

Web Application Based Assessment and Ranking Development Model in Rock Climbing

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Abstract

In this research, the scoring and rating system requires the use of effective and efficient technology. The problem in this research is that the scoring and ranking system is still done manually using Microsoft Excel. In addition, it was found that the scoring and ranking system was less open. This study aims to determine the assessment and ranking model based on software suitable for rock climbing, the feasibility of developing a web application-based assessment and ranking software development model, the effect of using a web application-based software development model developed. This study uses the Research and Development (R & D) method. The research location is in the Indonesian Rock Climbing Federation (FTPI) in Lamongan Regency. The research subjects were coaches, athletes, officials, and spectators. The product developed is a web application-based scoring and ranking software development model on rock climbing which has been validated by 3 experts, 3 practitioners, and 2 users. The operational field test of the developed model used a one-group pretest-posttest design. Seen from the average value of the pretest was 55.33 and posttest was 84.50 has increased. So it can be concluded as follows that the assessment and ranking model in rock climbing used is still manual and conventional, the model developed is feasible for users in rock climbing sports, model developed can increase user knowledge. The conclusion is that the mechanism for the use of web applications based on can effectively improve user knowledge in conducting assessments and rankings in rock climbing.

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INTRODUCTION

The role of sport in human life is very important because through exercise can form physically and spiritually healthy people (Rudi Prida Irawan, Soegiyanto & Taufiq Hidayah, 2017). Rock climbing is one of the sports that is currently favored by the Indonesian people, especially young people and young people (Siti Zahra Hanum, 2017).

Climbing sports are divided into two types, namely real rock climbing and wall climbing which is carried out on an artificial wall (Febrina Pongky Sugiarto, Daru Lestyanto, and Siswi Jayanti, 2013). In rock climbing, especially artificial rock climbing (walls), there are 3 climbing categories that are contested, namely (1) the lead or stub category (difficulty/dificult), (2) the boulder or short track category, and (3) the speed or speed category (Shannon R. Siegel and Simon M. Fryer, 2016).

The lead category is the category of climbers or climbers who install their own safety on each hook ranner of the hiking trail. The boards are 15 to 20 meters high. The Boulder category is a category that requires climbers to only use a mattress as a safety in completing the track, the character of the boulder climbing route is relatively difficult. Big stone board / wall height 5 - 8 meters. The speed category is a category that requires climbers to complete the trajectory in a relatively fast time, because the assessment of the speed category is the time obtained by climbers in completing the trajectory. The difficulty level of speed tracks is usually using classic ladders/tracks. Speed competition must be carried out on a climbing route with a length of 15 m which is specially designed on an artificial rock climbing wall (FPTI, 2010).

In this research, the scoring and ranking system is still done manually using Microsoft Excel. The use of a rating and rating system that is still done manually affects several factors, namely the conventional way of using it in the field and its implementation which is still minimally updated. These results make the official team or athlete take a long time to access the scoring and scoring results. Manual scoring systems take time for the data processing process to rank.

Another problem found in this study is that the rating and ranking system is less open. This results in indications of cheating in rock climbing sports rankings. In addition, it can also cause differences in perceptions between athletes and judges regarding the points that have been achieved by rock climbing athletes.

In this study, the rating and rating system requires the use of effective and efficient technology. One of them is by utilizing a computer which is the creation of a web-based application system (Rahmat Hidayat and Reza Setiawan, 2017).

The rapid development of information technology in the current era of globalization can no longer avoid its influence on the progress of sports (Haris Budiman, 2017). There are many examples of the achievements of world athletes who have benefited from the touch of science and technology (Ngadiman, Indra Jati Kusuma, and Azis Wisnu Widhi Nugraha, 2011). One of the involvements in the development of information technology in sports is the use of web-based information systems (Zulfauzi, 2015).

According to Ermawan Susanto (2011), that a web-based information system can support the accountability and validity of athlete data in order to minimize fraud. Some of the frauds that often occur in organizing sporting events, one of which is manipulation of athlete data and championship scores. Such manipulation includes age falsification, identity falsification, performance falsification, or participation of athletes from outside the region. This condition occurs a lot, especially in areas where access to information and technology is still low. Such symptoms are certainly detrimental to those who prioritize the coaching system.

