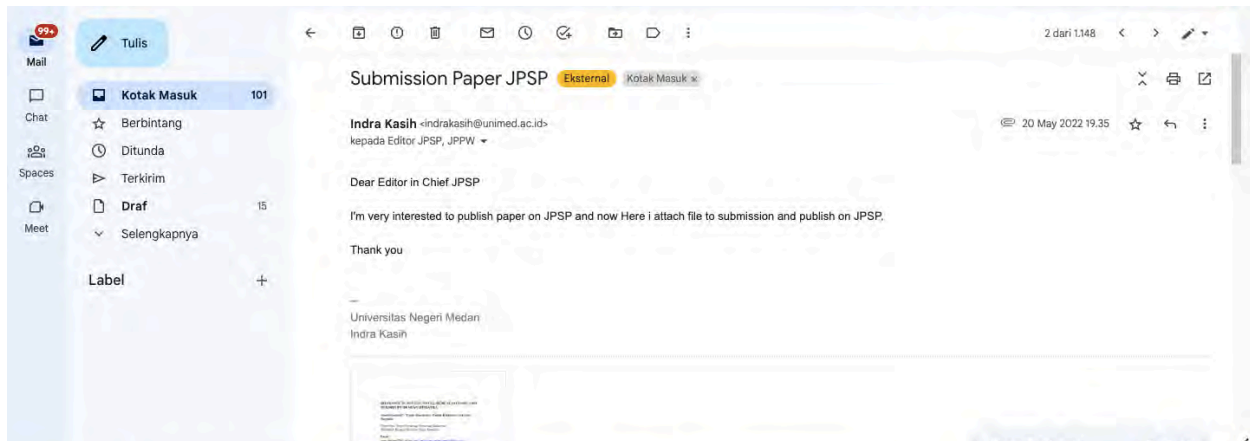
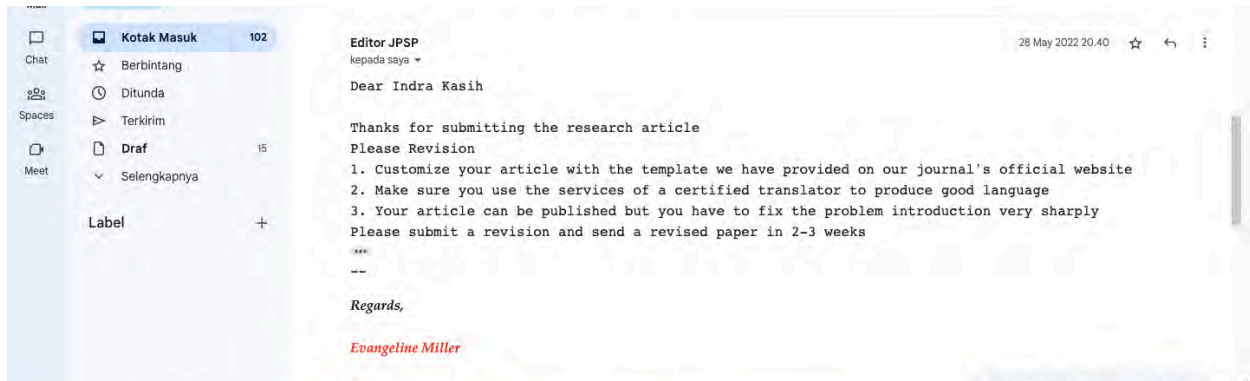


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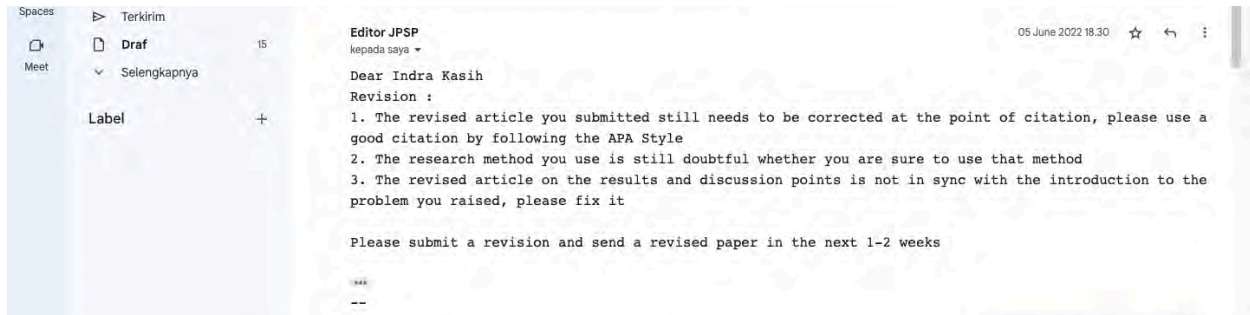
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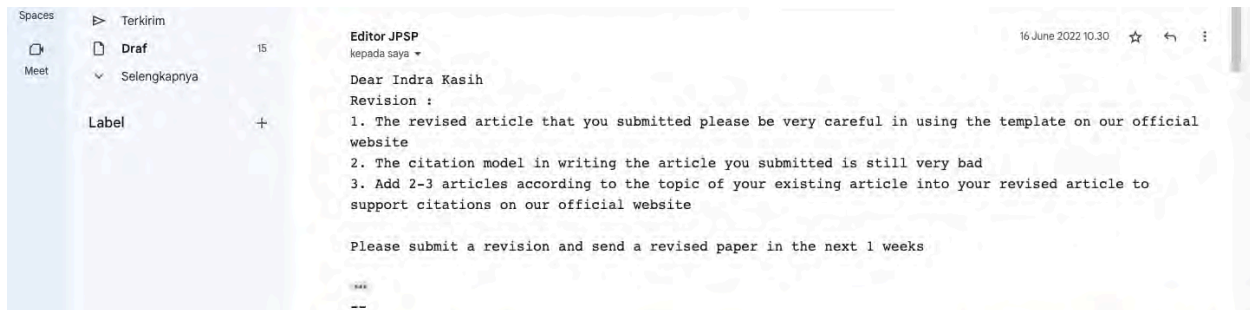
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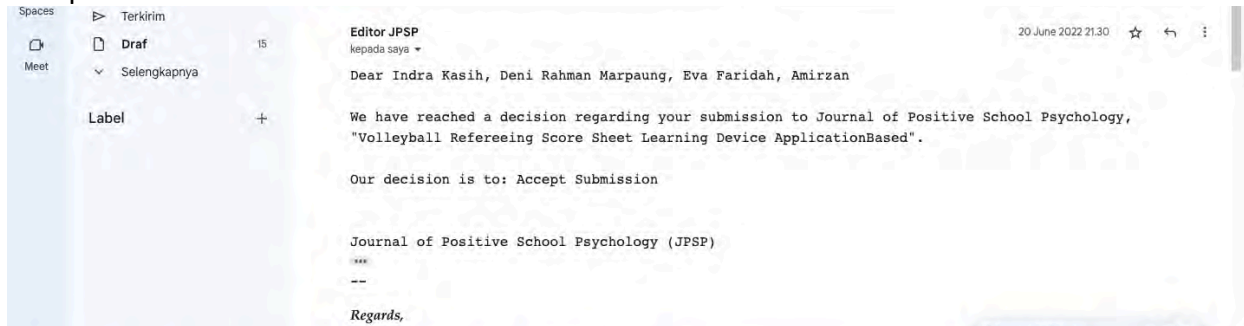
Revisi 2:



