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THE EFFECT OF HAND-EYE COORDINATION AND CONFIDENCE ON BADMINTON SMASH SHOT

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Abstract. This study aims to determine the relationship between hand-eye coordination and confidence in badminton smash shots. The research methods used are an associative quantitative approach, a survey method with test and measurement techniques while the data analysis technique uses a path analysis approach. The study population is beginner athletes at the Gold Badminton Club and Sarwendah Badminton Club. The sampling technique used with total sampling is that the entire population is used as a sample. Based on the results of the data calculation, the value of $F_{cal} = 4.612$ was obtained and it was known that the significance value (Sig.) in the F test was 0.041. Because $\text{Sig. } 0.041 < 0.05$, it can be concluded that hand-eye coordination significantly affects the skill of the badminton game. For the calculation of confidence, the value of $F_{cal} = 8.587$ was obtained and it was known that the significance value (Sig.) in the F test was 0.007. Because $\text{Sig. } 0.007 < 0.05$, it can be concluded that Confidence (X2) has an effect on the *Badminton* Game smash hitting skill (Y) or means significant. So it can be concluded that based on the output table, the value of the coefficient or R square is 0.141. This value means that the influence of hand-eye coordination (X1) on the smash stroke skill of the badminton game (Y) is 14.1%, while the rest is influenced by other factors. Meanwhile, based on the output table, the value of the coefficient or R square is 0.235. This value means that the influence of Confidence (X2) on the smash hitting skill of the badminton game (Y) is 23.5% while the rest is influenced by other factors.

Keywords: hand-eye coordination; confidence; badminton smash shot



INTRODUCTION

In Indonesia, the sport of badminton has been known to most people from cities to remote villages. This is due to the achievements achieved have reached the world level in various international *events*. Every participation of Indonesian badminton players at the international level is always broadcast by electronic media, especially television which can be watched live during the match. This is one of the things that makes Indonesian people know the sport of badminton.

Based on the achievements of Indonesian badminton athletes, the government pays great attention to the development of badminton sports achievements to be maintained. This is evidenced by the existence of various assistance, both facilities, infrastructure, and funds for the development of badminton sports achievement coaching.

Badminton is a sport played using nets, rackets, and shuttlecocks with varying beating techniques ranging from basic skills to the most complex basic skills. explained that the game of badminton applies to anyone with a single ((Zulbahri & Melinda, 2019) *single*), double (*double*) and with a mixed double. The goal of the game of

badminton is to gain points and wins by crossing and dropping *the* shuttlecock on the opponent's field of play and trying to prevent the opponent from hitting *the shuttlecock* or dropping in the game area itself. So, in this badminton game, athletes can choose to participate in singles, doubles or mixed doubles games. (Gunawan et al., 2017)

The smash *punch* is very dominant used for doubles players because it aims to make an attack or quickly return the shuttlecock to the opponent's area. The goal of the *smash* hit is to speed up the tempo of the game by launching the lowest *shuttlecock* in front of the net (Mauludy & Sartono, 2017b) . In addition, the *smash punch* serves to mess up the opponent's position.

One of the technical skills in badminton is *the smash* stroke which involves eye and hand coordination because the *smash* hit hits an object to a certain target with a fast and difficult to predict the direction of the *shuttlecock*. To be successful in playing badminton, speed, strength, coordination, reaction, instinct, and technical skills are required. (Subarkah & Marani, 2020)

In the movement of *the smash* punch, there are factors that support the



accuracy of the *smash* punch itself, one of which is its relationship with hand-eye coordination. Coordination is a person's ability to control body movements, a person is said to have good coordination if he can move easily and smoothly in a series of movements, the rhythm is well controlled, and can perform efficient movements. So whether or not a person's movement coordination is good or not is reflected in his ability to perform a movement smoothly, precisely, and efficiently. Thus, eye-hand coordination is the ability of a person to perform a movement properly and correctly involving the eyes and hands as the main determinant of the success of a movement. (Muliana et al., 2019)

The results of the study said that there was a positive and significant relationship between eye and hand coordination and the results of smash strokes in badminton. (Mauludy & Sartono, 2017b).

