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by Selly Purnama

DEVELOPMENT OF HOCKEY DRIBBLING EXERCISES ANDROID APP-BASED

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Abstract

The objectives of this study are as follows: 1) To produce an android-based dribbling hockey practice application that is developed, 2) To determine the feasibility of an android application-based dribbling practice product that is being developed. The research method used is a research and development (R&D) approach. The results of this study were 1) successful design of an Android-based dribbling hockey practice application, 2) The results of the feasibility validity of dribbling hockey practice obtained percentages of 83%, 87%, and 86%, which means that the application developed is valid and feasible to use, 3) Based the SUS Score result is 73.42 which is in the good category so that overall the application made is feasible to use and effective for dribbling hockey practice based on user ratings.

Keywords: *Android; Dribbling; Hockey*

INTRODUCTION

Communication and Information Technology is the application of knowledge and skills that are used by humans in conveying information or messages with the aim of helping solve human problems in order to achieve communication goals (Setiawan, 2018). Now in the era of digital society it is very impossible and even said to be very unwise when people say say no to technology (Rais, et al., 2018).

There are so many benefits of technology for the world of sports. Especially for athletes besides getting knowledge from coaches, they can also gain knowledge through digital (Okilanda et al., 2021). A lot of information can be accessed by athletes through their smartphones (Arisman, 2018). No exception information about the sport of hockey. Sports that began to spread and were

favored by Indonesian people at this time, starting from children, adolescents, and adults, both women and men, one of which was indoor hockey (Oktaviani, 2017).

There are so many benefits of technology for the world of sports. Especially for athletes besides getting knowledge from coaches, they can also gain knowledge through digital (Yusmawati et al., 2020). A lot of information can be accessed by athletes through their smartphones (Nopianto et al., 2020). No exception information about the sport of hockey.

Hockey is a game played between two teams where each player holds a crooked stick called a stick (stick) to move a ball. The basic techniques used in playing this sport include: push, hit, stop, dribble, flick, jab, tackle, and scoop techniques (Nurlathifah, 2017). Each technique has different functions and goals depending on their needs during the game (Hermawan, Permadi, 2022). Mastery of basic techniques in the game of hockey has an important role in supporting achievement besides having good physical condition. The goal of the game of hockey is to get as many balls into the opponent's goal as possible and keep your own goal from conceding. (Dwika Yuli S., et al (2014: 33).

Hockey is also a team sport where in a game team one must support each other and work hand in hand to form a cohesive team(Murjainah et al., 2020). This game sport can be played by both women and men, where each team contains 11 players. In a hockey game, a win is declared if you can score as many goals as possible into the opponent's goal (Cahyadi., Faruk, 2022). In hockey there are 3 types, namely 1) Field hockey, 2) Outdoor hockey, and 3) Ice hockey (Subakti, 2013).

Mastery of basic techniques in the game of hockey is a requirement that must be owned by every player. Of the several basic techniques of playing hockey, the basic technique of push and dribble is quite prominent because it can be done both in indoor hockey and in field hockey. These two basic techniques are the main capital for a player to play hockey. The role of the basic techniques of push and dribble in indoor hockey is very dominant, because according to the rules and regulations of indoor hockey, only the basic techniques of push and

dribble can be used (Ihsan et al., 2022). Providing dribble technique material is very important for beginner players, where at the beginner stage or people who are just learning to dribble is mandatory material that must be conveyed and taught so that the player's ability to master dribble can be achieved in the shortest possible time and maximally considering that technique is one of the important factors in the game of hockey. Adindra., et al, 2016).

Therefore the athlete must do as many repetitions as possible. Dribble exercises can be done independently at home by viewing tutorials from the application. Seeing the condition of athletes now, more are interested in literacy through online media, one of which is through the Android application (Taufik et al., 2021). Android is an operating system that is Open Source, which gives freedom for developers to develop an application (Maiyana, 2018). It is called open source because the source code of the Android operating system can be viewed, downloaded and modified freely (Ariputri, et al, 2015).

METHOD

This study uses a research and development (R&D) approach to develop Android application-based dribble exercises. Research and development or research and development (R&D) is a study that aims to develop new products or improve existing products (Maksum, 2018). According to Sugiyono (2011), research and development methods are research methods used to produce certain products and to test the effectiveness of these products (Putra et al., 2020).

Validation was carried out by experts, namely Education media experts, Hockey experts and computer science experts. In addition, limited research was conducted with 10 students. Fifth, modifying the product design according to the needs according to the input of experts. The next stage is a field trial with 60 students and re-validation by experts who train media professionals and ICT/informatics experts. Furthermore, changes are made according to expert input before mass production. After conducting field trials, the last step is perfecting the final product and then uploading the Android application to the Playstore so that it can be downloaded and widely used.

The research subject consists of two components, namely, first the experts consisting of 3 experts to validate the design, content and feasibility of the android application to be developed. Then the second research subject was Physical Education Students, Faculty of Teacher Training and Education, Siliwangi University to try out the products that were made. The field trial phase consists of 3 stages, namely preliminary field testing involving 10 test subjects, field testing (main field testing) involving 60 test subjects. All test subjects were randomly selected Physical Education students.