Revisi 3:



Accepted:



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20 June 2022 21:30

Editor JPSP
kepada saya

Dear Indra Kasih, Deni Rahman Marpaung, Eva Faridah, Amirzan

We have reached a decision regarding your submission to Journal of Positive School Psychology, "Volleyball Refereeing Score Sheet Learning Device ApplicationBased".

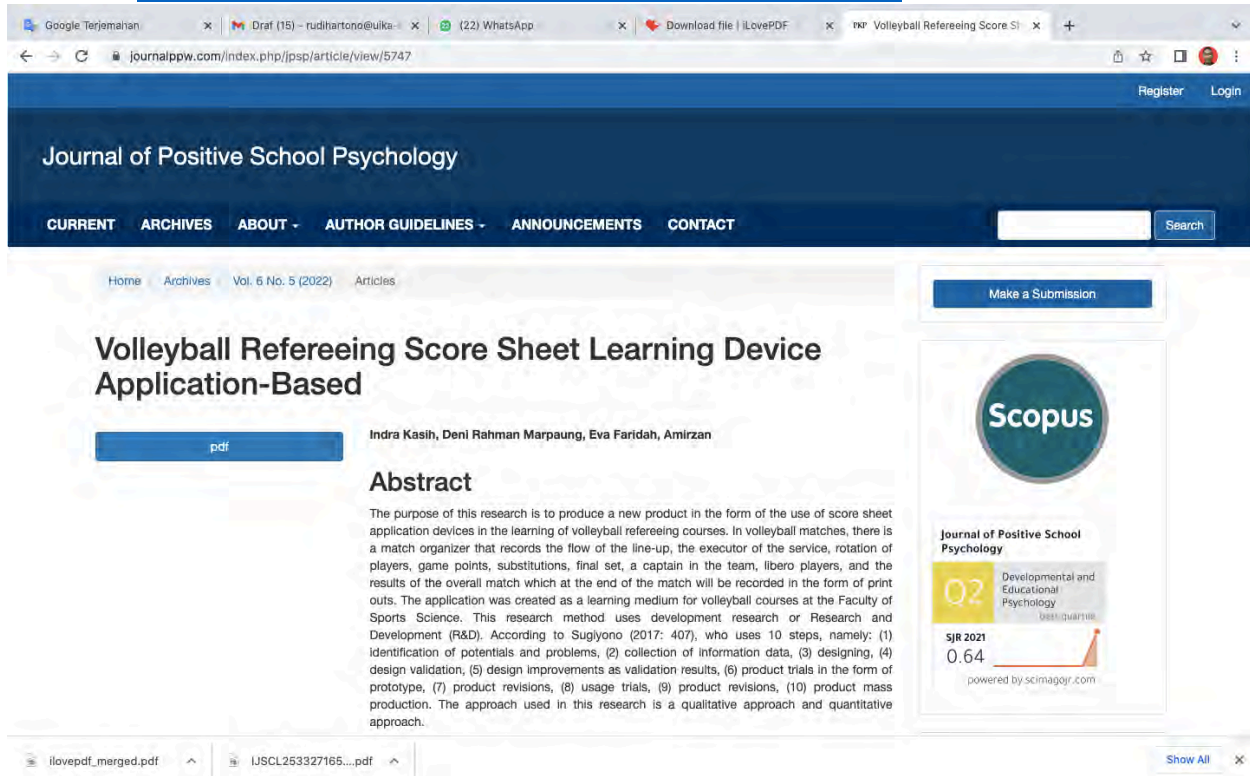
Our decision is to: **Accept Submission**

Journal of Positive School Psychology (JPSP)

--

Regards,

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Volleyball Refereeing Score Sheet Learning Device Application-Based

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Indra Kasih, Deni Rahman Marpaung, Eva Faridah, Amirzan

Abstract

The purpose of this research is to produce a new product in the form of the use of score sheet application devices in the learning of volleyball refereeing courses. In volleyball matches, there is a match organizer that records the flow of the line-up, the executor of the service, rotation of players, game points, substitutions, final set, a captain in the team, libero players, and the results of the overall match which at the end of the match will be recorded in the form of print outs. The application was created as a learning medium for volleyball courses at the Faculty of Sports Science. This research method uses development research or Research and Development (R&D). According to Sugiyono (2017: 407), who uses 10 steps, namely: (1) identification of potentials and problems, (2) collection of information data, (3) designing, (4) design validation, (5) design improvements as validation results, (6) product trials in the form of prototype, (7) product revisions, (8) usage trials, (9) product revisions, (10) product mass production. The approach used in this research is a qualitative approach and quantitative approach.

