

Development of Application *Score Sheet* Traditional Sport Hadang on *Information Technology*

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Abstract

The development of sports technology is increasingly sophisticated and modern in improving the quality of sports. Folk games or traditional sports are cultural assets that need to be preserved, because they have the potential to be further developed as sports that help improve physical quality for the players. The results of the validation of the first stage I referee experts were 62%, stage II 96%, stage I referee experts 66%, stage II 96% and IT experts I stage I 64%, stage II 94%, IT experts II stage I 60%, stage II 94%. The results of the small-scale questionnaire of the coaches were 66% in good category, 50% for enough category and 65% for scorer in good category. The results of the large-scale questionnaire of coaches were 95% very good category, 89% very good category players and 93% very good scorer categories. The conclusions of this study: (1) The product design development of application score sheet traditional sports of Hadang is the application of the traditional sports score sheet based on information technology. (2) The effectiveness of the product development of application score sheet traditional sports of Hadang, it can be said that it is effective as a score sheet application that helps the scorer in entering points, recording and saving match data. (3) The acceptance of the development of the application score sheet of traditional sport hadang based on information technology is said to be "Accepted" from the results of large-scale questionnaires with a percentage of 92.56%.

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INTRODUCTION

Sport is one of the primary needs for humans. When exercising, humans can relieve fatigue, refresh the body, interact with others, and so on. In general terms, sport consists of two words, namely exercise means practice, act, method, action, while raga means body, body. Sports are exercises to strengthen and nourish the body, as well as games, entertainment, competitions that require physical skills (Soenyoto, 2013). Sport is also a form of education from individuals and communities that prioritizes physical movements that are carried out in the room (indoor) and outside (outdoors) consciously and systematically and last a lifetime and are directed towards achieving a higher quality of life (Prasetyo, 2015).

Folk games or traditional sports are national cultural assets that need to be preserved, explored and developed because in addition to being a sport / game to fill spare time it also has the potential to be more developed as a sport that helps in improving the physical quality of the perpetrators (Ardiwinata, Achmad Allatief Physical Education Health, 2006).

Traditional games are a form of play within the scope of. Traditional games provide not only recreational or fun value. More than that, traditional games also have physical education values, sports and even social values. This is because traditional games contain elements, such as sportsmanship, honesty, accuracy, agility, accuracy in determining steps, and working together in groups (Prana, 2010).

Some examples of types of traditional games include cranks, stilts, bentengan, hadang, long pumping, tug of war, block running, umpetan, blowpipe, top, chin and many others. Each of these types of traditional games has the same aims and objectives, namely to give a feeling of joy to anyone who does it (Safari, 2010).

Traditional games are not only very helpful for teachers as learning materials, but teachers also participate in preserving the cultural heritage of their ancestors as the national personality and students are able to take lessons in it, whether it is in the form of moral, ethical, and values that reflect

the love of the country. and the nation (Pontjopoetro, 2008: 61).

In fact, traditional games are starting to be abandoned by the community (Siagawati M. Prastiti, W. Purwati, 2007: 83). Gobak Sodor in Indonesia has its own name for each region in Indonesia, but still has the same rules and ways of playing. Central Java is more familiar with the gobak sodor, or gaff in the Natuna Islands, while in some areas of the Riau Islands it is known as the long pole, in the mainland Riau area it is called playing cak bur or playing belon. The West Java region knows gobak Sodor with the name galah asin or galasin (Ardiwinata, Achmad Allatief, 2006).

The number of players in the game has 5 players and 3 reserves. Then divided into two teams, a guard team and a salable team. So each team consists of 5 players. Players in gobak Sodor are usually boys, because this game takes a lot of energy, but sometimes girls can also play it as long as the two teams have to be balanced both gender and age of the player. This is to avoid a striking power imbalance in one of the teams (Nuri, 2012).

The development of sports at this time has started towards industry, in fact many countries have made traditional sports as industrial sports. One example of this traditional game petanque comes from France, but this game is very popular in Indonesia and even entered into big competitions in Indonesia.

Indonesia has many traditional games that can be used as competitions and even compete in the international arena. But it is unfortunate in this industrial era that we rarely find young children playing traditional games.

