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Development of Validity and Reliability of Maegeri Basic Technical Skill Test Instrument Based on CGFU-PM 515

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Abstract

Study Purpose: Training models for children must be appropriate because children are an investment in the future progress of sports, activities for children are more appropriate by using play activities because most of the time children are used to play. Play contributes to overall development, the competitive nature of play activities encourages children to realize their maximum abilities. CGFU-PM 515 is a new concept in the field of sports coaching with a high order thinking skills (HOTS) training pattern, namely remembering, understanding, applying, analyzing, evaluating, and creating. The stages of the CGFU-PM 515 concept consist of four stages, namely innovation games, natural games action, coaching approach, and performance & skill assessment. Mawashigeri is one of the techniques in karate sports, if this technique is done well it will get a high score in a match, therefore it is necessary to develop a CGFU-PM 515-based mawashigeru basic technique skill test instrument consisting of elements of skill assessment, soft skills, and performance. **Methods**: This research is a development research, conducted with quantitative and qualitative approaches. This research was conducted in three stages, the first is by conducting a literature review, the second is by conducting validity and reliability tests, and the third is data analysis using the V-Aiken formulation and using the intraclass correlation coefficient (ICC) **Results**: Based on the results of the validity test and reliability test of the mawashigeri basic technique skill test instrument has a high level of validity and has a good level of reliability, the results of the validity test results using V-Aiken obtained a result of 0.99 and the reliability test using the intraclass correlation coefficient test showed a score of 0.801. Thus, the CGFU-PM 515-based mawashigeri basic technique skill test instrument which includes three aspects namely soft skills, skills, and performance can be used.

Keywords: *CGFU-PM 515, Test Instrument, Karate, Mawashigeri, Validity and Reliability.*

INTRODUCTION

Basic karate techniques are an important part for karateka this is because if a karateka masters good basic techniques it will be easier to perform more complex techniques [1]. It is revealed in other studies that a karate athlete to become a kata or kumite athlete must have correct basic techniques, good movement quality which is determined by technical factors, tactics and motoric movement skills [2] [3] [4].

Doing training since children with basic techniques and the application of the correct training program will be able to improve the ability of athletes and can have good technical quality in adulthood [5] [6], the application is directed at mastering the basic techniques of a

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sport in order to develop basic skills and physical in general [7]. Based on some previous research, it is mentioned that the training model for children must be appropriate because children are an investment in future sports progress, activities for children are more appropriate by using play activities because almost most of the time children are used to play. Play contributes to overall development, the competitive nature of play activities encourages children to realize their maximum abilities [8] [9] [10].

Play is a fun activity and an important part of sports activities, this activity not only focuses on movement skills and techniques but involves the brain to think, because involving the brain's ability has the advantage of providing a new thought about the part of the human brain working and paying attention to the natural work of the brain in the process [11]. The importance of the play approach is also in accordance with several previous studies, the crazy ball game training model can affect the interest and motivation of children practicing kumite [12], the karate kids gymnastics learning model used to help students practice karate at SDI At'Taqwa more easily [13].

CGFU PM-515 is a development of the concept of teaching games for understanding (TGfU) [14] [15] [16], CGFU-PM 515 is a new concept in the field of sports coaching with a high order thinking skills (HOTS) training pattern, namely remembering, understanding, applying, analyzing, evaluating, and creating. The stages of the CGFU-PM 515 concept consist of four stages, namely innovation games, natural games action, coaching approach, and performance & skill assessment [17] [18] [19] [20] [21].

This research will focus on developing a CGFU-PM 515-based mawashigeri basic technique skill test instrument, mawashigeri kicks or often called circle kicks [22] [23] are kicks that are often used by athletes in a match because if this technique is done well and has point criteria it will get a high score. Knowledge and understanding of motion must be considered thoroughly so that children can improve the efficiency of technical motion patterns during training. Therefore, it is very important to conduct research to develop a CGFU-PM 515-based mawashigeru basic technique skill test instrument consisting of skill, soft skill, and performance assessment elements because there has been no previous research related to the preparation of these instruments.