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Publisher: Society of Psychology and Education
E-ISSN: 2717-7564
Subject area: Social Sciences: Education Psychology: Developmental and Educational Psychology Psychology: Social Psychology
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Volleyball Refereeing Score Sheet Learning Device Application-Based

¹Indra Kasih, ²Deni Rahman Marpaung, ³Eva Faridah, ⁴Amirzan

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Abstract

The purpose of this research is to produce a new product in the form of the use of score sheet application devices in the learning of volleyball refereeing courses. In volleyball matches, there is a match organizer that records the flow of the line-up, the executor of the service, rotation of players, game points, substitutions, final set, a captain in the team, libero players, and the results of the overall match which at the end of the match will be recorded in the form of print outs. The application was created as a learning medium for volleyball courses at the Faculty of Sports Science. This research method uses development research or Research and Development (R&D). According to Sugiyono (2017: 407), who uses 10 steps, namely: (1) identification of potentials and problems, (2) collection of information data, (3) designing, (4) design validation, (5) design improvements as validation results, (6) product trials in the form of prototype, (7) product revisions, (8) usage trials, (9) product revisions, (10) product mass production. The approach used in this research is a qualitative approach and quantitative approach.

Keywords: Volleyball, Refereeing score sheet Learning device.

INTRODUCTION

Science is evolving. The development of this science supports the creation of new technologies that mark the progress of the times. Until now, the evolving technology has entered the digital stage. In Indonesia, every field has begun to utilize technology to facilitate work, including the field of education (Lestari, 2018). Technological developments change various sectors of world life that are present to facilitate human work in carrying out their daily tasks (Supegina & Iklima, 2015).

There are many advances in science and technology that mankind can enjoy. But on the contrary, these advances also go hand in hand with the misery of many human children, especially in the current era of globalization.

Technology is the result of the development of science, which occurs in the world of education. Therefore, it is appropriate for the education itself to also utilize technology to help the implementation of learning.

In this globalization, learning has dominated with the use of technology. Learning is a process of changing behavior through interaction between the individual and the environment. In this case, the process is a series of activities that are sustainable, planned, integrated, and balanced, which as a whole provide characteristics to the learning process. (Fatimah, 2018). In the curriculum at the faculty of sports science, Medan State University, volleyball courses are mandatory courses that must be passed by students. Volleyball courses are divided into two

competencies, the first being the volleyball course and the refereeing subject and the volleyball match system.

In the implementation of volleyball courses, one of the materials in it is refereeing which has the task of doing a score sheet. The volleyball score sheet is one of the parts that must be in a volleyball match. The score sheet is part of the control tool for the course of a match. But in its implementation score sheet still performs conventionally. Many disadvantages that exist can be conventional implementation including a) there are often errors in writing dredged so that it will cause an untidy impression based on paper is carbon paper. b) the match result file is not well administered. c) lack of effectiveness and efficiency of work. In line with the development of conventional score sheet technology will be directed towards application-based implementation to meet the development of science in volleyball.

Development Concept

Development is a process of designing learning logically, and systematically to determine everything that will be implemented in the process of learning activities by paying attention to the potential and competence of learners. So the development of learning is more realistic, not just educational idealism that is difficult to apply in life. (Abdul Majid, 2005). Educators can also innovate the learning process using interactive media to achieve learning goals, this development aims to improve student learning outcomes (Destriani, Endang Switri, 2019).

Learning development is an effort to improve the quality of the learning process, both materially and methods, and substitutes. Materially, it means from the aspect of teaching materials that are adapted to the development of knowledge, while methodologically and substantively related to the development of learning strategies, both theoretically and practically. (Hamdani Hamid, 2013).

Teaching material development is the process of selecting, adapting, and manufacturing teaching materials based on a specific frame of

reference (Agis Mulia, 2021) The development of learning models is the most important way of identifying, developing, and evaluating a set of materials and strategies directed towards achieving certain learning goals. (Dr. R. Mursid, 2013).

Research and development methods have been widely used in the fields of Natural Sciences and Engineering. Almost all technological products, such as electronic devices, motor vehicles, airplanes, ships, weapons, medicines, medical devices, and others. However, development research can also be used in the fields of social sciences such as psychology, sociology, education, management, and others. So it can be concluded that development is an effort to make something better by the development of learning needs to produce more perfect results.

Technology in Learning

The term technology comes from the Greek discussion of technology which according to Webster Dictionary means systematic treatment or handling of something systematically, while techne as the basis of the word technology means art, skill, science or expertise, skills, science. So "educational technology" can be interpreted as the handling or implementation of education systematically (Irma, Azhar Arsyad, Safe'i, 2019). The development of digital technology in the current Industrial 4.0 era has brought about changes and affected various aspects of human life, including in the field of education. (Susilahudin Putrawangsa1 & Uswatun Hasanah2, 2018) confirms that digital technology is the most affecting the education system in the world today. This is because of the aspects of effectiveness, efficiency, and attractiveness offered by digital technology-based learning.

Learning technology is theory and practice in the design, utilization, management, and evaluation of processes, and learning resources. Learning technology initially grew and evolved from educational practices and audiovisual communication movements. Learning technology was originally seen as equipment technology, which is related to the use of

equipment, media, and means to achieve educational goals by utilizing audio-visual aids. The word technology is often interpreted by the public as an electronic device. But by scientists and philosophers science is interpreted as the work of science to solve practical problems. So technology refers more to efforts to solve human problems (Rogantina Meri Andri, SP, 217 C.E.)

