

# THE EFFECT OF ADVERSITY QUOTIENT, CRITICAL THINKING ON ATHLETE PERFORMANCE

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**Abstract:** Archery is a sport that is included in the sport of precision. Archery requires very high concentration and reasonable physical, technical, tactical, and mental conditions to achieve good performance to obtain consistency and constancy. This study aims to analyze the effect of adversity quotient and critical Thinking on athlete performance. This research is included in causal research with a quantitative approach. The sample used in this study were 83 archery athletes. Data collection using a questionnaire. The analysis technique is multiple linear regression analysis. The results in this study indicate that: (1) Adversity Quotient has a positive and significant effect on Athlete Performance; (2) Critical Thinking has a significant and positive effect on Athlete Performance.

**Keywords:** Adversity Quotient, Critical Thinking, Athlete Performance

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## 1. Introduction

Sport is a worldwide phenomenon and is an inseparable part of everyday life in society. Even though sport, national character building can be carried out for a nation, that sport becomes a strategic means to build self-confidence, national identity, and national pride. Various development advances in sports lead to an increase in culture and sports achievements. Sports achievement is the optimal result achieved by an athlete (athlete) or a group of people (team) in the form of abilities and skills in completing tasks, both in section and individual competitions. Maximum and structured training efforts can provide top results in sports achievement.

Through Presidential Regulation of the Republic of Indonesia number 95 of 2017 concerning increasing national sports achievements, National Sports Achievement Improvement is an activity to create outstanding athletes to achieve medal targets at international championships and sports weeks. Performance in Indonesian can also be referred to as performance, defined as something to be achieved, the achievements are shown, and one's abilities. In contrast, performance is defined as doing, organizing, performing, or playing. Kusnadi in (Putro, 2011) also states that performance is every movement, deed, implementation, activity, or action directed to achieve specific goals or targets. In archery, the performance seen is scoring.

Archery is a sport that uses a bow to shoot arrows. A bow is a tool or weapon used to shoot arrows assisted by the bow's elasticity. In the sport of archery, bows and arrows are the primary tools in the archery process. Currently, the mark of archery has developed and is better known as the sport of accuracy (Pelana & Oktafiranda, 2017). Archery is a sport that is

currently gaining popularity in Indonesia. This sport is no longer foreign to the public because there are already many archery sports clubs, archery extracurricular activities in schools, student activity units at several universities in Indonesia, as well as student education and training centres in Indonesia. Archery is a sport that is included in the sport of precision. At the time of shooting or shooting requires concentration and constancy of every movement so that when the arrow is released from the bowstring, it is right on the target or target. Archery requires very high concentration and reasonable physical, technical, tactical, and mental conditions to achieve this consistency and constancy.

One of the archery developments in Indonesia is the coaching carried out by the East Java Archery Association Board of Directors. Archery contingent managed to maintain a record for 40 years by winning the most gold medals in three archery classes at the Sports Week. National XX Papua 2021. This cannot be separated from archery athletes who can face problems during training and be able to think as taught by coaches or senior colleagues. Likewise, obstacles to overcome the limitations of the tools they have to maximize their practise and compete, winning mentality by thinking positively These are part of the adversity quotient that East Java archery athletes must possess. This athlete also needs to think critically, have knowledge of archery techniques, and excel in the critical thinking part that needs to be included.

Research shows that the adversity quotient dimension has many positive outcomes concerning one's achievement (de Ridder et al., 2012; Duckworth et al., 2012). This shows that athlete performance can also be formed through an adversity quotient. According to Stoltz, adversity quotient is the ability that a person has in observing difficulties and processing these difficulties with their intelligence so that it becomes a challenge to solve (Stoltz, 1999). Parvathy & Praseeda (2014) state that the adversity quotient is the capacity to adapt to difficulties in life. The research findings conducted by Mwivanda & Kingi (2019) indicate a significant positive relationship between the adversity quotient dimension and one's achievement. High scores in the adversity quotient control lead to increased achievement, while low scores imply low achievement.