Figure 1: CGFU-PM 515

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MATERIALS AND METHODS

This research is a development research, conducted with quantitative and qualitative approaches in the hope of obtaining complete and valid data results [24]. This validity and reliability uses three stages, the first is to conduct a literature review by collecting relevant research sources, and conducting preliminary participatory observation studies to develop tests through articles, journals, and textbooks related to mawashigeri instruments and techniques [25] [26]. The second stage is the validity test and reliability test conducted by 9 expert judgment consisting of 4 lecturers and 5 coaches who have a national coach license, then the expert judgment fills the instrument with delphi technique [27]. The third stage is to analyze the data obtained in the form of quantitative and qualitative results, quantitative data is generated from the results of expert judgment assessments while qualitative data is generated from input and expert judgment suggestions on the instrument developed.

Data Analysis Technique

The validity test uses the V-Aiken formulation, the range of V-Aiken values is 0 to 1, if the V value <0.6 is in the low category, if the V value is between 0.6 - 0.8 in the medium category, if the V value> 0.8 is in the high category, declared valid if V count is greater than V table [28].

Table 1: V-Aiken Formula

$$V = \frac{\sum s}{n(c-1)}$$

$$s = r - lo$$

V is the Aiken scale for which the value will be sought

S is the result of reducing the validator's score with the lowest score

N is the number of validators

C is the highest validity value

Lo is the lowest validity value

Reliability test using intraclass correlation coefficient (ICC) to determine the results of inter-rater reliability or agreement between raters using calculations using IBM SPSS statistics version 22.0 and the results of the analysis are included in the classification of categories, the following classification of categories of interpretation of analysis results [29]. These two methods, the V-Aiken Test for validity and the ICC for reliability, are key elements in ensuring accuracy and feasibility in sports research. They help researchers ensure that the instruments used are trustworthy and provide accurate measurements.

Table 2: Classification of interpretation categories of ICC analysis results

ICC Value	Intepretation
0,00 – 0,50	Poor
0,51 – 0,75	Moderate
0,76 – 0,90	Good
0,91 – 1,00	Excellent

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Data collection using a Likert scale questionnaire with 4 answer options, namely strongly agree score 4, agree score 3, disagree score 2, and strongly disagree score 1 [30] [31], analysis data obtained from expert judgment and qualitative data in the form of input on the instrument developed.

RESULTS

The CGFU-PM 515-based mawashigeri basic technique skill test instrument is reviewed from three aspects of assessment, namely soft skills item 1 through item 12, skills item 13 through item 18, and performance item 19 through item 22.

Table 3: Aspects of soft skill assessment [32]

Assessment Aspect	Description	Grain
Communication	Verbal expressive	1
	Non-verbal expressive	2
	Actively responds	3
	Active in opinion	4
Leadership	Setting an example	5
	Responsible	6
	Able to resolve conflicts or differences	7
	Able to cooperate	8
Cooperation	Social interaction	9
	Not selfish	10
	Helping each other	11
	Able to discuss	12

Table 4: Aspects of skill assessment [33]

Assessment Aspects	Grain	Grain
Good form	A technique that has characteristics that match the effectiveness possible within the framework of traditional karate concepts.	13
Sportsmanship	A component of good form and refers to an attitude of no malice or vengeance, reflected through high concentration to produce high techniques	14
	Describes the power and speed of the technique and the desire to succeed.	15
Resolute spirit	Vigilance (zanshin) is a continuous state of commitment where the participant maintains total concentration, observation, and awareness of the opponent's potential/possibility to counterattack.	16
Vigilance	Executing a technique at the moment when it will be effective produces a large potential effect	17
	Executing a technique at the right distance so as to produce maximum potency effect	18

Table 5: Aspects of mawashigeri performance assessment [34].