Confidence for beginner athletes must be considered so that in an effort to achieve training targets and achievements, athletes will be more motivated. Confidence is the main capital of a person, especially beginner athletes in achieving achievements. An athlete who has confidence means that

the athlete is strong, and believes in himself in achieving maximum achievements. (Kurniawan et al., 2020)

Smash Skills Badminton

In badminton, there are tools used to hit (rackets) and objects to be hit (*shuttlecock*). Badminton is a sport that uses a tool called a racket and *shuttlecock*, which is played by two people or four players How to play this sport is to hit the *shuttlecock* using a racket with the target passing the net located in the middle of the court. The shuttlecock drop must be right in the opponent's area, and vice versa. (Setiawan et al., 2020)

Basic techniques are the main key in a game and need to be mastered well enough to make the game exciting and even more fun. In the game of badminton, you must master basic techniques, namely racket holding techniques, first or serve techniques, overhead *strokes*, and underhand *strokes*. (Poole, 2009)

Smash is a shot punch where the is hit so fast that the opponent barely has time to act. In the movement of the *smash* punch there are factors that support the accuracy of the *smash* punch itself, one of which is its relationship with hand-eye coordination. (Mauludy &



Sartono, 2017a) To find out how much the influence of arm muscle strength training on the accuracy of *smash* shots in badminton games in male athletes and the influence of arm muscle strength training on the accuracy of *smash* shots in badminton games in male athletes. (Ngenget et al., 2014)

The *smash* hit should ideally hit parallel to the side line but can also hit crosses, the disadvantage of the *smash hit* is that *the shuttlecock* has to go through the middle court where the opposing player can easily return the *shuttlecock* and if the opposing player is in the right position, the opposing player can easily hit the shuttlecock back so as to get the victory.

Hand-Eye Coordination

Coordination is an important movement in learning the elements of skills. In the coordination of biomotor elements that are very intact and perfect, which in its implementation consists of several elements that interact with each other. Coordination is a person's ability to string several movements into one effective movement pattern.

According to Bompa in Oki Candra "*Coordination is a complex motor skill necessary for high*

performance" (Oki Candra et al., 2017).

Coordination is one of the elements of physical conditions that is relatively difficult to define precisely because its function is closely related to other elements of physical conditions and is determined by the capabilities of the system. Coordination is the ability to perform movements of varying degrees of difficulty quickly and efficiently and with full precision". (Tangkudung, 2012)

Coordination is the ability of muscles to control movement precisely in order to achieve one specific physical task. So, coordination is the ability to carry out movements or work appropriately and efficiently. Coordination expresses the harmonious relationship of various factors that occur in a movement. Coordination skills are a good basis for learning skills that are sensorimotor, the better the level of coordination skills, the faster and more effective movements that are difficult to do". According to Frank (2009) (Sukadiyanto, 2011) Skill/ Coordination are the interaction of the central nervous system and the muscle system with in a movement process we can differentiate between intramuscular and intermuscular coordination".



Coordination is the ability of the body to perform various kinds of movements in a systematic and continuous movement pattern or something that expresses the harmonious relationship of various factors that occur in a movement". Abilities determined by the process of controlling and regulating movements. (Anggara, 2017)

Coordination is defined as the harmonious relationship of mutual influence between muscle groups during work, which is demonstrated by different levels of skill. This coordination is very difficult to separate in real terms with agility, so sometimes a coordination test is also aimed at measuring agility.

According to eye-hand coordination is harmony and cooperation between eye-hand components or other body parts in one sequential, precise and controlled movement. Thus, coordination is one of the elements that is indispensable to master a sports skill. A person's level of coordination determines the mastery of a sports skill. Coordination is indispensable in the game of badminton. Coordination can also be interpreted as the ability to simultaneously perform various movement tasks smoothly and accurately (precisely). Coordination is

the ability of a muscle to work. Coordination is a group of muscles in movement that give indications of some skills. If someone has good coordination, then the person will easily perform several movements in various levels of difficulty efficiently and on target. (Dupri, 2016)

Coordination is the ability to control the movement of a person's body which is said to have good coordination if it is able to move easily and smoothly in a series of movements. The rhythm is well controlled and able to perform efficient movements.

Confident

Confidence is born from a person's awareness that if they decide to do something, then something must also be done until the desired goal can be achieved. Global self-confidence arises because of aspects of personality or tendencies attached to a person. An individual who seems confident in a global situation, is not necessarily able to appear confident in a sports situation (Jarvis, 2005) .