Technological developments in sports are very rapid, as evidenced by the many changes ranging from infrastructure, information, competition systems, refereeing. Furthermore (Chin, et al, 2011) Various examples of technology in sports are hawk eyes in soccer matches, digital scoreboards in basketball and badminton sports, ball throwing devices in volleyball training and others (Compilation Team, 2019). However, in other sports, there are still unsupportive match

systems such as a scoring system that is still classified as manual. The presence of a competition system that utilizes technology will certainly facilitate the judges/ referees' judgments to determine the winner, in addition to making it easier for the audience to find out the scores between the competing teams (Supegina & Iklima, 2015: 13).

The technology that is now widely used by consumers, namely smartphones. Smartphones have a variety of conveniences to offer. According to Purwanto (2017: 152) Smartphones or in Indonesian can be called smart phones is a development from previous mobile phones which only had a few functions such as SMS or telephone (Cabanban., Lynnette, C., 2013). However, currently smartphones have several multi-functional advantages that can help human work and facilitate the desired activities in one hand (Putro et al, 2018).

As an industry, it must be supported by adequate equipment and infrastructure. One of them is the referee must be more precise in deciding violations in the match. The game of hadang is led by a main referee and an assistant main referee, 2 line referees, 2 scorers and 1 writer referee on the scoreboard. The referee is an important part of the competition. The less competent referee often gets protests from players, coaches, and can even trigger

a riot. The referee's error can trigger the audience to throw everything they carry onto the field so that the match stops (Soetoto Pontjopoetro, 2008).

A referee has an important role in sports matches or games, especially sports that lead to sports achievements. One of the sports that currently wants to be developed and re-popularized is the traditional gobak Sodor game (Wicahyani, 2013). This traditional sports development program will work well if there is support from various parties, including support from the Indonesian Traditional Sports Games Committee (KPOTI), FORMI, KEMENPORA, DISPORA, and traditional game activists in all provinces in Indonesia. The very rapid development of technology today has brought us to the Modernization and Digital era. Almost all aspects of human life are very dependent on technology, this is because technology was created to help make it easier for humans to complete an activity / job (Eddi et al., 2013).

Researchers obtained data by making observations in several matches and discussing with activists and coaches from several provinces such as Jakarta, Banten, Central Java, West Sumatra, South Sumatra. interviews were conducted on 26 October 2019 and 27 October 2019 during the National Traditional Sports Week in Bantul, Yogyakarta, which was attended by 24 Provinces.

Table 1.1 Interview Results Needs Analysis for the Development of Application for *Score Sheet* Traditional Sports Hadang Based on *Information Technology (IT)*.

Name	Status	Province	Needed	Not Needed
Advan zakaria	KPOTI PUSAT Line of business and funds	Central Jakarta	✓	
Indrianto Ramadhana	Traditional Sports Activist	Central Java	✓	
M. Idham Kholid	Referee for Traditional Sports Of Hadang	Central Java	✓	
Firman Fahmi	Referee Traditional Sports of Hadang	Central Java	✓	
Cecep Imansyah	Referee for Traditional Sports Of Hadang	West Sumatra	✓	
Angga Firmansyah	Traditional Sports Activist	South Sumatra	✓	
Dinda Ayu Puspita Prabu	Traditional Sports Activist	South Sumatra	✓	

Source: Preliminary Observation Results of Hadang Traditional Sports Referees (2019)

Results of interviews with researchers with referees and traditional game activists that really need a traditional sports score sheet hadang based on information technology (IT). So the researchers are interested in making an innovative application of score sheet games that are based on information technology (IT), looking at front and back points, recapitulating all matches, making it easier for coaches and spectators to see the scores of the matches that are taking place. For this reason, researchers conducted R&D development research entitled "Development of Information Technology (IT) Based Traditional Sports Score Sheet Application Development".