Volleyball

Volleyball is a team sport played by two teams of six players each (Mustaghfirin & Sukiyandari, 2020) Volleyball game is a complex game that is not easy for everyone to do because volleyball games require coordination that can be relied on to do all movements. The game of volleyball begins with a service blow made by the right-back (position 1) from the service area. Starting from this service is only considered as a starting blow, but develops into a powerful weapon to attack. (Dieter Beutelstahl, 2016) Volleyball is played by two teams each having six players on a 9-meter court and two courts separated by a net. (Barbara L. Viera, 1996).

Volleyball is a sport whose way of playing by passing the ball on the net, with the intention and purpose of being able to drop the ball into the opponent's field plot and to find victory in play, with a fast tempo, so that the time to play the ball is very limited, and if it does not master the perfect basic technique will allow for greater technical errors. This sport has also required the ball to soar over the top of the net, aiming for the ball to be dropped in the opponent's game area to get points in the game, body parts can be used as long as the favor must be perfect (Wintoro et al., 2021). Every game of the sport is always led by a referee called the referee presiding and regulating the course of the game involving two teams on the field. Under the rules issued by the World Volleyball Federation (FIVB), there are five referees in the sport's official matches. The five-match kits consisted of the main referee, the second referee, the number registrar, and two linesmen. The number of volleyball line judges needed in a national or international match is as many as two people, but it can

increase to four people. Each member of the matching device has different tasks and roles in determining the course of the game of volleyball. For example, the task of a referee 1 in a volleyball match includes presiding over the match, stopping, and restarting the game. One of the duties of referee 2 is to supervise the behavior of each team sitting on the bench. In addition, referee 2 also supervises the number of timeouts, and substitutions and reports the data to referee one. (Typhoon, 2021). The area in charge of the number registrar or scorer is specially assigned in the sideline area, opposite the main referee. During the match, the task of the number registrar is to record the occurrence of points from each team, the turn of service, substitutions, and the final result of the game. The responsibility for regulating substitutions, time-outs, and penalties for a violation also belongs to the number registrar. The score is the result of the work of suspending (giving a score) obtained by adding up the numbers for each item produced by the testee (term) for people who do the test has been done correctly. Monitoring the match score is still done manually whereas the implementation form still uses recording with paper but the results of this study use a digital application. (Triyanto et al., 2021).

Application

The application comes from the word application which means application, application, use. Terms of applications are ready-made programs that are created to carry out a function for users or other applications and can be used to achieve certain goals (Andri, 2012). In today's world of work, humans have been more helped in their work activities, as well as in sports activities. Aspects of sports that used to still use work, training, and learning are still relatively conventional. But now it has led to the use of technology that facilitates the learning and training process. Application is a program that is ready to be used and made to carry out a function for application service users that can be used by a target to be aimed, in today's sports the role of the application as science and technology is very necessary, to get accurate physical information for the development of athletes.

(Primary, 2019). Utilization and development of applications in learning have been widely developed as a learning medium, including android-based application development for physical education materials (Firlando et al., 2020). Learning activities using applications can make it easier to guide teachers and coaches so that applications can interact with needs. Activities in sports are determined and guided by coaches on the one hand and sports sciences on the other. People are not always able to observe successful cooperation and interaction between practice and sports theory (Suprayitno, Indra Kasih, 2021). The use of auxiliary media in refereeing applications can be interesting and easy for the working system. This shows that with media the application of work is more effective and efficient. (Puspodari1 & Muharram2, 2020). The application can also be used as an aid for referees in performing their duties in volleyball matches. (Satriyo et al., 2017).

Various research and development on the application of health and fitness categories have been carried out .with the aim to provide convenience for the wider community, especially sports actors with various sports needs (Antoni & Suharjana, 2019).

- a. Participants can view administrative provisions during the match.
- b. Participants can see a score sheet for every set of end-of-game.
- c. The coach can see the change of athletes in each game.
- d. Can see the rotational journey in each game.

Method

Researchers use research methods of development or Research and Development

(R&D). According to Sugiyono (2017: 407) using 10 steps, namely: (1) identification of potential and problems behind the development, (2) collection of information data needed as material for product planning to be developed, (3) designing the expected product design, (4) design validation to see if the design of the product to be developed will be more effective and efficient, (5) design improvements as validation results, (6) product trials in the form of prototype, (7) product revisions, (8) usage trials, (9) product revisions, (10) product mass production. This application-based learning media development research refers to the Research & Development development model of Gall, Borg, & Gall (1983). Although the development model there are ten steps, Wayan (2002) stated that the procedure for implementing development research is not standard steps that must be followed rigidly, each development can of course choose and determine the most appropriate step for him based on the special conditions he faced in the development process (Ardiansyah E, Pratama, H.G, Sulendro, 2020).

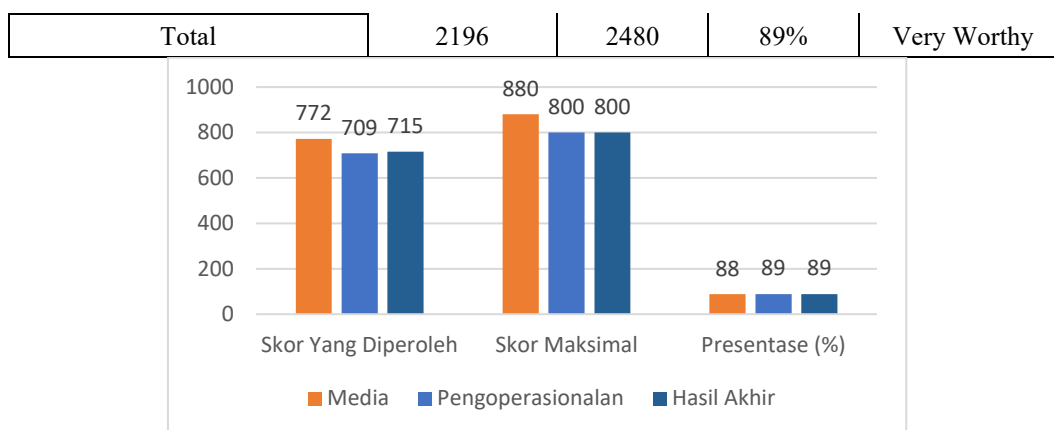
Result

Small-Group Sample Data For Application Use

The instrument of the learning process material questionnaire teaches a score sheet with the use of applications for student samples with 3 indicators:

