Original Article

Instrument for Assessing Basketball Skills in Junior High School Students in Indonesia

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Abstract:
Basketball is a very technical sport that requires good physical condition. A talent skills assessment instrument specifically created for high school basketball players is critical to advancing their growth in Indonesia. The aim of this research is to design, create, and evaluate the validity of a skills evaluation instrument specifically created for junior high school basketball players in Indonesia. For this development research design, junior high school basketball players who had completed the training programme were selected as samples. Coefficient alpha analysis was used to assess the validity of the instrument, and the results were very encouraging. The alpha coefficient of all items is close to or equal to 1.00, which indicates the validity of the proposed evaluation instrument is very good. With the help of this evaluation instrument, athletes can be grouped based on their skill level and carry out talent evaluations more successfully. This makes it easier for coaches and team leaders to create training plans that are more focused on the skill areas that each athlete needs to improve. As a result, this assessment instrument is useful for individual and collective team growth. The findings of this research demonstrate the reliability of the development instrument created and its potential to improve the training and growth of junior high school basketball players in Indonesia. By utilising these assessment techniques, we can ensure that coaching efforts concentrate on the unique needs of each athlete, resulting in better results in the game of high school basketball. However, these findings also point to a number of topics that require further investigation. Future research could look at larger samples and include additional elements such as athletes' physical, mental, and social conditions for a more thorough examination. In this way, we can understand more deeply the elements that influence the abilities of junior high school basketball players. The skills evaluation instrument created specifically for junior high school basketball players in Indonesia has good validity. This can be a useful tool to increase athlete growth and develop basketball in Indonesia.
Keyword: basketball, assessment, skills, junior high school

Introduction

Basketball is a popular team sport where two teams compete on the court, and the main goal is to enter the basket and prevent opponents from entering the basket through individual or group actions (Marios et al., 2020). One of the most popular sports in Indonesia is basketball, which has extraordinary potential for developing outstanding athletes. It is critical for coaches to have efficient assessment tools to evaluate and develop athletes' skills in order to realise this potential (Cushion et al., 2012). There are many factors that can influence sports performance, both in terms of training management or teaching, application of methods, technical, physical, tactical and mental training (Setyawan et al., 2023). Perspective on the directed use of basketball elements for the formation of motor skills and student skills based on the level of physical development (Shuba et al., 2018). Starting from standardised assessment tools to measure movement abilities (McKeown et al., 2014), psychological assessments (Everhart et al., 2020), sports-specific technical skills (Koopmann et al., 2020), academic improvement (Rozali et al., 2022), and the athletic performance of athletes in

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games or competitions (Röthlin et al., 2016). However, currently available assessment tools are not sufficient to meet the needs of Indonesian middle school basketball players.

Examining the body of knowledge regarding the development of skills evaluation tools for junior high school basketball players and finding knowledge gaps that can assist in creating evaluation tools specifically for junior high school basketball players in Indonesia. The creation of tools that can measure these abilities became necessary due to the scientific community's concern about the tactical abilities of basketball players involved in collective invasion sports (Júnior et al., 2021). Additionally, junior basketball players should concentrate on honing these skills and apply other training techniques in drills that mimic single or group offensive performances with the cooperation of two or three players (Abdulamir & Kazem, 2022). Coaches must also apply a sense-of-play approach when instructing the game. This method emphasises students' initial exposure to play scenarios that are modified to foster a sense of play (Brooker dkk., 2000). Recently, it was found that high-intensity activities such as sprinting and high-intensity running appeared to increase the acceleration/deceleration ratio in consecutive games and across games in elite junior basketball players (Portes et al., 2022). Young basketball players' physical-motor indicators and specific skills after periodization training reveal that, in addition to specific technical skills, strength, agility, and speed are essential for basketball athletes to perform well (de Assis Lauria et al., 2021) and offensively junior basketball skills (Abdulamir & Kazem, 2022).

The Basketball Offensive Game Performance Instrument (BOGPI) is a feasible and accurate tool for evaluating the offensive performance of individual basketball players (Chen dkk., 2013). A useful instrument for evaluating the game of basketball is the Basketball Game and Learning Assessment Instrument (BALPAI), which evaluates the decision-making, technical execution, and efficacy of the game of basketball (Ibáñez et al., 2019). The Basketball Concentration Survey (BCS) is a reliable and valid technique for determining how focused basketball players are during a game (Bergandi et al., 1990). This research intends to develop a skills assessment tool specifically designed for Indonesian junior high school basketball players in this situation. This evaluation instrument is intended to help coaches and sports trainers track the progress of young athletes, discover their unique strengths and limitations, and create more productive training plans (Bayu et al., 2020).