The problem in the background is that it is necessary to develop a score sheet for traditional sport hadang based on Information Technology (IT), which later on this tool can be a solution to help referees count, recap the results of the match and make it easier for the audience and the coach to see the score calculation directly and transparently. , as well as making blocking sports more efficient so that the score sheet tool can help and can be owned by all.(Faozan, M., Santosa, I., & Annas, 2017)

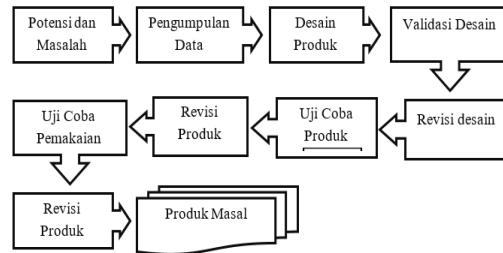
METHOD

The research design used was a development model. Development research is usually referred to as research-based development. According to Sugiyono (2012: 407) the research and development model (Research and Development) is research that is used to produce certain products and test the effectiveness of these products. Research Approach.

This study aims to develop a score sheet application hadang based on Information Technology (IT) which is used to facilitate the filling method. The development procedure according to Borg & Gall basically consists of two main objectives, namely: (1) developing the product, and (2) testing the effectiveness of the product in achieving the goal.

This study uses a procedural development model, where the model in this study is descriptive, which is a procedure that outlines the steps that must be followed in producing a product.

The development steps in this research are in accordance with the research and development steps of Research and Development (R&D). The steps in research and development do not have to use standards that must be followed, but each development can choose and determine the most appropriate steps based on the conditions it faces. The development procedure used in this study is shown in the scheme:



Steps for using the Method *Research and Development (RnD)* (Source: Sugiyono, 2010: 298)

The instruments used in product development are questionnaires or questionnaires and field observations when the research process is in progress.

The effectiveness of the application is analyzed by comparing the nominal data / total numbers and so the data analysis technique used is using descriptive percentages to determine the validity of the product from the experts and the response of experts / experts and trainers to the application score sheet traditional sport hadang based on Information Technology (IT) through a questionnaire that has been used. given by the researcher. While the data in the form of suggestions and reasons for choosing answers were analyzed using qualitative analysis techniques.

RESULTS AND DISCUSSION

Development research was carried out in various stages of trials. The research starts from initial product validation, product testing, namely small-scale trials and then use trials, namely wide-scale trials so that mass products are produced where the product can be used for its usefulness. The study involved 4 expert validators with their respective expertise, namely IT experts, hadang traditional sports experts and hadang traditional sports referees. The small-scale trial involved the

community and youth of Kendeng 3, Bendan Ngisor village, Gajah Mungkur sub-district, Semarang City, Central Java. In the use or wide-scale trial it was carried out at the competition between the IKPM in Yogyakarta on September 2020.

product validator was carried out using an instrument in the form of a questionnaire to determine the extent to which this tool was said to be feasible to be tested. Questionnaires / questionnaires used in the research process as product validation data and application effectiveness tests will be analyzed using the product effectiveness formula which results in data on whether the product is suitable for use or not.

At the same time, data checking was also carried out using several techniques such as documentation and discussion with several sources by observing the application process and discussing with experts from their respective fields.

The discussion that was carried out after the implementation of trials on a small scale and wide

scale application of a score sheet hadang based on information technology (IT). In traditional sports hadang used to provide comments and input is one of the techniques for checking the validity of data by expert experts.

Descriptive notes are used to record all events that occur during the implementation of the research. Meanwhile, the reflection notes contain reflections on various events that took place. Reflections related to the proper provisions and the process of conducting trials using a score sheet application hadang based on information technology (IT).

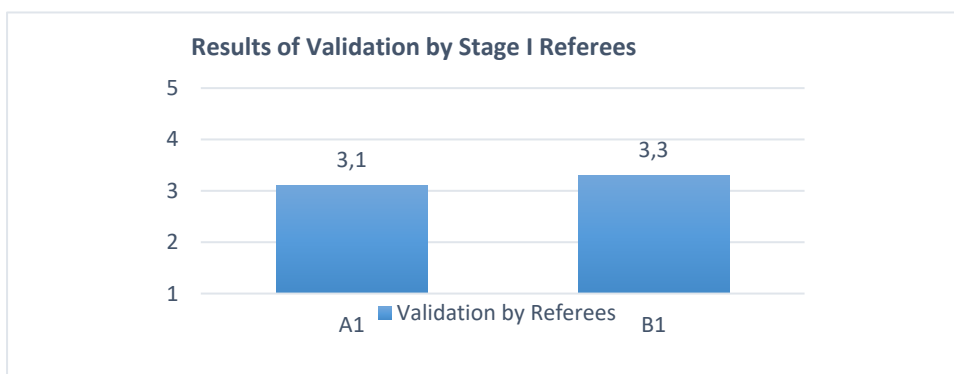
During the trial, pictures were taken to meet the adequacy of referential and documentation.