- a. Recap angket class a PJKR indicator display data score set 11 statements
- b. Recap angket class a PJKR operational indicator 10 statements
- c. Print Out Result Variable 10

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	772	880	88%	Very Worthy
2	Operational indicators	709	800	89%	Very Worthy
3	Print Out Final Result	715	800	89%	Very Worthy



From the distribution of statement questionnaires given to 20 learners with 31 statements obtained the results of the media indicator display data score sheet 88% with a very worthy category, the operating indicator 89% with a very worthy category, and the final result indicator print out 89% with a very

worthy category. With the three indicators that have been tested, a total of 89% indicator validity is very worthy to use.

1. Media Experts

a. Angket class a PJKR indicator display data score sheet

No	Name	Earned Score	Maximum	Percentage (%)	Category
1	Irfan Lubis, S.Kom	38	44	86%	Very Worthy

b. Angket class a PJKR operational indicator

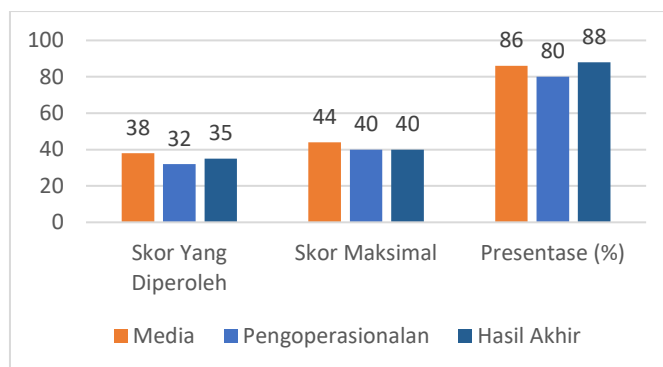
No	Name	Earned Score	Maximum Score	Percentage (%)	Category
2	Irfan Lubis, S.Kom	32	40	80%	Worthy

c. Angket class PJKR indicator print out results

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
3	Irfan Lubis, S.Kom	35	40	88%	Very Worthy

d. Data results "DEVELOPMENT OF VOLLEYBALL REFEREEING DEVICES BASED ON MANAGAMEN SYSTEM APPLICATION" By Media Experts

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	38	44	86%	Very Worthy
2	Operational indicators	32	40	80%	Very Worthy
3	Print Out Final Result	35	40	88%	Very Worthy
Total		105	124	85%	Very Worthy



From the distribution of statement questionnaires given to media experts with 31 statements obtained results from the media indicator display data score at 86% with a very worthy category, for the operating indicator 80% with a decent category, and the final result

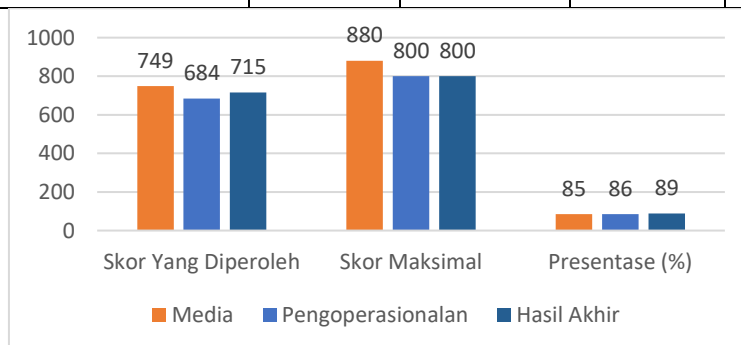
indicator print out 88% with a very worthy category. With the three indicators that have been tested, the total validity of the indicator is 85% very worthy to use with improvements to the perfection of the media among them.

MEDIA EXPERT INDICATIVE VARIABLES IN APPLICATION	
Validation Results	
1	<ul style="list-style-type: none"> The appearance of the line-up in the application box needs to be enlarged
2	<ul style="list-style-type: none"> Operationalization of match result recap boxes in the application is more simplified
3	<ul style="list-style-type: none"> Print out results for the final record of the match in the application are well colored
4	<ul style="list-style-type: none"> Overall data storage and better parts created

Small Data for Media Indicators

a. Small-Scale Trial Questionnaire Results About Score Sheet Operating Steps

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	749	880	85%	Very Worthy
2	Operational indicators	684	800	86%	Very Worthy
3	Print Out Final Result	715	800	89%	Very Worthy
Total		2148	2480	87%	Very Worthy



From the distribution of statement questionnaires given to small trials about the steps of operation of the score sheet with 31 statements obtained the results of the media indicator display data score sheet 85% with a very worthy category, for the indicator of 86%

operation with a decent category and the final indicator print out the result of 87% with a very worthy category. With the three indicators that have been tested, the total completeness of the indicator of 85% is very worthy to use.

