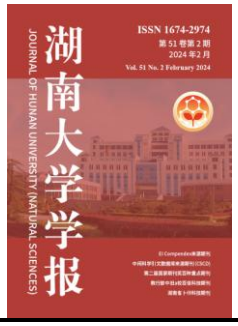

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Content Validity of a Web-Based Petanque Sports Management System

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Abstract: Managing an organization requires transparency and efficiency. This research aims to develop a web-based petanque sports management system that collects data on athletes, coaches, tournaments, and athlete transfers. The system provides the necessary organizational information. This study uses both quantitative and qualitative approaches to analyze data using developmental methods. The participants consisted of five judgment experts. The validity of the contents was tested by calculating and analyzing the results of the expert judgment using the Aiken formula. The results of the research showed that of the 22 items evaluated by experts related to the development of the web-based petanque sports management system, an average of Aiken's V of 0.91 is in the category of high validity. Based on these results, it can be concluded that all test items related to this web-based petanque sports management system have high content validity. Therefore, this website can be used to maximize sports management.

Keywords: content validity, petanque, sports management, website.

基于网络的法式滚球运动管理系统的内容有效性

摘要：管理组织需要透明度和效率。本研究旨在开发一个基于网络的滚球运动管理系统，该系统收集运动员、教练、锦标赛和运动员转会的数据。系统提供必要的组织信息。本研究使用定量和定性方法来使用发展方法来分析数据。参加者由五位评审专家组成。利用艾肯公式对专家判断结果进行计算分析，检验内容的有效性。研究结果表明，在专家评估的与网络滚球运动管理系统开发相关的22个项目中，艾肯的V平均值为0.91，属于高效度类别。基于这些结果可以得出结论，与该基于网络的滚球运动管理系统相关的所有测试项目都具有较高的内容效度。因此，这个网站可以最大限度地发挥体育管理的作用。

关键词：内容有效性、滚球、体育管理、网站。

1. Introduction

Sports management is essential for any individual or group activity in an organization. Management is process-oriented, which means that it requires human resources with the knowledge and skills to act so that the desired goals can be achieved [1]. Cultural preservation in the achievement of petanque sport must continue to be encouraged [2]. Of course, many aspects

must be considered in the effort to improve the performance of petanque athletes, one of which is organizational management. Current technological developments have led to exponential growth in sports [3]. Technological developments have stimulated sports management patterns to help students or athletes acquire transversal and digital skills and improve performance [4].

Rapid technological advancements and digitalization have significantly changed the role of technology in improving athlete performance, monitoring how athletes train and compete, sports organizations, and innovations related to sports nutrition [5]. Technology is used as a tool to manage and organize a system so that it can run well and transparently [6]. Technology greatly helps to improve the sport system as a system that serves to bridge several interdependent people in a context that affects and is affected by an athlete in sport [7]. In the world of sports, data are the most important to improve performance, develop human resources, prevent diseases or injuries, and support the creation of sportsmanship [8]. Much often happens due to data falsification and errors, and this can have a fatal impact on oneself and the environment [9]. Data can be used as a basis for long-term calculations of an athlete's performance [10]. Data can be used to guide policy-making in sports [11].

The availability of information in pétanque is still very minimal. This is evidenced by the results of the researcher's observations through interviews with 60 athletes and 15 coaches in Jepara Regency, who informed that many athletes complained about the availability of information about tournaments, which is still limited to information through WhatsApp groups. Athletes also still complain that no media informs them if they win, so many schools are concerned about the charter they have received from a tournament. The coach testified that there is still a lack of information regarding the upgrading of coaches, so there are coaches who still do not have a license. The management of a petanque organization at the regency and city levels in Jawa Tengah requires a good and transparent management system that is connected, including information about organizational activities, athlete data collection, coach data collection, coach upgrading, tournaments, athlete mutations, and transfer of athlete regional status. Athlete data are required to achieve the best performance.

Big data on athletes can also be used to analyze their mental health in terms of the performance achieved by them in each tournament. Big data on athletes can be used by some researchers to investigate whether social media content created by athletes can be used as a definitive indicator of support for athlete performance. Video data, image processing, and behavior recognition based on video data can be used to analyze detailed movement characteristics. Big data is a source of detailed data to find contextual information about the technical skills and performance of individual athletes [12]. Athlete data can be used for prediction and talent scouting to target young talent for better performance [13]. Athlete data can be used to support their careers when they are active and when they are inactive [14].

Athlete data can be the basis for developing a web-based information system to optimize sports performance and implement transparent management patterns. Data entered through a web-based system can make it easier for users to find this information. Athletes should maintain their physical fitness to compete in any sport. Tournament schedules are required by athletes to manage training programs and set tournament goals. The management of competition implementation still uses a manual method. We can see this from the schedule information system, which is still printed manually, so athletes, coaches, and team officials can only see the schedule when they are in the field. The management of the registration of petanque tournament participants is still conventional. Participants register through the Media Chat application. Participants enter only their full name and the name of their club or region. The organizing committee does not have complete data on the petanque players who often participate in each tournament. As a result, the seeded players are still determined on the basis of the results of the draw during the technical meeting.