Assessment Aspects	Grain
Chudan-no-kamae is a stance/posture that allows for offense, defense, and flexible response to the opponent's movements [35].	19
Lifting the leg from the side in conjunction with hip rotation	20
Lifting the leg from the side in conjunction with hip rotation	21
After kicking retracts to the Chudan-no-kamae position	22

The assessment results were then analyzed using V-Aiken to see the validity of the instrument developed, and using ICC analysis to see the reliability results.

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Table 6: Results of instrument validation using V-Aiken

Grain tir	Penilai																	∑s	n(c-1)	V	Description
	Expert									S											
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9				
1	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
2	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
3	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
5	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
6	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
7	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
8	4	4	3	4	4	4	4	4	4	3	3	2	3	3	3	3	3	3	26	27	0,96	Hingh
9	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
10	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
11	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
12	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
13	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
14	4	4	4	3	4	3	4	4	4	3	3	3	2	3	2	3	3	3	25	27	0,93	Hingh
15	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
16	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
17	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
18	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
19	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
20	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
21	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	27	27	1,00	Hingh
22	4	3	3	3	4	4	4	4	4	3	2	2	2	3	3	3	3	3	24	27	0,89	Hingh

Table 7: Average resultV-Aiken

V	Description
0,99	Hingh

Based on this data, the average value of V count is 0. 99, when using 9 raters with a scale of 1 to 4, the V table is 0. 81. These results indicate that the content validity of the instrument developed is valid and can be used.

Table 8: Reliability with intraclass correlation coefficient (ICC)

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.310[a]	.171	.514	5.099	21	168	.000
Average Measures	.801[c]	.650	.905	5.099	21	168	.000

The table shows that the results of the reliability test with ICC show the average measures point shows a score of 0.801. This score if interpreted in the interpretation of the value of the ICC test results is classified as good.

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DISCUSSION

The basic concept of CGFU-PM development is based on the concept of Teaching Games for Understanding (TGfU), the results of the study found that the third stage of tactical awareness is the starting point in the coaching process, and the sixth stage of performance is the result of a process carried out. Thus, it was agreed that starting from the tactical awareness stage to be explored and studied in depth with a coaching approach. CGFU-PM 515 is a concept of training stages consisting of four stages, namely innovation games, natural games action, coaching approach, and assessment of soft skills, skill performance [17]. This instrument is very important to be developed as the basis for assessing the mawashigeri basic technique skill test because the mawashigeri technique is a kicking technique that is trained to children at the beginning of training [36], besides the play approach is very helpful in understanding techniques and thinking [37] [38] [39].

This research focuses on the soft skill, skill performance assessment stage, namely the development stage of the CGFU-PM 515-based mawashigeri basic technique assessment instrument which consists of three aspects, namely soft skills, skills, and performance assessment. The three aspects were validated by 9 expert judgments consisting of 4 expert judgments in academia and 5 expert judgments in the field of practitioners. After the data is assessed, instrument validation and intraclass correlation coefficient reliability are carried out so that the developed instrument has a high level of feasibility.

The results of the validity test of the average V calculated value is 0.99, when using 9 raters with a scale of 1 to 4 obtained V table is 0.81, thus the validity of the instrument content is declared valid, while the results of the reliability test with the average intraclass correlation coefficient (ICC) measuring points show a score of 0.801, the score if interpreted is classified as good. Practical application in training. Regular Training: Create training sessions that specifically address mawashigeri, where athletes can practice the technique repetitively. Video Analysis: Record training sessions and use video analysis to discuss techniques and provide visual feedback. Directed Sparring: Implement sparring with a focus on using mawashigeri in various combat situations.

CONCLUSION

In this study it was concluded that the validity test and reliability test of the mawashigeri basic technique skills test had a high level of validity and had a good level of reliability, the results of the validity test using V-Aiken obtained a result of 0.99 and the reliability test using ICC showed a score of 0.801. The resulting product is a CGFU-PM 515-based mawashigeri basic technical skill test instrument that covers three aspects, namely soft skills, skills, and performance. With this instrument, it is expected to help trainers and sports instructors in evaluating training programs and planning advanced training programs. Furthermore, with this instrument it can be easier to achieve sports achievements, especially karate martial arts.

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