Score Sheet Expert

a. Angket class a PJKR indicator steps to fill in the score sheet data

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	DANIEL VERAPAN	42	44	95%	Very Worthy

b. Angket class a PJKR indicator operationalization measures

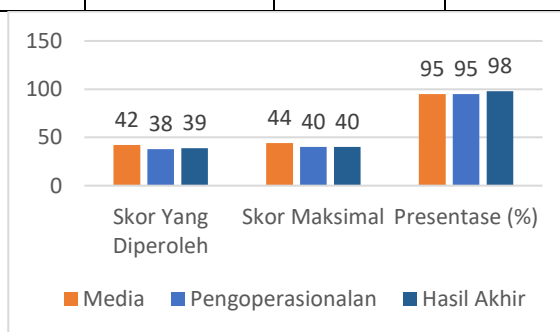
No	Name	Earned Score	Maximum Score	Percentage (%)	Category
2	DANIEL VERAPAN	38	40	95%	Very Worthy

c. Angket class a PJKR indicator the steps of the final result print out

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
3	DANIEL VERAPAN	39	40	98%	Very Worthy

d. Data Results "DEVELOPMENT OF VOLLEYBALL REFEREEING DEVICES BASED ON MANAGAMEN SYSTEM APPLICATION" By Score Sheet Experts

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	42	44	95%	Very Worthy
2	Operational indicators	38	40	95%	Very Worthy
3	Print Out Final Result	39	40	98%	Very Worthy
Total		119	124	96%	Very Worthy



From the distribution of statement questionnaires given to score sheet experts with 31 statements obtained results from the media indicator display data score sheet 95% with a very worthy category, for the operating indicator 95% with a very worthy category, and the final result indicator print out 98% with a very worthy category. With the three indicators

that have been tested, the total completeness of the indicator of 96% is very fworthy to use with improvements to the perfection of the score sheet including:

Expert Evaluation of Score Sheet

1	The need for the addition of materials in the guidebook
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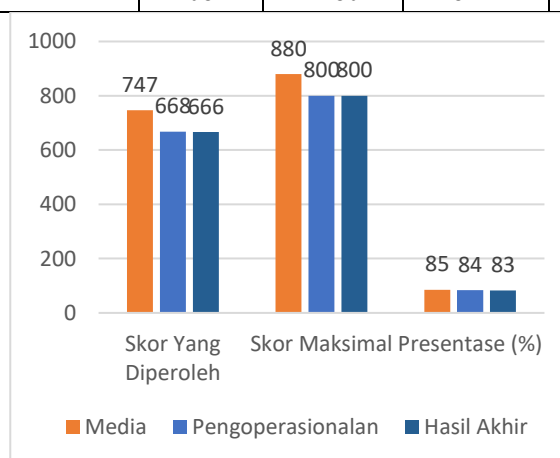
2	Adjustment of teaching materials according to the manual score sheet
3	The use of columns in the material input is further magnified

4 In each item need to be added color as a letter light
 Variable Indicator Steps Of Filling data score sheet (Learning Expert Section)

a. Recap angket class a PJKR indicator steps to fill in the score sheet data

b. Small-Scale Trial Questionnaire Results of Media Operation steps in Learning

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	747	880	85%	Very Worthy
2	Operational indicators	668	800	84%	Very Worthy
3	Print Out Final Result	666	800	83%	Very Worthy
Total		2081	2480	84%	Very Worthy



Learning Experts

a. Angket class a PJKR indicator steps to fill in the score sheet data

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	ONYAS WIDIANINGSIH	39	44	89%	Very Worthy

b. Angket class a PJKR indicator operationalization measures

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
2	ONYAS WIDIANINGSIH	33	40	83%	Very Worthy

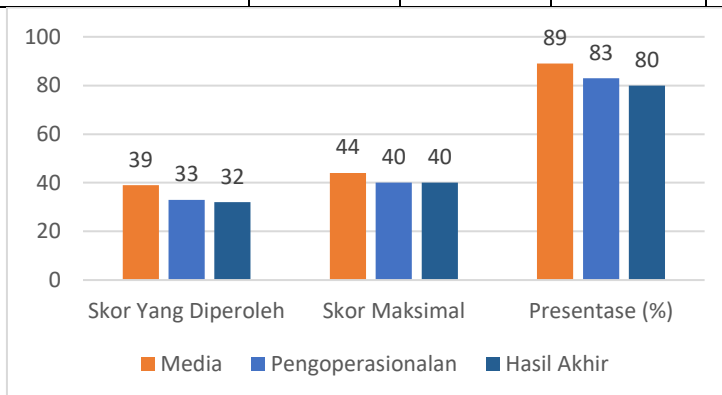
c. Angket class a PJKR indicator the steps of the final result print out

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
3	ONYAS WIDIANINGSIH	32	40	80%	Worthy

d. Results Data "Development Of Volleyball Refereeing Devices Based On Managemen System Applications" By Learning Experts

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score	39	44	89%	Very Worthy

	sheet data				
2	Operational indicators	33	40	83%	Very Worthy
3	Print Out Final Result	32	40	80%	Worthy
Total		104	124	84%	Very Worthy



From the results of the media in the learning device classified as feasible with the indicator of the display of data score sheet percentage of 89% and categorized as very worthy, as well as operationalization with a percentage of 83% with a worthy category and the indicator of print out results with a percentage of 80% with a worthy category. Of the total 84% with a worthy category. Thus the media used is worth using with several improvements including:

3	The use of language in the guide needs to be refined again
4	The writing of the code of each column is arranged with the district/city
5	Need to be made tutorial learning fill application score sheet

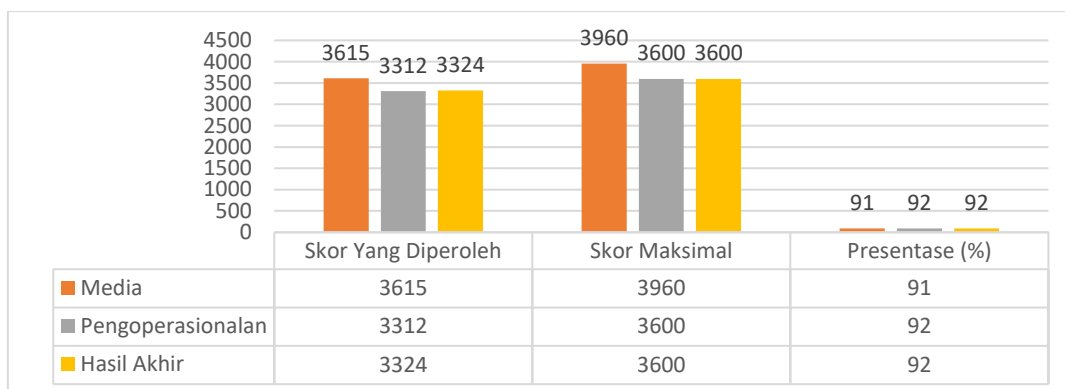
Volleyball Learning Expert Evaluation

Large Group Sample Data 3 Classes of 90 Students

Variable Media Indicator Display Data Score Sheet

1	The addition of steps of the teaching and learning process of each material
2	Clarity of commands in the filling of each column