Information regarding this tournament is very limited in the petanque sport. The information is mostly obtained through WhatsApp groups, and tournament registration is still done manually. This causes many challenges, such as registration using club names that are constantly changing and not certain, many registrants withdrawing abruptly during the implementation, and player names not being detected because club names are used for registration. This issue needs to be addressed with a more factual and up-to-date system.

Based on the problem presented above, the researcher will develop a web-based organizational management system. Through the development of the web-based petanque sports management system, comprehensive services related to various petanque activities associated with athlete membership database governance are expected to be provided. Referees, coaches, match schedules and systems, and other administrative and organizational activities will be managed using technology. This is expected to assist observers and practitioners of petanque sports in continuously improving the performance of Indonesian petanque sports at a global level, specifically in the province of Jawa Tengah. The development of this management system will implement a transparent, accountable, and innovative management pattern.

2. Material and Methods

2.1. Research Type

This study uses a development method with data analysis using both quantitative and qualitative approaches [15]. It is a combination study that associates two research approaches, namely quantitative and qualitative, to obtain more complex and valid data [16]. Mixed method research is a methodology used by researchers to gather and deeply analyze data by blending quantitative and qualitative research methods.

2.2. Participants

The participants in this study comprised five experts, including one professor in the field of training and teaching at a higher education institution, two experts with a doctorate in sports management and coaching, and two experts in web development and technology.

2.3. Statistical Analysis

Data collection was conducted via a questionnaire, which was analyzed using the Aiken V formula to test the content validity of the petanque sports management system. Content validity was determined by experts by testing the appropriateness of the test content to ensure the extent to which the test content is aligned with the intended purpose [17]. Aiken's V can be used to compute the content validity coefficient according to the expert evaluations of n individuals on an item, which indicates the degree to which the item measures the targeted construct [18].

The formula for Aiken's V content validity is as follows:

$$\mathbf{v} = \frac{\sum \mathbf{s}}{\mathbf{n}[\mathbf{c}-\mathbf{1}]}$$

where:
s = r – Lo;
r - number given by the rater;
Lo - lowest rating;
n - number of raters;
c - highest rating.

This V-index rating scale ranges from 0 to 1. If the index is ≤ 0.4, it is considered to have low validity, 0.4–0.8 is considered to have moderate validity, and > 0.8 is considered to have high validity.

3. Results

Quality measurement of a web-based petanque sports management system based on quality function deployment (QFD) WebQual measures the quality of a website based on research instruments that can be categorized into three variables: usability, information quality, and service interaction to measure consumer or user satisfaction with the quality of the website. The data for this study were obtained through the distribution of questionnaires, which included 22 statement items regarding the quality of the website. The dimensions of WebQual 4.0 are presented as follows:

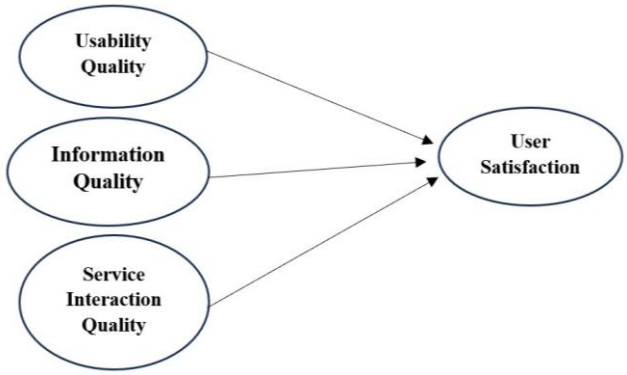

Fig. 1 WebQual 4.0 model (The authors)

Based on the analysis of Aiken's calculation, the V values were obtained. Item 1 regarding the ease of learning how to operate the website had a V coefficient value of 0.90. Item 2, the site has clear and easy-to-understand interactions, had a V coefficient value of 0.90. Item 3, the content of the site material, had a V coefficient value of 0.95. Item 4, ease of navigation of the site, had a V coefficient value of 0.85. Item 5, ease of use, had a V coefficient value of 0.90. Item 6 on the attractive appearance of the site had a V coefficient value of 0.85. Item 7, website design, had a V coefficient value of 0.90. Item 8 regarding website competence had a V coefficient value of 0.95. Item 9 on the positive value of using the site had a V coefficient value of 0.90. Item 10, the accuracy of information on the site, had a V coefficient value of 0.95. Item 11 regarding the credibility of the site had a V coefficient value of 1. Item 12, the site can provide timely information, had a coefficient value of 0.90. Item 13 regarding the ease of obtaining information had a V coefficient value of 0.95. Item 14 regarding the detailed information on the site had a V coefficient value of 0.90. Item 15 regarding the suitability of information on the site had a V coefficient value of 0.85. Item 16, good reputation of the site, had a V coefficient value of 0.90. Item 17 regarding the security of transactions on the site had a V coefficient value of 0.85. Item 18 on the security of site users' data had a V coefficient value of 0.90. Item 19, creating a sense of personalization on the site, had a V coefficient value of 0.90. Item 20, creating solidarity through the website, had a V coefficient value of 0.90. Item 21, ease of communication with the organization, had a V coefficient value of 1. Item 22, sending data in real time, had a V coefficient value of 0.90. Based on the data provided, the average Aiken V validity score of 0.91 is in the high validity category.