Coaches must be able to assess junior high school basketball players' abilities methodically and objectively in order to develop more efficient and targeted training regimens. The general development of Indonesian junior high school basketball players and the level of competition in the sport are also anticipated to enhance as a result of this evaluation method. Existing research on skills assessment instruments for junior high school basketball players is supportive of the creation of such instruments throughout Indonesia. To identify the crucial abilities for Indonesian junior high school basketball players, however, and to develop methods that are suited for the local environment and culture, more research is required.

Materials and Methods

The development of a basketball skills evaluation instrument is investigated in this study using a research and development methodology. The major goal of this study is to develop and assess the reliability and validity of a basketball skills evaluation tool that was built specifically for Indonesian junior high school students.

The purposive sample method will be used in this research to select junior high school basketball players. The selection of participants will depend on how actively they participate in basketball practices and competitions. Middle school basketball players aged 10 to 14 years were used as subjects of investigation and development in this research. This research uses a gradual research methodology and conducts product design field tests. Ten UNP Laboratory Middle School athletes took part in small-scale trials before large-scale trials with 30 Al Azhar Padang Middle School athletes. The following information on age, weight (BB), height (TB), and body mass index (BMI) of participants—30 basketball players—in the age range of 10 to 14 years, as well as the average—is provided in table 1.

Table 1. Sample characteristics

No	Age (years)	Weight (kg)	Height (cm)	BMI
1	12	55	160	21.48
2	11	58	165	21.30
3	10	63	170	21.75
4	13	56	163	21.05
5	12	52	158	20.85
6	11	61	172	21.64
7	10	54	159	21.34
8	14	57	164	21.16
9	13	62	171	21.19
10	12	59	166	21.44
11	11	53	157	21.52
12	14	64	173	21.39
13	10	58	165	21.30

14	12	61	172	20.58
15	11	55	160	21.48
16	13	56	163	21.05
17	14	54	159	21.34
18	12	62	171	21.19
19	11	59	166	21.44
20	10	63	170	21.75
21	13	52	158	20.85
22	12	57	164	21.16
23	10	64	173	21.39
24	11	58	165	21.30
25	14	55	160	21.48
26	13	61	172	20.58
27	12	56	163	21.05
28	10	53	157	21.52
29	14	62	171	21.19
30	11	59	166	21.44
Mean	11.9	57.7	164.3	21.25

To discover related components and best practices, an extensive analysis of current basketball skill assessment tools will be conducted. To create a customised instrument for junior high school players, experts in basketball training and skills assessment (lecturers, regional and national coaches, and senior athletes) will be contacted. Through validity tests involving sports professionals, coaches, and athletes from various levels, data will be collected. An assortment of prospective skills evaluation items will be created after professional review and collaboration. Questionnaires and feedback forms will be used to collect data during small and large-scale trials testing the instrument. The resulting data will be evaluated to select test questions and create athletic talent standards. So, for middle school athletes, we recommend a basketball talent detection test.

Several articles use research and development techniques to create skills evaluation tools for basketball players. A multiple intelligence-based performance assessment tool was created by Huda et al. (2022) with an emphasis on content and construct validity as well as examining model fit and item fit using IRT (Rahmadani et al., 2020) used research and development techniques to create a basketball passing model with a play approach. They validate their tools using expert evaluations and statistical tests. Hamidi (2018) attempted to create a basketball-skills learning model through research and development, evaluating its efficacy through surveys and performance instrument tests. Through development research, Sofyan dan Budiman (2022) want to improve the teaching of basketball jump shots. They do this by using assessments from experts, coaches, and athletes. This paper shows how to build a skills evaluation tool using research and development techniques.

Results

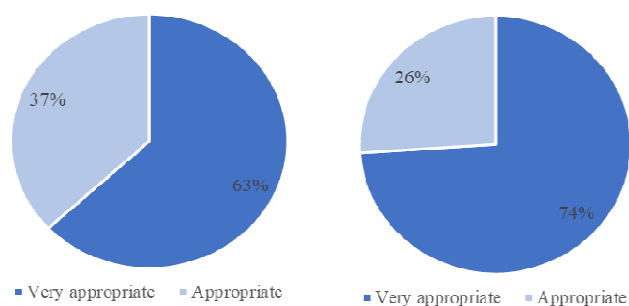The evaluation percentage results are shown in Figure 1 below.

