or wooden clubs, played by one or two players facing each other in a rectangular field bounded by the net in the middle by hitting the ball to return the ball to the opponent until one of the players wins the rally and games by obtaining scores according to the regulations applied. The point, the tonnis game is played in almost the same way as tennis. Even tonis can be used as a basic game before practicing tennis, argues Tri Nurharsono (Suara Merdeka: 2006). This is in accordance with Griffin's opinion, etc. (1997: 146) that in teaching tennis, modifications can be made using badminton courts, foam balls, shorter racket and alternative regulations. The tonnis game is played in a square in the same size as the badminton court, which is 13, 40 m long and 6.10 m wide. In the middle section of the field,

the net is 80 cm height and 85 cm height in the net pole. The surface of the field can be in the form of clay, grass or hard field made of cement. Field boundaries are marked with lines as wide as 5 cm or from ropes. Thus, to make the tonnis field does not need a large field or space, such as on a tennis court, it is possible to be held in every elementary school. Through the game the children will be happy when doing the test, so the results can also be maximized.

The results of a preliminary study on three schools in Jepara sub-district, Jepara Regency. The schools are SD Negeri 2 Kedungcino, SD Negeri 4 Kedungcino, and SD Negeri Kauman Jepara. The information obtained is that the physical education teachers do not have standard instruments (valid, relabel, and practical) to analyze ennis potential. To analyze the aptitude tennis students they are still using the manual (conventional) through observation only.

METHODS

The research method used in this research is Gronlund's instrument development method which has been simplified into 4 stages including: 1) test planning, 2) preparation of test items, 3) conducting test tests in the field, 4) administering tests.

The first stage of planning tests includes: setting the objectives tests, creating specification tables, selecting item types tests.

The second stage of the preparation of test items includes: compiling the test, determining the scale of the instrument, determining the score, reviewing the assessment of potential tests by experts. In this study 3 people of experts (two experts in the field of measurement and development of instruments, and one person is the creator of tonis game) on a test item used as the basis for calculating content validity using Aiken's V formula. The results of the reliability assessment of the experts, where the calculation of inter-rater reliability was carried out through the two way ANOVA test procedure using the SPSS 21.0 program. Then it was recalculated

through Hoyt reliability, with an average of three Rater.

The third stage of the implementation of tests in the field. To test the construct validity, the researcher used exploratory factor analysis. After the results of the construct validity are known, then the next step is to conduct reliability testing. The reliability test of the assessment instrument for potential tennis tests, in this study was conducted using Alpha Cronbach reliability test through the SPSS 22.0 program.

The fourth stage is the administration tests, which include: 1) Initial data (specification table, relevant research, tennis aptitude test design). Data collection techniques are obtained through interviews, document studies, and observations. 2) evaluation of the tests developed by testing the validity and reliability of the development test design, 3) revision of the design of the tennis aptitude test.

RESULTS AND DISCUSSION

The results of the preliminary study conducted by researchers using the method of observation, interview, and document study in August 2016 at SD Negeri 2 Kedungcino, and Kauman Public Elementary School in Jepara Regency, do not have a standard assessment to assess the Tennis Aptitude Test for Elementary Students, the existing assessment is still a simple and comprehensive form, this is because the Tennis Aptitude Test for Elementary School Students is not taught specifically to students but is inserted in PJOK subjects, then not only that, the assessment of Tennis Aptitude Tests for Elementary School Students is also not specific are carried out, but in each value collection becomes an assessment material.

Observation results: Based on the results of observations made to observe how the form of assessment used by the teacher is inside the class lesson, it showed that the assessment of the Tennis Aptitude Test for Elementary School Students was done using an observation sheet in the form of a check list which was used to measure Tennis Aptitude Test for Elementary

School Students when practicing tennis otherwise when learning in the classroom the teacher performs an assessment using a checklist sheet and also educator notes inside and outside the classroom containing information on observations of students relating to the Tennis Aptitude Test for Primary School Students. Assessment is carried out during the learning process. Existing assessments are still in the form of simple and not yet equipped with scoring techniques, assessment rubrics and have not been tested for validity, reliability, and feasibility so that the assessment of Tennis Aptitude Tests for Elementary School Students cannot yet provide an objective assessment guide to users and the results of the assessment are also done less able to provide an authentic Tennis Aptitude Test for Elementary School Students.

