

## **ANALYZING THE FACTORS TO BE A SUCCESSFUL ATHLETE BY USING FUZZY AHP METHOD**

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**ABSTRACT** - Sports are an important aspect of a good society. They also could strengthen social ties and unite a diverse community. Furthermore, both the government and private sector have made efforts to promote sports by contributing resources such as funding, manpower, and time. Therefore, it is necessary to determine which factors should be given primary focus in order to use them more efficiently and optimally. There are numerous important factors in sports, such as discipline, fitness, rules, psychology, nutrition, and others. Among these factors, it is necessary to identify which ones deserve prioritization. However, this study is important in determining the main factor that should be focused on becoming a successful athlete. This study seeks to identify the main factors and sub factors of being successful athlete. Hence, this study also to rank factor and sub-factors to be a successful athlete using Fuzzy AHP method.

**Keywords:** Fuzzy AHP, successful athlete, sport.

### **1. INTRODUCTION**

The study's main goal is to select effective ways to be successful athletes using the Fuzzy AHP method. A successful athlete is determined by their performance in sports competitions. Other specific objectives are to identify the main factors and sub-factors of being a successful athlete, to rank the main factors using Fuzzy AHP method and rank the sub-factors using the Fuzzy AHP method. Four main factors that athlete should consider to be successful which is the factors are discipline, facilities, talent, and psychology. Hence, the analyzing of this study will be based on sub-factors of each factor.

### **2. METHODOLOGY**

The study would conduct a survey for analyzing the factors to be a successful athlete. Two experts are represented which is lecturer from faculty sport recreation that have experience and achievement in sports. They were given questionnaires by interviewer. In this study, Fuzzy AHP will select effective ways to select the factors to be a successful athlete. Analytic Hierarchy Process (AHP) is a decision support method developed to complete problems by breaking the solution problems, grouping them, and arranging them into a hierarchical structure. This method uses a comparison of criteria paired with a measurement scale that has been determined to obtain priority criteria. The Fuzzy AHP approach converts the AHP scale into a fuzzy triangle scale that can be accessed first (Ayhan, 2013).

### **3. RESULTS AND DISCUSSION**

Based on ranking the main factors, facilities are the main factor to be a successful athlete decisions by using a fuzzy AHP method with a normalized weight of 0.8441. The next factor is the discipline, with a normalized weight of 0.0910, followed by talent, with a normalized weight of 0.0648, and psychology, with a normalized weight of 0.0001. Based on ranking the sub-factors coaching has the most important sub-factor to be a successful athlete, with a normalized weight of 0.4617, followed by sport facilities, equipment, rules, physical, attitude, time-management, fitness, skill, goal setting, motivation, mental rehab with a normalized weight of 0.2189, 0.1635, 0.0446, 0.0397, 0.0253, 0.0211, 0.0186, 0.0065, 0.0001, 0.00003, 0.000007, respectively. From these results, the highest value is the most important factor that should consider to focus first. Based on this research, Fuzzy AHP is a good method for ranking the factors.

#### **4. NOVELTY OF RESEARCH / PRODUCT**

First, according to (Pan, 2008) researched a Fuzzy AHP approach for selecting the suitable bridge construction method. For highway projects to be successful, it is essential to select an appropriate bridge construction technology. The owner or project contractor typically must identify important decision criteria and analyze their relative weights in order to decide the most preferred alternative in such a decision-making problem. As a solution, the selection problem can be solved using Fuzzy AHP, a commonly utilized multi-criteria decision-making technique. This paper shows how Fuzzy AHP was used in a selection to choose the most appropriate bridge construction method based on a set of criteria. The analytic hierarchy process (AHP) is a powerful method that can be used to solve complex decision problems. Any complex problem can be decomposed into several sub-problems using AHP in terms of hierarchical levels, where each level represents a set of criteria or attributes relative to each sub-problem.

#### **5. CONCLUSION**

As a result, this study aims to identify the main factors to be a successful athlete decision using the fuzzy AHP method by selecting certain factors, which are discipline, facilities, talent, and psychology. The study also aims to rank the main factor and sub-factor to be successful athlete decisions using fuzzy AHP. The fuzzy AHP method, which combines fuzzy theory and AHP, successfully achieved the study's objectives, specifically identifying and ranking the main factors and sub-factors to be a successful athlete. According to the findings of this study, the most important factors are facilities, followed by discipline, talent, and psychology. For the sub-factor the most important sub-factors are coaching. Followed by sports facilities, equipment, rules, physical, attitude, time-management, fitness, skill, goal setting, motivation, and mental rehab.

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