For Watson and Glizer in Ghazivakili et al. (2014), Critical Thinking is a combination of each individual's knowledge, attitude, and performance. They also believe that there are several necessary thinking skills such as perception, deduction, recognition of assumptions, interpretation and evaluation of logical reasoning. Critical Thinking is one aspect of thinking that has been accepted to overcome difficulties and facilitate access to information in life (Demirhan et al., 2011). The research results by Ghazivakili et al. (2014) show that critical Thinking and academic performance are significantly related. Critical thinkers with good decision-making skills are essential for organizations that aspire to become advanced and successful thinkers. Decision-making is referred to as mental processing, which consciously or unconsciously leads to some action. Decision making does not have to involve critical Thinking, but critical Thinking produces a kind of decision making.

## 2. Literature Review

### Adversity Quotient

Leman (2007) in Utama & Surya (2019) defines the adversity quotient in brief, namely, as a person's ability to deal with problems. Some of the definitions above are pretty diverse. There is a focus or pressure point, namely the capacity that a person has, either physically or psychologically, in dealing with problems or problems that are being experienced. Meanwhile, according to Stoltz (1999), adversity quotient is the ability that a person has in observing difficulties and processing these difficulties with his intelligence so that it becomes a challenge to be solved. Adversity Quotient is a person's ability to use his intelligence to

change his way of thinking and actions when facing obstacles and difficulties that can make him miserable (Stoltz, 1999).

### **Critical Thinking**

Ennis (2015) defines Critical Thinking as “reasonable and reflective thinking focused on deciding what to believe or do”, which means vital Thinking is a reflective thinking process that focuses on deciding what to believe. This means that it is directed to formulas that meet specific criteria to be made in critical Thinking. Fisher (2011) further defines crucial Thinking as reasonable and reflective Thinking that focuses on deciding what to believe or do. Dewey in Surya (2011) explains that critical thinking is an active, persistent, and careful examination of a belief or any sort of knowledge gained from many perspectives of arguments that support and establish it.

### **Athlete Performance**

Achievement is very different from success (von Kriegstein, 2019). von Kriegstein (2019) continues that the meaning of achievement philosophically lies in the individual’s ability to achieve success. That is, implicitly, the notion of achievement lies in the word ability itself, and success or success is only the impact of achievement rather than individual abilities. Madjar et al. (2012) that achievement can be seen from individual efforts showing their ability to achieve something considered a success. The same thing is also from Zuhso & Clayton (2011) and Hassan & Morgan (2015) that individual achievement is seen from how individuals show their ability to succeed. Based on the overall explanation of the achievements above, it can be concluded that the athlete’s achievement is the outcome of the individual’s ability or competence to achieve something aspired to, namely success. The success referred to in this study is the athlete’s achievement in attaining a point score.

## **3. Method**

This research is included in the type of causal research because the variables are connected to one another, namely the independent and dependent variables. According to Sugiyono (2016), a causal relationship is. Namely, there are dependent variables and independent variables. This study employs a quantitative technique, namely study methods that make use of numerical research data and statistical analysis (Sugiyono, 2016).

The population is a general zone consisting of subjects or objects that have the characteristics and qualities set to be studied and drawn conclusions (Sugiyono, 2016). The population on this study were 83 archery athletes. The sample is part of the characteristics and number possessed by the people (Sugiyono, 2016). The sampling technique is used to determine the sample used in research (Sugiyono, 2016). This study uses a total sampling method, which is a sampling technique when All individuals of the population are used as samples. So the sample used in this study was 83 archery athletes.

A concept or something that can be measured and seen in the concept's operational definition is a concept or something that can be measured and seen in the concept's operational definition behavioural, properties, or aspects. The operational purposes of variables in this study are:

### **Adversity Quotient (X<sub>1</sub>)**

Adversity quotient is the ability that a person has to observe and process these problems with their brains, making it a challenge to solve (Stoltz, 1999). Adversity quotient is measured by a number of metrics that refer to Stoltz (1999):

#### *a. Control*

- b. *Endurance*
- c. *Reach*
- d. *Originandownership*

### **Critical Thinking (X<sub>2</sub>)**

Critical Thinking is thinking well and contemplating or studying the thought processes of others. Critical Thinking in this research was measured by a number of metrics that refer to Özelçi & Çalışkan (2019), namely:

- a. Self-recognition status
- b. Decision making
- c. Generating alternatives
- d. Seeking evidence

### **Athlete Performance(Y)**

Athlete performance is the final result someone achieves as a success while being an athlete. Indicators of shooting accuracy measured athlete performance in this research.