1. Evaluation by the Referee

Data obtained from the first stage of validation were the referee validators and IT expert validators, Firman Fahmi, Muhammad Idham Kholid, S.Pd. as referee validator and Imam udin, Irfan ulhaq as IT expert validator in September 2020 in Semarang.

Results of Validation by Stage I Referees

Expert Validator	TotalScore	Average	Criteria
Firman Fahmi, S.Pd.	31	3	Enough
Muhammad idham Kholid, S.Pd.	33	3	Enough



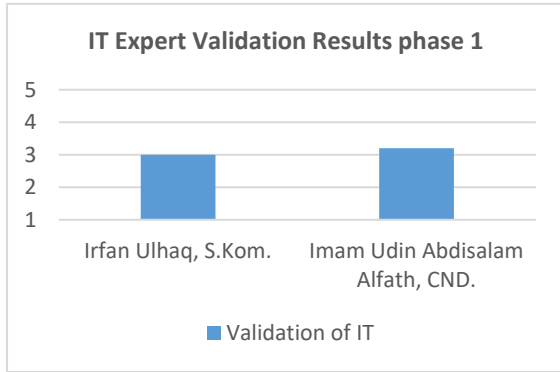
Stage I. Referee Expert Validation Results Diagram

Based on the results of the expert evaluation, the total score of each expert is described as follows:

1. Firman Fahmi, S.Pd. with an average score of 3.1 and meeting the criteria Sufficient
2. Muhammad Idham Kholid, S.Pd. with an average score of 3.3 and meeting the criteria Sufficient.

Results of validation by IT experts Phase I

Expert Validator	Total Score	Average	Criteria
Irfan Ulhaq, S.Kom	30	3.0	Enough
Imam Udin Abdisalam Alfath, CND	32	3.2	Enough



IT Expert Validation Results Diagram Phase I

Based on the results of the IT expert evaluation, the total score of each expert is described as follows;

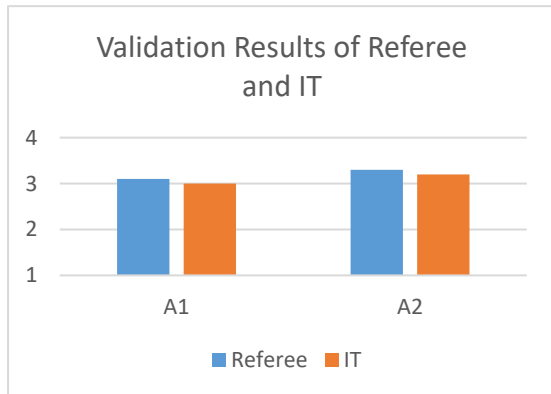


Diagram of the Results of Validation by Referee experts and Stage I IT Experts

1. Irfan Ulhaq, S. Kom. with an average score of 3.0 and meeting the criteria Enough.

2. Imam Udin Abdisalam Alfath, CND. with an average score of 3.2 and meeting the criteria Sufficient.

Based on the results of product validation, the total score obtained from each of the referee and IT validators is:

1. Firman fahmi, S.Pd. with an average score of 3.1 and meeting the criteria Sufficient.
2. M. Idham Kholid, S.Pd. with an average score of 3.3 and meeting the criteria sufficient.
3. Irfan Ulhaq, S. Kom with an average score of 3.0 and meeting the criteria of Enough.
4. Imam Udin Abdisalam Alfath, CND with an average of 3.2 and meeting the criteria sufficient.

From the results of the first stage product validation, it was found that the product met the criteria Sufficient, the conclusion from the first stage validation of the product was feasible to be tested on a small scale because the application was complete with menus that functioned according to the manual score sheet used by the People's Games and Traditional Sports Committee Indonesia (KPOTI).

The second stage of validation, the product is again validated by the traditional sports referee expert validator and the IT expert validator. Revisions, suggestions and input given by referees and scorer colleagues in the first stage produce products that are ready to be tested in stage II.