In the development of a web-based application system in the assessment and ranking refers to the principles and characteristics of the scoreboard. Liliana, Maria SP, and Suprianto (2016), that "the scoreboard has an important function because it is a tool for announcing and recording match results so that spectators and athletes can find out the match score". Hadian S. Utama, Sani M. Isa, and Wendy Rustandy (2008), this scoreboard is also very important for athletes in matches with this scoreboard the athletes can

see the temporary score and can calculate what strategies can be used to win the match. The scoreboard in the appearance of the acquisition value can be manual and semi-automatic.

SOOKech (2015), explain sports and entertainment in a competitive event such as extreme sports, it is necessary to have a sponsorship strategy that takes into account the attitudes, values, and beliefs of the wider market and customer segments. Apart from getting a new generation of athletes it is meant to attract sponsors.

Making this web-based application system, apart from designers and ranking placements, it is also a place to promote a product from sponsors or related to the sport of rock climbing itself which is creative and becomes (Agung Nugroho, 2010).

Based on this background, the researchers are interested in conducting a study entitled "Web Application-Based Assessment and Rating Development Model in Rock Climbing Sports". This study aims, among others: (1) to determine the scoring and ranking system used in the Indonesian Rock Climbing Federation (FPTI); (2) determine the feasibility of product assessment and development of web application-based software in rock climbing; (3) determine the effectiveness of web application-based scoring and ranking software development models to improve user understanding in assessing and ranking rock climbing sports.

METHOD

This study uses the Research and Development (R & D) method. The steps used in this study used eight main steps, namely: 1) Needs analysis, 2) Development of the initial product form, 3) Evaluation of experts, 4) Small-scale trial, 5) Revision of the first product, 6) Test field trial, 7) Final product revision, 8) Final result of development model.

The research location is in the Indonesian rock climbing federation in Lamongan. The time of the study was in December 2019. The research subjects were coaches, athletes, officials, and spectators. The product developed is a web application-based scoring and ranking software development model for rock climbing. The

product development has been validated by 3 experts, 3 practitioners, and 2 users. The operational field test of the developed model used a one-group pretest-posttest design. The field test was carried out to find out that the developed model had an effect on increasing the athlete's knowledge about the scoring system and ranking in rock climbing. The results of the pretest and posttest scores calculated the level of increase in the athlete's knowledge to determine the effect of the developed model. In the development of a web-based application system in the assessment and ranking refers to the principles and characteristics of the scoreboard. Serves as an important tool for announcing and recording the results of a match so that spectators and athletes can find out the results of match scores.

RESULTS AND DISCUSSION

Assessment and Ranking in Rock Climbing

The products developed are web application based scoring and ranking system on rock climbing. Somethingan application that makes it easier for referees to provide assessments and rankings in rock climbing. The application uses a browser as a means of operation. The main address to access the application is localhost/wall_climbing after the application is installed. Here are some views of the scoring and ranking application in rock climbing:



Figure 1. Screen display the beginning of the application of assessment and ranking in rock climbing sports

Enter the login menu. After successfully logging in to the application, the administrator who is the president of the jury can access the entire administrator menu which includes input of judge data for match numbers, input data from regional or club origins, input data for athletes

participating in the competition, input data for revision of scores obtained by competing athletes, if any. an error was made by the judge of the match number.



Figure 2. Display from administrator login

After logging in to the eating application, there are two menus, namely the match menu and the login menu. The match menu itself functions as a match scoreboard that can be enlarged with a projector and LCD. The scoreboard that can be seen by coaches, athletes and spectators can find out the results of the match scores at the match venue. The following is a display of the scoreboard in the category of rock climbing sports competitions.

No	Nama Peserta	Asal Peserta	Waktu	Nilai	Ranking
1	test	DKI Jakarta	0000000	TOP	1
2	nama	DKI Jakarta	0000000	12	2

Figure 3. Lead number scoreboard display

No	Nama Peserta	Asal Peserta	Waktu 1	Waktu 2	Total	Ranking
1	nama	Jawa Tengah	11.11	07.58	18.69	1
2	rene	DKI Jakarta	10.12	09.10	19.22	2
3	test	Sumatra Barat	08.59	12.10	20.69	3
4	test	Jawa Timur	09.08	11.65	20.73	4
5	test	Jawa Tengah	12.11	08.00	21.11	5
6	Jamal Al Hadad	Jawa Timur	12.13	09.12	21.25	6
7	nama	Jawa Barat	12.11	09.23	21.34	7
8	nama	Jawa Tengah	10.50	11.11	21.67	8
9	nama	Jawa Timur	12.11	10.09	22.20	9
10	nama	Jawa Barat	11.11	11.10	22.21	10
11	rene	Jawa Barat	11.12	11.10	22.22	11