The data source used are primary data. Primary data directly provides data to data collectors (Sugiyono, 2016). The preliminary data used in this research were gained by the distribution of questionnaire to respondents related to Adversity Quotient, Critical Thinking, Athlete Performance. The data collection method in this research used a direct survey technique, namely distribute directly or face to face with respondents who met the requirements, namely permanent employees. A questionnaire is a data collection method in which respondents are asked to fill out a form (Sugiyono, 2016).

Multiple regression analysis was used in this study's tests. A linear relationship exists between two or more independent variables in multiple linear regression analysis (Adversity Quotient, Critical Thinking) toward dependent variable (Athlete Performance). This analysis determines whether each independent variable has a positive or negative relationship with the dependent variable, and the direction of the relationship between the independent and dependent variables (Priyatno, 2016). The equation for multiple linear regression is as follows (Priyatno, 2016):

$$Y = a + b_1X_1 + b_2X_2 + e$$

With:

- Y = *Athlete Performance*  
 a = Constants (Y value if X<sub>1</sub> and X<sub>2</sub> = 0)  
 b = Regression coefficient (decrease or increase value)  
 X<sub>1</sub> = Adversity Quotient  
 X<sub>2</sub> = Critical Thinking  
 e = Error

## **4. Result and Discussion**

### **Instrument Test**

#### **Validity Test**

The validity test used the item-total correlation statistical test for the Adversity Quotient, Critical Thinking and Athlete Performance variables. The criteria are said to be valid if the value of sig. more petite than 0.05 (Ghozali, 2016).

**Table 1. Validity Test**

Variable	Statement	$r_{count}$	Sig	Conclusion
Adversity Quotient	X1.1	0,857	0,000	Valid
	X1.2	0,782		
	X1.3	0,797		
	X1.4	0,845		
Critical Thinking	X2.1	0,759		
	X2.2	0,729		
	X2.3	0,859		
	X2.4	0,859		

Table 1 shows that all statements on the Adversity Quotient (X1) and Critical Thinking (X2) variables have a sig value. 0.000 is smaller than 0.05, so it can be concluded that all statements used in the Adversity Quotient (X1), Critical Thinking (X2) variables are declared valid.

### Reliability Test

The construct reliability test measured whether the construct was reliable or not (Ghozali, 2016). It is reliable if the Cronbach alpha value is more than 0.6. The results of the reliability test are shown in Table 2.

**Table 2. Reliability Test**

Variable	Alpha Cronbach	Alfa	Conclusion
Adversity Quotient	0,833	0,6	Reliable
Critical Thinking	0,817		

Table 2 shows that for all variables, Adversity Quotient (X1) and Critical Thinking (X2) have Cronbach alpha values greater than 0,6. So it can be concluded that all Adversity Quotient (X1) and Critical Thinking (X2) variables show reliability.

### Data Analysis

#### Multiple Linear Regression Analysis

Based on the calculation results of data processing with the help of SPSS, the beta value for the multiple linear regression equation is shown in Table 3.

**Table 3. Multiple Linear Regression Analysis Results**

Variable	B	Std. Error
Constant	0,704	0,357
Adversity Quotient	0,529	0,116
Critical Thinking	0,455	0,100

Based on the beta value in Table 3, the following multiple linear regression equation is obtained:

$$Y = 0,704 + 0,529X_1 + 0,455 X_2$$

Where:

- Y : Athlete Performance
- X<sub>1</sub> : Adversity Quotient
- X<sub>2</sub> : Critical Thinking

#### Multiple Correlation Coefficient (R) and Multiple Determination (R<sup>2</sup>)

The value of the correlation coefficient and considerable determination is shown in Table 4.