Confidence is the main capital of an athlete to be able to advance because high achievement must start with believing that he is able and able to surpass the achievements that have been



achieved. (Prawiratama & Aulia, 2020) In the world of sports, confidence (*Sport Confidence*) is confidence applied in the world of sports situations and circumstances. Self-confidence is identified as a very important influence in achieving sports performance. (Hays et al., 2009)

Confidence is a person's belief in everything they have and this belief makes them feel able to achieve various goals in their lives. Confidence is: "the belief that one has the internal resources, particularly abilities, to achieve success. Self-confidence is rooted in beliefs and expectations, and although there are multiple definitions of self-confidence, they all refer to individuals' beliefs about their abilities and/or their expectations about achieving success based on these abilities". This can be interpreted as having confidence in ourselves, that we have strength within ourselves, especially regarding the ability to achieve success. There is confidence that comes from belief and hope, so everyone will try their best to achieve the desired happiness according to their individual abilities. (Brewer, 2009)

A person's confidence needs attention, including athletes in an effort to achieve higher achievements. Self-

confidence can be defined as a mental or psychological state of a person who gives a strong belief in himself to do or do something best. This opinion is in line with Confidence is a mental attitude of optimism from the child's ability to solve everything and the ability to make adjustments to the situation at hand (Sin, 2017) . Therefore, for people who are not confident in having a negative self-concept, lack confidence in their abilities, therefore often close themselves. It takes many ways to develop confidence and discipline for athletes who will be training and competing (Aristiani, 2016).

Confidence is one of the positive values that a person must have when carrying out duties in the world of sports. Bandura defines self-confidence as a feeling that contains the strength, ability, and skills to do or produce something based on belief in success. This opinion is supported by Komarudin saying that self-confidence contains beliefs related to strength, the ability to do and achieve success, and responsibility for what has been set by him (Mirhan & Jusuf, 2016). From this, it can be seen that confidence has an important role in a person's success, and confidence is not immune to fear. Therefore, it is necessary to let



confidence be used on personal abilities and knowledge to maximize the effect of achieving optimal performance in the world of sports. (Apriansyah et al., 2017)

The psychological aspect of confidence is very influential, especially in the field of sports. Confidence is the main capital of an athlete to be able to advance in achievements, because achieving high achievements must begin with believing that he can and is able to surpass the achievements he has achieved. There are four aspects of self-confidence, namely: (1) the ability to face problems, (2) the ability to take responsibility for decisions and actions, (3) the ability to get along, and (4) the ability to accept criticism (Yulianto & Nashori, 2006).

Confidence is something that needs to be taught to every individual. Confidence is an attitude or feeling of confidence in one's abilities so that one does not need to be too anxious in every action, can freely do things that one likes and is responsible for all the actions that are done, and is warm and polite in interacting with others. Thus, if athletes have high confidence, they will also have a high sense of optimism in achieving a

desire so that they will get the expected results. (Fransisca et al., 2020)

Lack of confidence will not support the achievement of high achievements, lack of confidence means doubting one's own abilities, and this is clearly the seed of tension, especially when making movements or before facing a race, so that the tension is the first step to realizing failure or defeat.

On the other hand, excessive self-confidence can also have unfavorable consequences, because they often take their opponents lightly and often feel that they will not be defeated. Singer said that to deal with athletes who lack confidence in themselves (*Lack of Confidence*), coaches can help athletes feel their own identity (*Sense Of Identity*), that is, better understand the circumstances that happen to them. Therefore, it is necessary to instill in athletes that true confidence to avoid things that are detrimental to themselves. (Setyobroto, 2001)

METHOD

The research method that will be used in this study is an associative quantitative approach, a survey method with test and measurement techniques while the data analysis technique uses a



path analysis approach (*Path Analysis*), which is a technique to analyze the causal relationship that occurs in multiple regression if the independent variable affects the dependent variable not only directly but also indirectly. (Tangkudung, 2016).

The population in this study is 30 beginner athletes from Gold Badminton and Sarwendah Badminton Club. The sample technique used is total sampling is a sampling technique where the number of samples is equal to the population (Muhtarom & Prayitno, 2018). The sample that will be used is all beginner athletes of Gold Badminton Club and Sarwendah Badminton Club, which is 30 people. The instrument used to measure badminton smash strokes is by using a questionnaire of assessment norms with a score of 1 to 4, for hand-eye coordination with the eye coordination test, which is throwing a tennis ball to a target with 2.5 meters with a wall target given a circle mark. Throw your right hand and catch your left hand as for the confidence instrument with a questionnaire that experts with a Likert scale have validated.