Results of Phase II Product Validation by Referee Expert Hadang

Expert Validator	Total Score	Average	Criteria
Firman Fahmi, S.Pd.	48	4.8	Very Good
M. Idham Kholid,S.Pd	48	4.8	Very Good

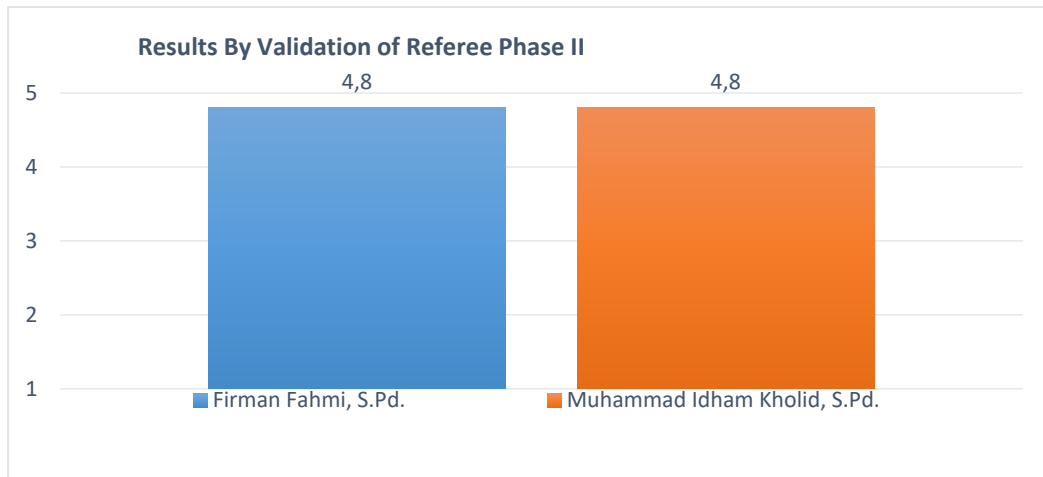
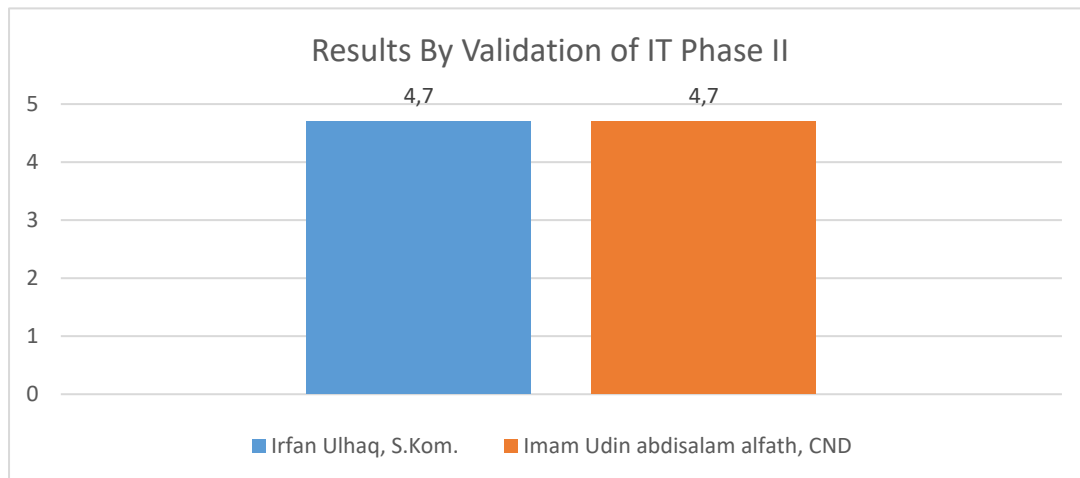


Diagram of the Results Validation By Referee Phase II

Data Validation Phase II Products by IT Expert Validation Expert

Validator	Total Score	Average	Criteria
Irfan Ulhaq, S.Kom	47	4.7	Very Good
Imam Udin Abdisalam Alfath, CND	47	4.7	Very good