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	3615	3960	91%	Very Worthy
2	Operational indicators	3312	3600	92%	Very Worthy
3	Print Out Final Result	3324	3600	92%	Worthy
Total		10251	11160	92%	Very Worthy



Media Experts

e. Angket indicator display data score sheet

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	Irfan Lubis, S.Kom	43	44	98%	Very Worthy

f. Angket operational indicator

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
2	Irfan Lubis, S.Kom	39	40	98%	Very Worthy

g. Angket indicator print out results

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
3	Irfan Lubis, S.Kom	38	40	95%	Very Worthy

h. Data Results "Development Of Volleyball Refereeing Devices Based on Managemen System Application" by Media Experts

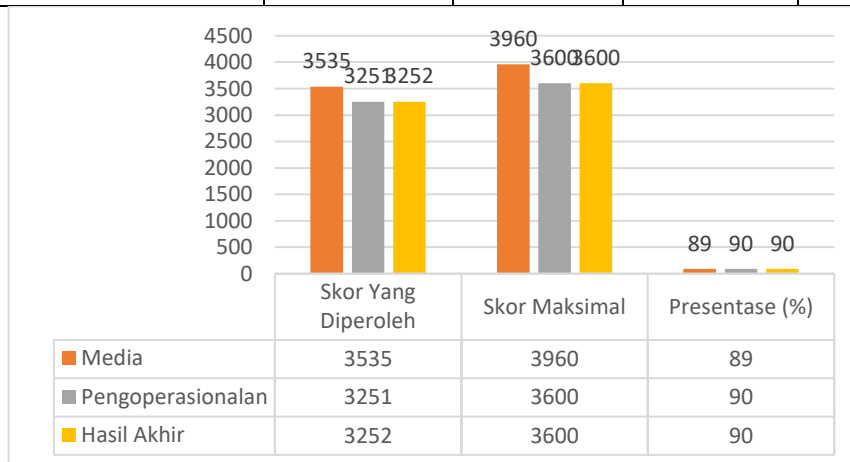
No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	43	44	98%	Very Worthy
2	Operational indicators	39	40	98%	Very Worthy
3	Print Out Final Result	38	40	98%	Very Worthy
Total		120	124	97%	Very Worthy



Variable Indicator Steps Filling Score Sheet Data (Expert Scoresheet Section)

b. Results of Large-Scale Trial Questionnaires Conducted by CLASS A, B and C PJKR On Media Operation Measures

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	3535	3960	89%	Very Worthy
2	Operational indicators	3251	3600	90%	Very Worthy
3	Print Out Final Result	3252	3600	90%	Very Worthy
Total		10038	11160	90%	Very Worthy



From the results of media experts in learning devices classified as feasible with a score-sheet data display indicator of 98% and categorized as very worthy, as well as operationalization with a percentage of 98% with a very worthy category and a printout indicator with a percentage of 95% with a very worthy category. Thus the media used is worth using with several improvements including:

2	The display of the screen column needs to be enlarged
3	Inputting player material is more simplified
4	display lighting is further improved
5	Each column needs to be adjusted to the needs of the filling.
6	The last recap needs to be spruced up before printing out

b. Expert Score Sheet

e. Angket indicator steps to fill in score sheet data

Evaluation of Application Experts	
1	Guidebooks are more structured and used

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	DANIEL VERAPAN	41	44	93%	Very Worthy

f. Angket indicator operationalization measures

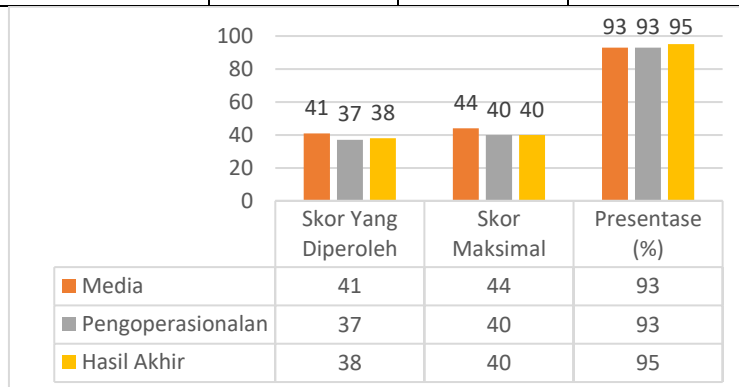
No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	DANIEL VERAPAN	37	40	93%	Very Worthy

g. Angket indicator print out final result steps

No	Nama	Earned Score	Maximum Score	Percentage (%)	Category
3	DANIEL VERAPAN	38	40	95%	Very Worthy

h. Data Results "Development of Volleyball Refereeing Devices Based on Managemen System Application" By Score Sheet Experts