**Table 4. Correlation Coefficient and Coefficient of Determination**

R	R2	Adjusted R2	Std. Error of the Estimate
0,754	0,569	0,558	0,65446

Table 4, the correlation coefficient value of 0.754, shows that the relationship between the Adversity Quotient (X1), Critical Thinking (X2) variable with the Athlete Performance (Y) variable is high because the correlation value of 0.754 is close to the value of one. The coefficient of determination of 0.569 indicates that the Adversity Quotient (X1), Critical Thinking (X2) variable can explain the Athlete Performance (Y) variable by 56.9% and other variables outside the model explain the remaining 43.1%.

### Uji F (simultaneously)

Simultaneous test (F test) shows whether the independent variable, namely Adversity Quotient (X1), Critical Thinking (X2), has a simultaneous effect on the dependent variable, namely Athlete Performance (Y). Simultaneous test results are shown in Table 5.

**Table 5. FTest Results**

Model	Sum of Square	df	Fcount	Sig
Regression	45,252	2	52,825	0,000
Residual	34.266	80		
Total	28.411	82		

Table 5 shows that in the simultaneous test (F), the significance value obtained is 0.000, less than 0.05, so it can be decided to reject H<sub>0</sub>, which means that the Adversity Quotient (X1) and Critical Thinking (X2) variables simultaneously have a significant effect on Athlete Performance (Y).

### Hypothesis Testing

Hypothesis testing with a t-test shows each independent variable's effect on the dependent variable. The test results of t are shown in Table 6.

**Table 6. t test**

Variable	tcount	Sig
Adversity Quotient	4,580	0,000
Critical Thinking	4,533	0,000

Table 6 shows that:

1. T-test of Adversity Quotient variable  
Based on the research findings, we obtained the value of sig. 0,000 is more petite than 0,05, so it was decided to reject H<sub>0</sub>, which means the Adversity Quotient (X1) variable has a positive and significant effect on the Athlete Performance (Y) variable.
2. T-test of Critical Thinking variable  
Based on the research findings, we obtained the value of sig. 0,000 is more petite than 0,05, so it was decided to reject H<sub>0</sub>, which means that the Critical Thinking (X2) variable has a significant and positive effect on the Athlete Performance (Y) variable.

### Discussion

#### Effect of Adversity Quotient on Athlete Performance

Based on the results of hypothesis testing using t-test obtained, the Adversity Quotient variable affects Athlete Performance. This can be seen from the significance value on the t-test of 0,000, which is smaller than the 0,05 significance level. The test results prove that

Adversity Quotient has a significant effect on Athlete Performance. The impact of Adversity Quotient on Athlete Performance is positive, which means that the better the Adversity Quotient of the archery athlete, the more the athlete's performance will be. This study is in line with Parvathy & Praseeda (2014) research, which found the importance of the adversity quotient dimension in student achievement. These results also support the findings of Shen (2014), which proves that the adversity quotient has a significant effect on student performance.

### **Effect of Critical Thinking on Athlete Performance**

Based on the results of hypothesis testing using the t-test, it was obtained that the Critical Thinking variable affected Athlete Performance. This can be seen from the significance value on the t-test of 0,000, which lower than 0,05 significance. The test results prove that Critical Thinking has significant effect toward Athlete Performance. The influence of Critical Thinking on Athlete Performance is positive, which means the better Critical Thinking an archery athlete has, the more the athlete will be able to improve their performance. This study is in line with the results of a study conducted by Ghazivakili et al. (2014), which found that critical Thinking and academic performance were significantly related.

### **5. Conclusion**

- a. Adversity Quotient has a positive and significant effect toward Athlete Performance in archery athletes
- b. Critical Thinking has a positive and significant effect toward Athlete Performance in archery athletes.