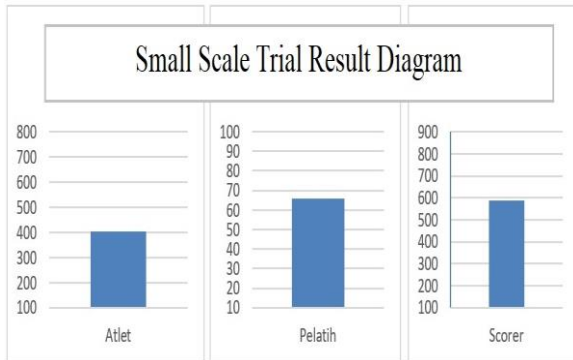
IT Expert Validation Diagram Phase II

Based on the results of the validation of the second product draft, the results of the second validation did not have many revisions because it was better than before, then the development product was ready to be tested on a wide scale and was categorized as very feasible.

The first scale product trial was carried out at Rw 03 Bendan Ngisor Village, Gajah Mungkur District, Semarang City, Central Java with resident / youth respondents Kendeng 3, the trial was carried out on Saturday 19 September 2020, the trial was carried out on Saturdays at 14.00 s / d 17.00 WIB here are the results of small-scale product trials:

Results from Small Scale

Subject	Number	Score	Maximum Score	Percentage	Criteria
Athletes		403	800	50.37%	Good
Trainer		66	100	66.00%	Good
Scorer		589	900	65.44%	Good



From the table above, in the small group trial the assessment of 16 athletes got a score of 403 from a maximum score of 800 with a percentage of 50.37%. In the small group trial of 2 trainers got a score of 66 out of a maximum score of 100 with a percentage of 66.00% while in the small group trial the assessment of 6 scorers got a score of 589 out of a maximum score of 900 with a percentage of 65.44%.

The conclusion from the results of small-scale product trials with these percentages is that the product is said to be feasible to be tested in use or wide-scale trials.

In a wide-scale trial, the research was carried out on September 26-27 2020 at the Yogyakarta South Sumatra Student Association Student Association (IKPM-SUMSEL YOGYAKARTA) the number of teams in the broad-scale trial was 4 teams with 32 athletes and 4 coaches.

At the stage of analysis of the broad-scale trial data obtained in the form of results, field notes, documentation, questionnaires to the referee in charge of the traditional sports competition hadang. The application used whether it is suitable for use as a mass product is the result of the final validation by the validator, as well as the questionnaire given to referees, coaches and athletes. The results of the recapitulation of the questionnaire and also the final validation data on the broad-scale trial are as follows:

Results of the wide-scale trial

Subject	Total	Score	Maximum Score	Percentage	Criteria
Athlete	1418	1600		88.63%	Very Good
Coach	191	200		95.50%	Very Good
Scorer	842	900		93.56%	Very good



From the table above, it is found that, in the broad group trial the assessment of 32 athletes got a score of 1418 from a maximum score of 1600 with a percentage of 88.63%. In the broad group trial of 4 trainers got a score of 191 from a maximum score of 200 with a percentage of 95.50%, while in the broad group trial the assessment of 6 scorers got a score of 842 out of a maximum score of 900 with a percentage of 93.56%. The conclusion from the results of broad-scale product trials with these percentages is that the product is said to be "Very Feasible".

The research objectives are 1) Producing a score sheet application model based on Information Technology (IT) in traditional sports hadang. 2) Testing the effectiveness of the product being developed. 3) Test the acceptability of the score sheet application which is accepted by all activists and committees of folk games and traditional sports in all provinces in Indonesia. The research procedure carried out includes several activities, among others: (1) Identification of potentials and problems; (2) data collection; (3) Product design; (4) Expert validation; (5) Revision; (6) Small-scale trials (7) Product revisions; (8) Large scale trials; (9) Product revision. The instruments used in this study included (1) assessment sheets / questionnaires; (2) Suggestions.

Data analysis and data interpretation were obtained through a series of activities carried out by the study by carefully analyzing all the data that had been collected, namely the results of product validation, questionnaires, notes, fields and documentation.