RESULT AND DISCUSSION

The initial stage is carried out by conducting a literature study followed by factual field studies. A literature study was conducted to examine theories regarding dribbling hockey exercises and the creation of android applications and other supporting devices. Field factual studies are used to see the progress of the dribbling exercise process being carried out. At this stage, the researcher designs an android application that will be made with the application flow which can be seen in Figure 1.
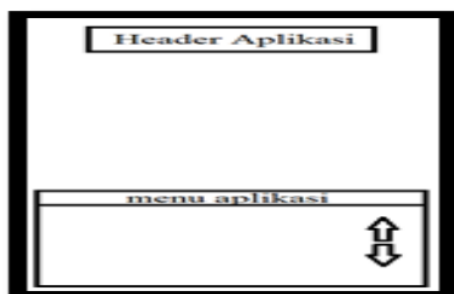

Figure 1. Application Flow Design

At the product development stage, designing the appearance of the Android application page consists of 2 parts, namely the main page and the content page. The main page consists of the application header, application menu and copyright label. More details can be seen in Figure 2
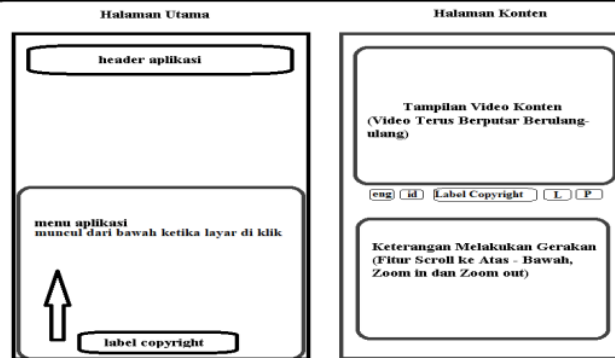
Figure 2. Main Page and Application Content Page

The display theme color has a dark concept with black dominant. On the main page the application header section is filled with the name of the application, namely. In detail, the researcher describes the initial product development stages which are carried out as follows:

1. Making Android Applications

    The software used in making this Android application is Basic 4 Android version 11.0, abbreviated as B4a V11, as shown in Figure 3.
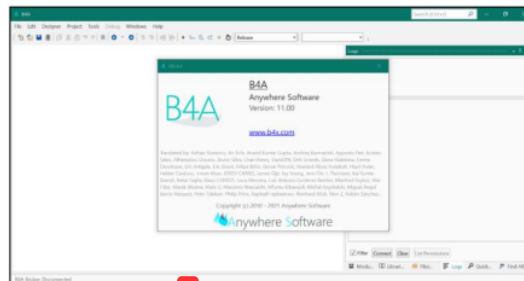
Figure 3. Display of Basic 4 Android Software version 11.0

The programming language used is visual basic. Visual Basic is a program used to quickly and easily create Microsoft Windows-based applications (Irviani, Oktaviana. 2017). Then the visual basic language will be migrated into the java language by the software. Java is a popular programming language, developed by Sun Microsystems (Friesen, 2014). it uses 2 parts of coding, namely: 1) a module

that functions as a command process manager to operate the display; and 2) Designer which functions to make display menu pages etc.

2. Application Display

In the main view there are several menus available in the application, namely:

- DRIBBLING LEFT-TO RIGHT, RIGHT TO LEFT
- DRIBBLING ZIG-ZAG OBSTACLES
- INDIANA DRIBBLING WITH CONE
- VARIATION OF DRIBBLING
- MOVEMENT ERROR CORRECTION
- ABOUT THE DEVELOPER

From the coding process, the main appearance of the application is formed as follows:

Figure 4. Main view of the application

Figure 5. Display of the 1st content page

Figure 6. Display of the 2nd content page

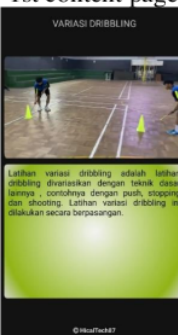**Figure 7**. Display of the 3rd content page

Figure 8. Display of the 4th content page

Figure 9. Display of the 5th content page

Figure 10. Display of the
6th content page

At the initial field trial stage, the application product that was made was validated first by three experts with the following results:

Table 1. Summary of Results and Expert Advice

Validator	Percentage of Input	Suggestion Assessment
Expert 1	83%	- Advertising display when data is activated is quite annoying. - Add back button. - Display images that are too far away to zoom in
Expert 2	87%	- Add drill frequency instructor
Expert 3	86%	- Easy to use navigation, pay attention to ad placement in the application

After being declared valid and feasible by all experts, then an initial field trial was carried out involving around 60 student participants as users or users. Until this report was made, the initial field trials were still in the process of being assessed by users and data analysis.