Figure 1. Percentage diagram of small-scale trial results

Based on the results of small-scale tests on products being developed, the total score of 90 (37%) samples stated they were appropriate, while the score of 150 (63%) of the other samples stated they were appropriate. very suitable, it can be concluded that the results of the talent identification instrument for basketball players aged 10 to 14 years are easy to understand and put into practice by the test subjects with several recommendations and comments. These larger trials were conducted after small-scale trial product changes. The results of large-scale research are used to obtain suggestions and opinions for product improvements before efficacy tests are carried out. Conclusion: Based on the findings of the large-scale trial assessment of the product being developed, which shows a total score of 125 (26%) of the sample stating it is appropriate, and a value of

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355 (74%) of the sample stating it is appropriate, Other samples stated that it was very accurate, so it could be said that the results of the development of a basketball talent identification instrument that was 10–14 years old could be said to be easy for testees to understand and implement with several suggestions.

All identification test items used in this study produced alpha coefficients close to or equal to 1.00, which indicates strong validity. This shows that the tool is accurate in measuring various research factors. This study uses the categories Very Talented (VT), Talented (T), Quite Talented (ST), Less Talented (LT), and Not Talented (NT) to measure several variables in each effectiveness test item. The identification test instrument has great validity, and the effectiveness of the test has led to the distribution of participants into several defined ability categories, in accordance with research findings. The validity of the identification test and efficacy test instruments in athletes aged 10 to 14 years was tested, and the findings are presented in Table 2.

Table 2. The results of testing the validity of the identification test instrument and the effectiveness test

No	Items	Product trials		Test effectiveness		
		r Count	Alpha Coefficient	Mean	SD	Category
1	Height	1.000	1.000	147.55	9.99	VT > 156; T = 156-149; ST = 148-141; LT = 140-133; NT < 133
2	Weight	1.000	1.000	43.85	11.18	VT > 50; T = 50-41; ST = 40-31; LT = 30-21; NT < 21
3	Arm span	1.000	1.000	144.98	9.76	VT > 159; T = 159-153; ST = 152-146; LT = 145-139; NT < 139
4	Fat level	0.940	0.969	8.48	2.42	VT > 6; T = 6-8; ST = 9-11; LT = 12-14; NT < 14
5	Push ups	0.605	0.852	18.48	5.60	VT > 25; T = 24-21; ST = 20-17; LT = 16-13; NT < 13
6	Sit ups	0.376	0.845	19.33	4.44	VT > 24; T = 24-20; ST = 19-15; LT = 14-10; NT < 10
7	Back up	0.719	0.832	27.45	4.57	VT > 28; T = 28-24; ST = 23-19; LT = 18-14; NT < 14
8	Wall sit	0.567	0.708	3.30	1.06	VT > 4.0; T = 4-3.1; ST = 3.0-2.1; LT = 2.0-1.1; NT < 1.0
9	Reaction speed	0.853	0.920	0.27	0.04	VT < 0.17; T = 0.18-0.23; ST = 0.24-0.29; LT = 0.30-0.36; NT > 0.36
10	Balance	0.405	0.951	486.75	97.32	VT > 5.51; T = 5.50-4.56; ST = 4.55-3.60; LT = 3.59-2.65; NT < 2.65
11	Cross over dribble	0.571	0.892	2.05	0.43	VT < 1.10; T = 1.10-1.50; ST = 1.51-1.91; LT = 1.92-2.33; NT > 2.34
12	Reverse dribbles	0.386	0.894	2.60	0.99	VT < 1.34; T = 1.35-2.39; ST = 2.40-3.44; LT = 3.45-4.49; NT > 4.49
13	Chest passes	0.826	0.876	35.80	6.27	VT > 44; T = 43-39; ST = 38-33; LT = 32-28; NT < 28
14	Bounce pass	0.567	0.987	37.10	6.96	VT > 41; T = 40-37; ST = 36-33; LT = 32-29; NT < 29
15	Multistage fitness test	0.711	0.831	57.23	6.38	VT > 6.4; T = 6.3-5.6; ST = 5.5-4.9; LT = 4.8-4.2; NT < 4.2
16	Soken test	0.375	0.838	4.85	0.83	VT > 6; T = 5.9-5; ST = 4.9-4; LT = 3.9-3; NT < 3
17	Sit and reach	0.630	1.000	37.98	6.30	VT > 44; T = 44-40; ST = 39-35; LT = 34-30; NT < 30
18	Free throws	0.382	0.846	5.45	0.93	VT > 6; T = 5; ST = 4; LT = 3; NT < 3
19	Run 30 meters	0.502	0.852	4.46	0.11	VT < 4.28; T = 4.29-4.42; ST = 4.41-4.56; LT = 4.57-4.60; NT > 3.60