Based on the analysis in the field, researchers developed an assessment instrument of tennis aptitude tests which were then reviewed by experts. Aiken's coefficient ranges from 0-1, for content validity test items of 0.73 (item 1), 0.63 (Item 2), 0.73 (Item 3), 0.82 (item 4), 0.92 (Item 5), 0.91 (Item 6), 0.82 (item 7), 0.86 (item 8), 0.83 (item 9), 0.92 (item 10), 0.83 (item 11) 0.67 (item 12), 0.72 (item 13), 0.63 (item 14), 0.83 (item 15), 1.00 (item 16), 0.92 (item 17) , 1.00 (item 18), 0.92 (item 19), 1.00 (item 20), 0.72 (item 21), 0.89 (item 22), 0.73 (item 23) 0.62 (items 24), 0.73 (items 25), 1.00 (items 26), 0.82 (items 27), 1.00 (items 28) 1.00 (items 29), and 0.62 (item 30). The results of expert validation on the Tennis Aptitude Tests for Elementary School Students were analyzed using Aiken V indicate that all aspects considered to have Aiken coefficient (> 0.30), meaning that the initial assessment meets the desired validity number and can be used in product trials in the field.

After validating the contents of the experts, the next analysis is to calculate the results of the reliability of the assessment. The results of the assessment given by experts on the feasibility of assessing the tennis aptitude test that contains several aspects of assessment. Through the two ways anova test procedure using the SPSS 21.0 program shows that the

content of the assessment gets a percentage of 85%, linguistics gets a percentage of 83%, and the overall view gets a percentage of 88%, then obtained a total percentage of 87%, thus the percentage of the total results of the feasibility test are classified high percentage so that tennis aptitude tests are said to be very feasible and can be used eventhough with a slight revision. Reliability test results are calculated again through reliability Hoyt. The results that are calculated using the Hoyt formula, produces reliability coefficient value of 0.82 means that among rater assess agree on the suitability of the content and this also indicates that the scores given by each rater are consistent.

Through the experts' review there were several inputs from the validator, including:

1. Please clarify some terms (terminology),
2. correct the structure of language in the statement sentences in the assessment format, grid and assessment rubric

The inputs above are used to revise the instrument.

Furthermore, the revised test instrument was tested in Kauman Public Elementary School class II as many as 30 students. During the field trial, the researchers asked for assistance to the practice land supervisor consisting of 4 sport teachers in the assessment process for tennis aptitude tests.

Based on trials in the field, the data will then be analyzed to determine the construct validity of the test instruments that have been developed. Based on the data that has been analyzed using the exploratory factor analysis approach, the resulting data is feasible or can be continued to be tested for validity if it meets the KMO MSA requirements ≥ 0.5 , and the factor load correlation value has a correlation coefficient of > 0.3 . The following are the results of the feasibility test assessment in the field. Based on the results of the field trial analysis shows the KMO and Bartlett's numbers are 0.779 with a significance of 0.000, then the existing indicators and samples actually meet the criteria and can be further analyzed, First of all to prove and to see the correlation of existing

items we need to see the results of analysis. anti - Image Matrics. The following are the results of Anti Image Correlation: for the fitness test category (0, 768a), tonic skill treatment (0, 781a), tennis skill treatment (0, 811a), and tennis skill test (0, 754a). Based on the results of the Anti Image Matrics, especially at the bottom of the Anti Image Correlation a number of numbers that form a diagonal (MSA) marked "a" (diagonal direction from top left to bottom right), there is no correlation indicator below 0.5, so the results of this assessment analysis already fulfilled the requirements for factor analysis.