4. Discussion

Technological advancements have penetrated all segments of the sports field [19]. This technological development has changed governance in sports

management for the better. Many sports organizations are competing to use technology as a tool to monitor their organizational activities. Sports organizations are responsible for governance management and organizing, maintaining, and monitoring all sports activities [20]. Therefore, researchers want to develop a petanque sports management website that can provide comprehensive services related to various petanque sports activities related to membership database governance and organizational management. This website provides information about petanque sports that can be easily searched and found [21]. The latest technology provides convenience in the process of collecting and analyzing athlete data to improve athlete performance [22].

Digital transformation is a complex effort required by organizations to support the initiation of digital innovation projects within them in collaboration with external digital innovation units [23]. The information layout pattern displayed on the web influences the attraction of users to visit web pages [24]. A good web can present information that is inclusive and accessible to both able-bodied and disabled users [25]. The availability of information, which is still minimal in petanque in Jawa Tengah, creates many obstacles, such as the lack of athlete profile data, information about organizational membership, information related to petanque competitions, athlete mutations, and match schedules. The application of technology in sports management has a positive impact because data related to petanque sports information can be easily seen and accessed through the developed website. Sports organization websites can be used as a medium for complaints about facilities or services experienced so that handling can be done appropriately and quickly [26].

Sports websites can also be used to manage the membership information system of sports organizations [27]. Big data and analytics have become important components in the implementation of sports organizations [28]. The data presented on this web can serve as a benchmark for organizations to improve the performance of athletes, coaches, and referees. Big data is a product of science that is developing internationally [29]. Big data are necessary for good sports management. It starts with organizational information, athlete and coach data, and other general information that can be accessed through the website. The characteristics of big data in sports include various aspects such as (1) physical fitness data, (2) training programs, (3) personal information, and (4) competition results [30]. Big data can also be used to analyze health data and athlete training data, which are needed to develop training strategies for performance improvement. In addition, big data are very important because they can minimize data falsification and entry errors and duplication of member data.

The integrated management of petanque through this website is the basis for changes in organizational communication. With this website, the management of petanque in Jawa Tengah can run optimally. The dissemination of information and the latest news related to petanque can be easily reached and accessed by petanque observers and practitioners. Information about petanque tournaments and the number of tournaments that will be held and the schedule of the tournaments can be found on the website. This website has a systematic system for registering tournaments. Tournaments to hold must be registered through this website. Tournaments can be held after obtaining approval from the organization through the web. The approved tournaments are displayed on the tournament schedule page on this site. This web also displays a systematic system of athletes who want to transfer regional status. The implementation of this transfer system starts with the athlete's request to make a transfer, club approval, district/city approval, provincial board approval, and if the athlete wants to move between provinces, then he needs the approval of the area he wants to go to.

The effectiveness of this web-based petanque organization management system shows that this web can be used by users effectively and efficiently. Users can comfortably take advantage of this web-based petanque sports organization management system. Users feel safe when their personal information is recorded in this system. Users can access information in an actual and factual manner. An online athlete transfer system can be created to provide transparency of transfer data between districts and provinces. The professionalization of sports for development has led to an increasingly complex environment for sports organizations [31]. Sports federations play an important role in contributing to the sustainable future of athletes [32]. Web-based information and technology play a role in increasing the knowledge of individuals and organizations in the current era of digitalization [33]. It can build an information management structure, develop information management skills, and instill an information management culture [34].

Based on the above results, the overall content validity is above 0.80, which means that all items have high content validity. According to Retnawati [18], a V index rating scale of ≤ 0.4 is said to have low validity, 0.4-0.8 is said to have moderate validity, and > 0.8 is said to have very high validity. In other words, all experts have perfect agreement on the content validity of this web-based petanque sport management system.

5. Conclusions

Based on the results and discussion above, it can be concluded that all 22 test items have high content validity. With this high validity, this website can maximize the management of petanque, so that all activities and information related to petanque activities

can be properly channeled and implemented. This site is also designed to maximize the potential performance of athletes through an existing database. Petanque organizations in Jawa Tengah should use this website for the management of their administration and operation.

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