Based on the data analysis of the research results, data about the application of the score sheet hadang based on information technology were

obtained briefly and the product validation and questionnaires were classified as follows: 1) The validation data for small-scale trials by the IT validation team can be concluded that the application is good. Furthermore, the results of the scorer questionnaire obtained a percentage of 65.44% with Good criteria and the conclusion of the small-scale trial is that the tool is ready to be tested on a wide-scale use trial. 2) The product validation data of the trial use / large-scale trials by the expert team increased very well, both from the referee team the results increased to 93.56% with very good criteria. The conclusion from the final product development the application of the score sheet hadang based on information technology is very feasible and can be used as a mass product.

The effectiveness of the product development the application of the score sheet hadang based on information technology is based on large-scale trials. The product effectiveness in question includes the effectiveness of using time, the effectiveness of scorer performance and the use of automatic products. 1) The effectiveness of using time According to the advice given by the expert team, the product is of good quality because it has responded quickly so that the scorer can work more quickly and easily in recording match statistics more quickly and minimize errors in entering player data. 2) The effectiveness of the referee's performance.

The effectiveness of the performance of the scorer is that the referee who is in charge of filling out the score sheet in the obstacle course can work faster and monitor the occurrence of errors in the player's jersey number that do not match what the player wears on the field. This will also affect referee I and referee II to immediately notify that

an error has occurred on the field. 3) The effectiveness of application score sheet hadang based on information technology products can function properly and is very efficient for scorers, by using application score sheet hadang based on information technology, there is no need to use the score table property because this application can display automatically Display score, time, player name, points, substitutions, locks and number of game sets using a medium sized LED projector / TV.

Some of the advantages possessed by information technology (IT) based sports score sheet development products are as follows:

1. Originality Aspects

Application products are the work of researchers with new designs and some of the regular score sheets using A4 size paper. This tool uses Information technology (IT) based applications.

2. Aspects of Excellence in Innovation

This application development product has several advantages provided:

Automatic products

Supported by modern tools

Products are easy to operate

3. Economical aspects

The application score sheet hadang based on information technology products have a positive impact, namely the creation of this application further enhances technological advances in traditional sports games at affordable prices.

4. Safety and comfort aspects

The security and convenience aspects of a development product really need to be considered. Do not let a product that is made unsuitable have a level of safety and comfort when used, let alone interfere with the competition, for safety and effectiveness this application is aimed at the scorer in filling out the application score sheet hadang based on information technology. This application is effective because it uses the information technology (IT) system which is equipped with other supporting menus to make it easier to fill in the score sheet in traditional sports hadang competitions.

5. Completeness aspect

This application has a complete set with locking alerts and changing sets and the software

used to record and store match data. Besides this application has a lock mark and the data will be saved automatically, it can also display the score of the match and the names of the number / point scorers on the projector / led TV.

In addition to having advantages, the product development of a score sheet application based on information technology also has weaknesses as a disadvantage of product development. The weakness of this information technology-based application product in research is that the product requires electricity to connect printers, projectors and led tv to support this application. In addition, if the power fails or goes out, the application can be used via a laptop only.

Research procedures have been systematically compiled and have been implemented properly to maintain the purity of the research results that have been carried out. During the development and research process, there are limitations and limitations. The details of the limitations of the research carried out are as follows:

1. Making the product takes a relatively long time.

2. If there is a big problem in the software it takes a long time to fix it.

3. Small-scale trials in the village are very difficult to carry out because they are plagued by COVID-19, must meet health standards and comply with the directions of the local RW and RT.

4. Large-scale trials have to wait for a race event or match schedule because the application requires that it be tested in a match to test how well this application is used in a match.

CONCLUSION

Researchers have carried out a series of research activities in accordance with development research procedures. From the research that has been done, the researcher has produced a product of the development of application score sheet traditional sport hadang on information technology, namely the application score sheet which is used as a scoring requirement in traditional sports of hadang, which is assisted by the score counter application on android that utilizes a Wi-Fi connection. The results of all matches in the application can also be exported to a

score sheet in PDF file format. The effectiveness of the product development of application score sheet traditional sport hadang on information technology can be said to be effective as a score sheet application that helps the scorer enter points, record and store match data. Acceptability of the product development of application score sheet traditional sport hadang on information technology, can be said to be accepted from the results of a wide-scale product trial questionnaire conducted by athletes, coaches and scorers with a percentage of 92.56%, the product can be said to be "Accepted / Fit for Use".

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