RESULT AND DISCUSSION

The description of the results of the study was analyzed in the form of an overview of each variable studied, namely eye-hand coordination (X1), confidence (X2), and smash stroke skills of the Badminton Game (Y). The general overview presented in this case includes averages, modes, medians, variances, and standard deviations, as well as frequency distributions accompanied by histograms. The following is a table describing the data of each variable.

Table 1. Description of Research Data

		Hand-Eye Coordination (x1)	Confident (x2)	Badminton Smash Stroke Skill (Y)
N	Valid	0	30	30
	Missing		0	0
	Mean	0.10	1.47	43.27
	Median	0.00	2.00	43.00
	Mode		10	43
	Std. Deviation	.136	9.8	1.2
	Variance	7.110	50	02
	Range		97	1.4
	Minimum		016	44
	Maximum	8	39	5
	Sum	9	76	41
			11	46
		9	5	
	Sum	03	30	129
			44	8

Source: Data Processing Results



The results of the normality test of each variable can be described as follows:

- a) The normality test of Y on X₁ obtained the value of $K-Z = 0.095$ with *Asymp. sig. (2-tailed) = 0.200* because *Asymp. sig. (2-tailed) > 0.05*, then it can be concluded that the data of *Badminton Smash Stroke Skills* over Eye-Hand Coordination came from a normally distributed population.
- b) The normality test on Y over X₂ obtained a value of $K-Z = 0.141$ with *Asymp.sig. (2-tailed) = 0.133* due to *Asymp. sig. (2-tailed) > 0.05*, it can be concluded that the data of *Badminton Smash Skill over Confidence* comes from a normally distributed population.

Testing the significance and linearity of the eye-hand coordination data (X₁) with the smash stroke skill of the Badminton game (Y) was carried out with significance regression and linearity tests.

The value of $F_{cal} = 4.612$ was obtained and it is known that the significance value (Sig.) in the F test is 0.041. Because $\text{Sig. } 0.041 < 0.05$, it can be concluded that eye-hand coordination has a significant effect on the *Badminton*

Game smash stroke skill. Thus, the regression requirements test has been met. Based on the Significance value from the table above, the value of Deviation from linearity Sig. is 0.954 greater than 0.05. Thus, it can be concluded that there is a linear relationship between the variable Eye-Hand Coordination (X₁) and the variable *Badminton Game smash* skill (Y).

It is known that the value of the determination coefficient or R square is 0.141. This value means that the influence of Eye-Hand Coordination (X₁) on the *Badminton Game smash* stroke skill (Y) is 14.1%, while the rest is affected by other variables.

Testing the significance and Linearity of Confidence data (X₂) with Badminton Game smash stroke skills (Y) was carried out significance regression and Linearity tests. The value of $F_{cal} = 8.587$ was obtained and it is known that the significance value (Sig.) in the F test is 0.007. Because $\text{Sig. } 0.007 < 0.05$, it can be concluded that Kinesthetic Perception (X₂) has an effect on the smash stroke skill of the *Badminton Game* (Y) or means significant. Thus, the regression requirements test has been met. Based on

the Significance value from the table above, the value of Deviation from linearity Sig. is 0.473 greater than 0.05. Thus, it can be concluded that there is a linear relationship between the Confidence variable (X_2) and the Badminton Game *smash* skill variable (Y). It is known that the value of the determination coefficient or R square is 0.235. This value means that the effect of Confidence (X_2) on the *Badminton Smash Skill* (Y) is 23.5%, while the rest is affected by other variables.

CONCLUSION

The conclusion of this study is as follows:

- 1) Eye-hand coordination has a direct positive effect on the Badminton Game *smash* hitting skills. This means that good eye-hand coordination, improves the skills of *badminton smash* hitting in beginner athletes.
- 2) Confidence has a direct positive effect on the *Badminton Game smash* punch skills . This means that increasing confidence can improve the *skills of the badminton game smash* in beginner athletes.
- 3) Eye-hand coordination has a direct positive effect on self-confidence.

This means that with good eye-hand coordination, it can increase the confidence of beginner athletes.

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