### **Reference**

- de Ridder, D. T. D., Lensvelt-Mulders, G., Finkenauer, C., Stok, F. M., & Baumeister, R. F. (2012). Taking Stock of Self-Control. *Personality and Social Psychology Review*, 16(1), 76–99.
- Demirhan, E., Beşoluk, Ş., & Önder, İ. (2011). The Change in Academic Achievement and Critical Thinking Disposition Scores of Pre-Service Science. *Western Anatolia Journal of Educational Science*, June 2014, 403–406.
- Duckworth, A. L., Quinn, P. D., & Tsukayama, E. (2012). What No Child Left Behind leaves behind: The roles of IQ and self-control in predicting standardized achievement test scores and report card grades. *Journal of Educational Psychology*, 104(2), 439–451.
- Ennis, R. H. (2015). *The Nature of Critical Thinking* (Vol. 6, Issue 2).
- Fisher, A. (2011). *Critical thinking : an introduction* (2nd ed.). Cambridge University Press.
- Ghazivakili, Z., Norouzi Nia, R., Panahi, F., Karimi, M., Gholsorkhi, H., & Ahmadi, Z. (2014). The role of critical thinking skills and learning styles of university students in their academic performance. *Journal of Advances in Medical Education & Professionalism*, 2(3), 95–102.
- Ghozali, I. (2016). *Aplikasi Analisis Multivariete dengan Program IBM SPSS 23* (8th ed.). Badan Penerbit Universitas Diponegoro.
- Hassan, M. F. H., & Morgan, K. (2015). Effects of a Mastery Intervention Programme on the Motivational Climate and Achievement Goals in Sport Coaching: A Pilot Study. *International Journal of Sports Science & Coaching*, 10(2–3), 487–503.

- Madjar, N., Bachner, Y. G., & Kushnir, T. (2012). Can achievement goal theory provide a useful motivational perspective for explaining psychosocial attributes of medical students? *BMC Medical Education*, 12(1), 4.
- Mwivanda, M., & Kingi, P. M. (2019). Teachers' Adversity Quotient Dimension of Control and Students Academic Performance in Secondary Schools in Kenya. *Journal of Education and Training*, 6(1), 83.
- Özelçi, S. Y., & Çalışkan, G. (2019). What is critical thinking? A longitudinal study with teacher candidates. *International Journal of Evaluation and Research in Education (IJERE)*, 8(3), 495.
- Parvathy, U., & Praseeda, M. (2014). Relationship between Adversity Quotient and Academic Problems among Student Teachers. *IOSR Journal of Humanities and Social Science*, 19(11), 23–26.
- Pelana, R., & Oktafiranda, N. D. (2017). *Teknik Dasar Olahraga Panahan* (1st ed.). Rajawali Pers.
- Priyatno, D. (2016). *SPSS for Windows Untuk Analisis Data Statistik dan Penelitian*. MediaKom.
- Putro, D. P. (2011). *Hubungan Kinerja Pengurus Dengan Kepuasan Anggota di Koperasi Serba Usaha "Srikandi Makmur" Desa Betro (Studi di Koperasi Serba Usaha "Srikandi Makmur" Desa Betro)*. UPN "Veteran" Jawa Timur.
- Shen, C. (2014). The Relative Study of Gender Roles, and Job Stress and Adversity Quotient. *The Journal of Global Business Management*, 10(1), 19–32.
- Stoltz, P. G. (1999). *Adversity quotient : turning obstacles into opportunities* (1st ed.). Wiley.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif Kualitatif dan Kombinasi (Mixed Methods)*. Alfabeta.
- Utama, I. K. A. B., & Surya, I. B. K. (2019). Pengaruh Religiusitas, Adversity Quotient dan Lingkungan Kerja Non Fisik Terhadap Stres Kerja. *E-Jurnal Manajemen Universitas Udayana*, 8(5), 3138.
- von Kriegstein, H. (2019). Succeeding competently: towards an anti-luck condition for achievement. *Canadian Journal of Philosophy*, 49(3), 394–418.
- Zuhso, A., & Clayton, K. (2011). Culturalizing Achievement Goal Theory and Research. *Educational Psychologist*, 46(4), 239–260.