Figure 4. Display of the speed number scoreboard

No	Nama	Asal Peserta	Joker 1				Joker 2				Joker 3				Joker 4				Joker 5				Total								
			T	Z	AT	AZ	T	Z	AT	AZ	T	Z	AT	AZ	T	Z	AT	AZ	T	Z	AT	AZ	T	Z	AT	AZ					
1	Jamal Al Hadad	Jawa Timur	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	4	5	1
2	Asa Antargah	Jawa Timur	1	1	2	1	0	0	0	0	0	0	0	0	1	1	1	3	0	0	0	0	0	2	2	4	5	2			

Figure 5. Display of the boulder number scoreboard

Results of Web Application Based Assessment and Ranking Model Development in Rock Climbing

The feasibility test of the development and ranking of the assessment model based on the rock climbing sports web application in this study consisted of the results of the initial trial, the initial product revision, the main field trial on a limited scale, and product suggestions II. Based on the results of the research obtained, it can be said that the development of a web application-based scoring and ranking model for rock climbing is feasible to use for the process of rock climbing competitions.

The rapid development of information technology in the current era of globalization cannot be avoided anymore its influence on the progress of sports (Haris Budiman, 2017). The role of science and technology in improving athlete achievement will be able to overcome the slump in national sports achievements. There are many examples of the achievements of world athletes who have benefited from the touch of science and technology (Ngadiman, Indra Jati Kusuma, and Azis Wisnu Widhi Nugraha, 2011). Science and technology now has many forms of equipment in dealing with the field of sports. One of the involvements of science and technology in sports is the use of web-based information systems (Zulfauzi, 2015).

According to Ermawan Susanto (2011), that a web-based information system can support the accountability and validity of athlete data in order to minimize cheating. Some of the frauds that often occur in the implementation of sports events, one of which is the manipulation of athlete data and championship scores. The manipulation includes age falsification, identity falsification,

achievement falsification, or involving athletes from outside the region. This condition occurs a lot, especially in areas where access to information and technology is still low. Such symptoms are certainly detrimental to those who put forward the coaching system.

The Effectiveness of Web Application Based Assessment and Ranking Model Development in Rock Climbing

The effectiveness test of this model was conducted using a quasi-experimental. The research subjects at this stage were 30 users, namely athletes in the Lamongan Regency Kadispora Cup. Based on the results of the model effectiveness test that has been carried out, the pre-test and post-test scores are as follows.

Table 1. Results of Model Effectiveness Test

Test	mean	Subjects (N)	Standard Deviation
Pre-test	55.33	30	10.662
Post-test	84.50	30	10.030

Based on the table above, it can be seen that the average pretest value is 55.33, while the average posttest value is 84.50. As for the range of values of the pretest and posttest results, there are quite far differences. While the standard deviation in the pretest is 10,662 and the posttest is 10,030. Thus, the web application-based assessment and ranking model in rock climbing can be said to have an effect on increasing the knowledge of athletes Lamongan Regency Head of Youth and Sports Cup.

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Making this web-based application system, in addition to assessment and ranking, can also be

used as a place to promote a product from sponsors or related to the sport of rock climbing itself which is creative and profitable (Agung Nugroho, 2010).

CONCLUSION

The conclusions obtained in this development research are as follows. The scoring and ranking system in rock climbing uses an effective and efficient use of technology. The web application-based scoring and ranking model on rock climbing that was developed is feasible to use. The results of the limited-scale trial show that experts, practitioners, and user validators respond positively to the model being developed.

In addition, it has an effect on increasing athlete knowledge Lamongan Regency Head of Youth and Sports Cup. Based on the results of the effectiveness test that has been carried out, it can be seen from the average value of the pretest and posttest that has increased. The average pretest was 55.33 and increased the posttest result to 84.50. In the development of a web-based application system in scoring and ranking refers to the principles and characteristics of the scoreboard, as well as being a place to promote products from sponsors or related to the sport of rock climbing itself which is creative and profitable.

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