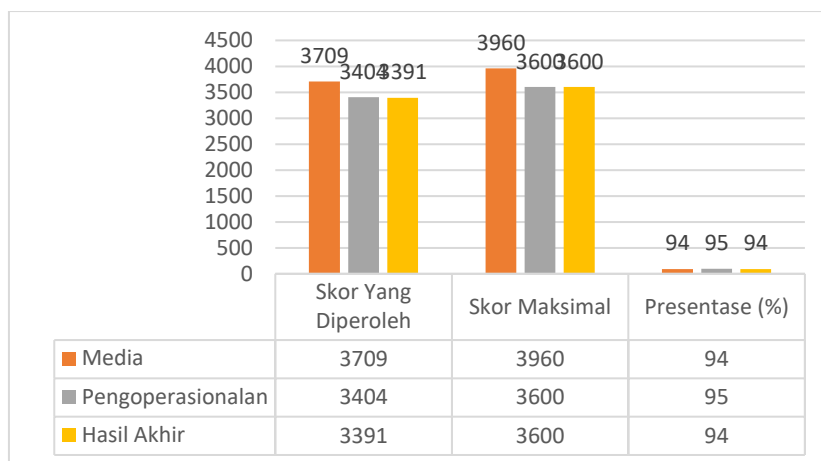
No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	41	44	93%	Very Worthy
2	Operational indicators	37	40	93%	Very Worthy
3	Print Out Final Result	38	40	95%	Very Worthy
Total		116	124	94%	Very Worthy



Variable Indicators of the Steps of Filling in the Data Score Sheet (Learning Experts Section)

c. Results of Small-Scale Trial Questionnaires Conducted by CLASS A PJKR About Media Operation Steps in Learning

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	3709	3960	94%	Very Worthy
2	Operational indicators	3404	3600	95%	Very Worthy
3	Print Out Final Result	3391	3600	94%	Very Worthy
Total		10504	11160	94%	Very Worthy



From the results of the media in the learning device classified as feasible with a percentage score sheet data display indicator of 93% and categorized as very worthy, as well as operationalization with a percentage of 93% with a very worthy category and a print out indicator with a percentage of 95% with a very worthy category with a total of 94% with a very worthy category, but there are some improvements including:

Expert Evaluation of Score Sheet

1	Columns For less large city names
2	columns for club names are less large
3	column for signature at the end of the match needs to be fixed
4	match time column does not yet exist
5	point fill column needs to be enlarged
6	The field of violation does not yet exist
7	Guides need to be added with columns that don't already exist

c. Learning Expert

e. Angket indicator steps to fill in score sheet data

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	ONYAS WIDIANINGSIH	42	44	95%	Very Worthy

f. Angket indicator operationalization measures

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	ONYAS WIDIANINGSIH	38	40	95%	Very Worthy

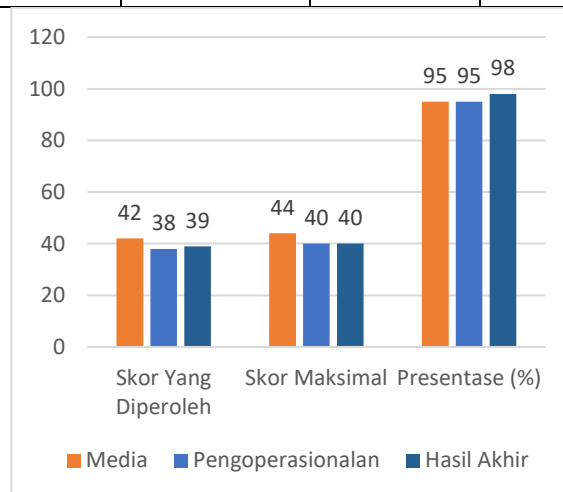
g. Angket indicator print out final result steps

No	Name	Earned Score	Maximum Score	Percentage (%)	Category
1	ONYAS WIDIANINGSIH	39	40	98%	Very Worthy

h. Results Data "Development of Volleyball Refereeing Devices Based on Managamen System Applications" By Learning Experts

No	Assessed Aspects	Earned Score	Maximum Score	Percentage (%)	Category
1	Media Indicator Display score sheet data	42	44	95%	Very Worthy
2	Operational indicators	38	40	95%	Very Worthy

3	Print Out Final Result	39	40	98%	Very Worthy
Total		119	124	96%	Very Worthy



From the results of media experts in learning devices classified as feasible with a data display indicator score as a percentage of 95% and categorized as very worthy, as well as operationalization with a percentage of 95% with a very worthy category and print out indicators with a percentage of 98% with a very worthy category with a total of 96%, thus for the media used it is worth using with several improvements including:

Volleyball Learning Expert Evaluation

1	The use of language narration improved
2	The teaching and learning process guide needs to be better designed
3	The teaching and learning guide cover made it more interesting
4	The table of contents of the guide needs to be sorted out again
5	the closing word in the guide

Conclusion

From the distribution of statement questionnaires given to a small sample with the three indicators that have been tested, the total completeness of the indicator is 89% very feasible to use. As for one-person media experts with three overall indicators of 84% with a decent category. one-person learning expert out of a total of 84% with a decent category. For experts, the score sheet of the total indicator is 84% with a decent category.

Thus this model could proceed to a large group test with some improvements.

From the distribution of large group statement questionnaires with the three indicators of media experts in learning devices a total of 84% with a decent category. From the results of media experts in learning devices classified as worthy with the score sheet indicator data display indicator printed out with a percentage of 95% with a very worthy category. From the results of media experts in learning, devices were classified as very worthy with a total of 94%. From the results of media experts learning devices were classified as very worthy with a total of 96%, thus the media used is worth using.

Recommendations

From the results of small and large group tests that have been tested and three experts including, media experts, score sheet experts, and learning experts developed with very good recommendations, then application-based score sheet devices in volleyball course learning refereeing materials can be used as learning media in the achievement of student competencies. For other researchers please continue the development of this application to achieve even better perfection.

Acknowledgements or Notes

This research is completed according to the schedule given by the LPPM Unimed agency. This research can be useful for researchers and readers in fulfilling scientific references. This assistive media combines the use of sensor technology in connection with a TV or laptop in its implementation so that it will be able to help the referee to identify the mistakes of players touching the net by viewing the recorded results of the game. The expected end of using this media is creating a fair play game and providing satisfaction for players, coaches, and volleyball game lovers. Thank you to the Chancellor of Medan State University and the Medan State University LPPM institution, which has become a research forum on improving scientific writing for lecturers in the field of study.

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