Note: Very Talented (VT); Talented (T); Simply Talented (ST); Less Talented (LT); Not Talented (NT)

Discussion

Through this research, we hope to evaluate basketball abilities in children between the ages of 10 and 14. This assessment tool was tested in small and large-scale studies, with an emphasis on how well the test subjects understood and used basketball tools and what, if any, product adjustments are required as a result of previous research findings. In small-scale testing, it was found that 90 (37%) samples stated that this evaluation tool was appropriate, while 150 (63%) other samples stated that it was completely appropriate. These findings indicate that the majority of test takers quickly understood and used the talent identification assessment tool for athletes between the ages of 10 and 14. This suggests that this evaluation tool has the potential to help identify basketball skills in this age group.

The research continued with large-scale experiments after modifying the product in response to the findings of small-scale trials. At this stage, suggestions and opinions regarding additional adjustments needed are gathered using the findings of large-scale studies. Based on the findings of large-scale trials, 125 (26%) samples stated that this talent identification assessment instrument was suitable, while 355 (74%) other samples stated that it was very suitable. These findings suggest that adjustments based on previous tests have greatly improved the understanding and use of talent identification assessments.

The age range of 10 to 14 years, which is very important for the growth of athletic talent, is the subject of this research. In the growth of sports talent, there is a relative influence of age (Romann et al., 2018). The most promising method for cultivating sports skills is a focused approach to sports domains with diverse playing

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experiences (Stegmann et al., 2021). Additionally, playing practice games is one of the best ways to help children learn the basics of basketball from an early age (Matar & Abboud, 2022). It is widely acknowledged that the most significant environmental factor influencing the development of talented athletes is the individualization approach towards athletes (Siekańska, 2023).

Identifying talent early can give players more time to develop and hone their athletic skills, which can produce more qualified athletes. Early detection of talent can provide more time for improving sporting talent, thereby producing athletes with higher qualifications (Atradinal et al., 2020; Maznichenko et al., 2022). The assumption that talent is a fixed ability that can be identified at a young age, the impact of talent beliefs on athlete development, the various risks involved in talent selection decisions, the obvious biases in athlete selection methods, and the current lack of statistical approaches are just some of the problems in talent identification. Athlete development systems are generally less effective due to short-term priorities, competition between sports for talented athletes, and problems in evaluating past performance to predict future results (Baker et al., 2018). Additionally, a theoretical framework for recognising athletic skills must be created and accepted by everyone (Sharma, 2015). Analysing anthropometric data and physical attributes such as speed, endurance, and flexibility has been used in several studies to establish profiles of young athletes in sports talent discovery programmes (Mat-Rasid et al., 2019). Studies testing the validity of the "coach's eye" during talent evaluation on a group of athletes have also been conducted, revealing that coaches' techniques for identifying talent have limitations (Roberts et al., 2020). This research examines several aspects of understanding and using test subjects for talent identification. Highlighting the value of understanding and application shows that identifying talent is more than just a test; it is also a means of teaching and direction. This emphasises how important it is to ensure that young athletes and coaches can maximise talent identification to enhance their sporting potential.

An adaptive approach to talent identification and development is demonstrated in the product change phase based on feedback from previous trials. This shows how talent identification is dynamic and constantly refined to meet user demands and expectations. Every athlete must be aware of their performance expectations and where they stand compared to their peers. These measurements will show how well the players learn the skills taught and how well the coach carries out the training (Thakur, 2010). In the world of sports, talent development and identification are crucial issues. Targeted exercise can improve performance and change brain chemistry. All team members train and live in the same environment, but some team members perform at a higher level than others. This can be explained by the presence of talent components, including visual information processing and fast working memory, as well as a motivational style that encourages extraordinary achievements (Siddhartha, 2016). In sports, there are often large estimation errors in talent identification and growth. To discover talented athletes, a theoretically and practically useful system has been implemented. With competitive performance as a key indicator and competition success as a motivator of interest in a discipline, competition itself became the main method in a new approach to recognising athlete talent (Harsányi, 1992).

This strategy can result in a talent identification tool that is more accurate and adaptable to changing sports trends and user needs. The process of identifying talent continues. The rate of advancement in a training environment is how talent is determined. There are three stages in the talent identification process: the first stage is for athletes under 12 years old, the second stage is for athletes between 13 and 16 years old, and the third stage is for truly talented athletes who will be placed in the elite class. junior programme (Khanna, 2010).