The next step is to see how many factors might be formed in factor analysis. After an exploratory factor analysis with the help of SPSS version 22.0, the Total Variance Explained data is generated as follows: The results show there are 2 factors that are formed and can represent the number of indicators. From the 30 items which have been analyzed there are two factors that have the initial eigenvalues value above 1. That means, 30 items can be grouped into 2 groups of factors. factor 1 has a value of 21.00 and is able to explain variance of 70.00%, factor 2 has a value of 4.957 and is able to explain variance of 16.525%. Thus both factors can explain the variance of 86.532%. Grouping items into factors can be done by see the following RotationComponenMatrix results:

1. Factor 1, there are some items that have the highest loading factor at factor 1 and low on other factors, that is the item implementing a good training program (0.780), carrying out a good forehand volleyball training program (0.814), implementing a good backhand groundstroke training program (0.818), carrying out tonnis rally and game program (0.843), Implementing a good volley backhand training program (0.849), conducting a aptitude test with confidence (0.874), implementing a tennis rally and game program (0.875), implementing a good serve training program (0.878),

carrying out a groundstroke training program (0.886), carrying out a good forehand groundstroke training program (0.890), performing a maximum forehand volley test (0.90), implementing a good volley backhand training program (0.902), doing backhand Volley test with a maximum (0.908), implementing a maximum serve test (0.914), implementing a good forehand volley program (0.916), implementing a good backhand groundstroke training program (0.928), implementing a maximum backhand groundstroke test (0.937), implementing a maximum forehand groundstroke test (0.940). The value of construct validity factor 1 is 0.792.

2. 2. Factor 2, items that have the highest loading factor with a factor 2 and a low loading factor value on other factors, that is, speed throw test according to the instructions properly (0.773), do the maximum sit and reach test (0.812), do the maximum Standing Broad Jump Test (0.848), do a good sit and reach test according to the instructions (0.852), complete the spider test with a maximum of the specified time (0.864), complete the maximum speed throw test according to the time specified (0.868), do a good sit-up test according to the instructions (0.882), do a good spider test according to the instructions (0.889), do a good standing broad jump test according to the instructions (0.899), complete the maximum sit-up test accordance with the time specified (0.904), do the maximum medicine ball test (0.907), do the good medicine ball test according to the

instructions (0.913). The value of construct validity factor 2 is 0.611.

After the result of the construct validity has been found out, the next step is to conduct reliability testing. The reliability test of the assessment instrument for tennis aptitude tests in this study was conducted using Alpha Cronbach reliability test through the SPSS 22.0 program. The following is the results of the reliability test obtained which is a value of 0.985, which means the assessment of tennis aptitude tests for elementary school students is consistently used in assessment.

CONCLUSION

The conclusion of this development research that has been done is as follow:

Preliminary study obtained data that the implementation of tennis aptitude search for elementary school students is still constrained by assessment instruments that are not standard. The difference in the assessment indicators of tennis aptitude tests for each teacher has the effect of being less effective in assessing the potential of students in the field of tennis. Assessment instrument for tennis aptitude tests in the form of a guidebook. The guidebook consists of a description of the assessment of the implementation of tennis aptitude tests (fitness test, tonic skill treatment, tennis skill treatment, and tennis skill test), assessment objectives, grids, assessment rubrics and observation sheets. Instruments that have been tested and final revised. Validation of assessment instruments was carried out through content validity and construct validity tests. The assessment results obtained from content validity and construct validity stated that the assessment of the tennis aptitude test was suitable for use as a form of assessment.

To see the consistency of the assessment of tennis aptitude tests, were carried out the tests of content reliability and reliability in the field. In content reliability, based on the results of the analysis conducted by the researcher obtained reliability coefficient value of 0.81, this means that the three experts are consistent in assessing

the assessment. The results obtained from the reliability test in the field obtained a value of 0.985 which means the assessment of tennis aptitude tests for Elementary School students are consistently used in assessing and having high stable quality

Based on the results of the development of the assessment of tennis aptitude tests, there are 30 test items that can be used to measure the tennis aptitude test for elementary school students complete with an assessment rubric and easy to understand scoring techniques. This assessment can provide information about how well the abilities possessed by each student in a tennis game. Not only that, the purpose of this assessment is to facilitate PJOK teachers in assessing Tennis aptitude Tests for Elementary School Students so that the assessment results can be used by trainers and teachers to provide feedback that is appropriate to the conditions of each student so that the Tennis Aptitude Test For elementary school students will become better in the future.

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