The findings of this study have a significant impact on the teaching of sports, especially basketball. This talent identification can be incorporated into talent development plans at academic institutions or sports organizations. In this way, the potential of young athletes is recognised in a more systematic and scientific manner, thereby contributing to the development of athletes who are better prepared to compete. The literature on athlete growth and talent identification would benefit from this fresh research input. This research provides fresh insights that can improve and expand our understanding of how to recognise and nurture sports talent, with an emphasis on younger age groups, technology integration, and adaptive methods in tool creation.

The findings of research examining the reliability of identification test tools and the efficacy of tests on various physical traits and basketball abilities are presented in Table 2. These findings reveal important details about the accuracy of these assessment tools in classifying and assessing basketball. the athletic prowess of athletes. The findings showed that each test item had a very high alpha coefficient (1.000), indicating a high level of consistency and the ability to precisely measure relevant physical characteristics and athletic abilities. Test effectiveness is an area where the results are inconsistent for each item. This shows that the test equipment can differentiate the athlete's level of proficiency in each field. The categories "Very Talented (VT)", "Talented (T)", "Simply Talented (ST)", "Less Talented (LT)", and "Not Talented (NT)" are also included in this table. Based on their test results, these findings allow athletes to be categorised into different skill levels.

This examination tests several physical and athletic abilities, including response time, balance, dribbling, height, weight, arm span, body fat percentage, and the number of push-ups and sit-ups. This shows how accurate the tool is at measuring several important components of exercise. The findings of this study have significant consequences for athlete growth. Coaches and training staff can find out the strengths and weaknesses of each athlete in various physical elements and talents by using this test instrument. This allows for the creation of training plans that are specific to each person's needs, helping to improve their performance. Test instruments

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with high alpha coefficients demonstrate consistently accurate measurements. High consistency will reduce the possibility of measurement error, making it an important aspect in determining the validity of an instrument. Future research could refine and evaluate this test instrument further to verify that it is also relevant and accurate in assessing other characteristics that may not have been included in this study, although it has demonstrated strong validity and efficacy in measuring some attributes.

There are several limitations to this research, including: 1) The sample used in this research was only a small number of schools or regions in Indonesia; 2) Even though this research involved junior high school students, the age variation in the 10-14 years range is still quite significant due to differences between schools and regions, so it is possible that the results of this research cannot be fully applied to the entire population of junior high school students in Indonesia. Therefore, the study results cannot accurately reflect the conditions under which participants are likely to play basketball at a particular skill level. 3) Basketball talent evaluation includes various factors, but the instruments created may only address some of these factors. It is possible that we ignore important factors such as physical, mental, and social situations; 4) Even though the assessment tool has gone through validity and reliability tests, some skills may still be difficult to assess accurately using this instrument; 5) Research cannot assess the long-term impact of basketball training programmes; it can only provide a glimpse of a student's abilities at any given moment.

Conclusion

These findings show that the creation of a skills assessment tool specifically designed for junior high school basketball players in Indonesia has had a considerable positive impact. This assessment tool has successfully demonstrated its ability to measure athlete skills well and is appropriate to the relevant athletic context in both small and large-scale trials. This research helps involve athletes in the assessment process and improves their skill development by providing evaluation instruments tailored to the demands and characteristics of young athletes.

The results of this research are very promising for measuring and improving the abilities of young athletes. This instrument has undergone small and large-scale trials, showing good adaptability and receiving positive reviews from test subjects. By concentrating on individual needs and their unique qualities in the context of basketball, this research significantly improves evaluation techniques for the development of young athletes in Indonesia. Therefore, this research has the potential to have a significant influence on how well junior athletes are coached and developed in Indonesia.

Future research could address this issue by evaluating the validity and utility of this instrument at a broader level of education and sport. The effectiveness of this instrument in advancing athlete skill development can also be studied in more depth using a variety of respondents, including coaches, parents, and students. A deeper understanding of the true impact of using these instruments will be gained from long-term research that tracks the progress of athletes' skills over time.The findings of this research have important practical implications for the development of the skills of Indonesian junior athletes. Coaches and educators can use these personalised evaluation tools to identify and measure athlete growth more precisely and holistically. This tool can also help create training plans that are more efficient and specifically meet each athlete's needs. This research can also be a catalyst for the development of more individual and contextual evaluation strategies for developing junior athletes in various sports, which will ultimately help young Indonesian athletes compete on the international stage.

Conflict of Interest – All authors in this study declare that they have no conflict of interest with any party.

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