Table 2. User Validation Results

Participant Number	1	2	3	4	5	6	7	8	9	10	Effectiveness
1	4	3	4	3	4	3	4	3	4	3	8
2	3	3	3	3	3	3	4	3	4	4	6
3	4	3	5	2	4	3	4	2	4	4	8
4	4	3	4	4	4	3	4	3	4	4	10
5	4	1	5	2	5	4	5	2	5	3	9
6	5	2	4	2	4	3	4	3	5	1	8
7	5	5	5	5	5	5	5	2	5	2	10
8	4	2	5	4	4	3	4	4	4	3	8
9	4	2	5	2	4	2	5	2	4	2	9
10	4	1	5	1	5	5	5	5	5	5	10

11	4	2	5	5	5	1	4	2	5	4	9
12	4	2	4	2	4	2	4	2	4	2	9
13	4	3	4	3	4	3	4	3	4	3	8
14	4	1	5	2	5	1	5	1	5	2	10
15	4	2	4	2	3	2	3	2	4	2	10
16	5	2	5	2	5	2	5	2	5	4	10
17	5	2	5	5	5	1	5	1	5	5	9
18	4	1	5	3	5	1	5	1	5	3	10
19	4	1	4	4	4	2	4	2	4	4	9
20	4	3	4	2	4	3	4	3	4	3	9
21	4	2	4	2	4	2	4	2	4	3	8
22	4	3	4	4	4	3	4	3	4	4	8
23	3	1	5	1	3	2	5	2	5	1	9
24	4	3	4	3	4	3	4	3	4	4	8
25	4	1	4	2	4	2	5	2	4	2	9
26	4	2	5	2	4	1	5	1	4	2	10
27	4	2	5	3	4	3	5	3	4	3	8
28	4	2	4	3	4	2	5	2	5	3	9
29	4	1	5	1	5	1	4	1	5	1	10
30	3	1	3	1	3	1	2	1	3	1	7
31	4	2	5	2	4	1	4	1	5	3	8
32	3	2	5	2	4	2	4	2	4	2	7
33	4	1	5	4	4	1	4	1	4	5	9
34	4	2	5	5	5	2	5	2	5	2	10
35	5	2	5	2	4	2	5	2	3	2	7
36	5	1	5	5	5	1	5	1	5	5	8
37	4	2	4	1	5	2	4	3	4	1	8
38	4	1	5	4	4	2	5	1	5	2	9
39	4	3	4	3	4	3	4	3	4	3	9
40	5	5	5	3	5	3	5	3	5	3	10
41	5	2	4	2	4	2	4	2	4	3	8
42	5	1	5	1	5	1	5	1	5	2	10
43	5	2	5	2	4	2	4	2	5	1	9
44	4	2	5	1	4	1	4	2	5	1	9
45	5	3	5	1	3	3	4	2	4	1	8
46	5	2	4	2	3	3	4	3	4	2	8
47	4	2	4	2	4	2	4	2	4	2	9
48	5	2	4	3	5	3	5	1	5	4	9
49	4	2	5	3	4	2	4	2	4	2	9
50	4	2	5	2	5	2	5	2	5	3	9
51	4	2	4	3	3	3	3	3	4	4	8
52	4	3	5	2	4	2	4	2	4	3	8
53	4	3	4	3	4	4	4	3	4	3	8
54	4	2	5	3	5	3	4	2	4	3	8
55	4	2	5	2	4	3	5	2	5	2	9
56	3	2	4	2	3	4	4	4	4	4	7
57	3	3	5	3	5	3	5	3	5	3	9
58	3	3	5	3	3	3	4	2	5	3	8
59	4	3	4	3	4	3	4	3	5	3	8
60	4	4	4	3	4	3	4	2	5	3	8
Mean	4.10	2.17	4.53	2.62	4.15	2.38	4.32	2.20	4.42	2.78	8.65
SD	0.57	0.91	0.57	1.11	0.66	0.98	0.62	0.86	0.56	1.11	0.94

Based on table 2 it can be seen that the results of the effectiveness assessment from users show that the effectiveness results obtain a mean score of 8.65 and a standard deviation of 0.94. To get the results of User Validity, the SUS (System Usability Scale) method is used. The System Usability Scale (SUS) method is a way of testing the usability of an application (Miftah, Sari. 2020). SUS was developed as a "quick and dirty" usability measurement (Sri Handayani, 2019). The following results of the analysis of the SUS Score results are shown in table 3 below:

Table 3. Analysis of User Validity Results (SUS Score)

Odd Question	Even Question	SUS Score (/100)
15	10	62.5
12	9	52.5
16	11	67.5
15	8	57.5
19	13	80
17	14	77.5
20	6	65
16	9	62.5
17	15	80
19	8	67.5
18	11	72.5
15	15	75
15	10	62.5
19	18	92.5
13	15	70
20	13	82.5
20	11	77.5
19	16	87.5
15	12	67.5
15	11	65
15	14	72.5
15	8	57.5
16	18	85
15	9	60
16	16	80
17	17	85
17	11	70
17	13	75
18	20	95
9	20	72.5
17	16	82.5
15	15	75
16	13	72.5
19	12	77.5
17	15	80
20	12	80

16	16	80
18	15	82.5
15	10	62.5
20	8	70
16	14	75
20	19	97.5
18	16	85
17	18	87.5
16	15	77.5
15	13	70
15	15	75
19	12	77.5
16	14	75
19	14	82.5
13	10	57.5
16	13	72.5
15	9	60
17	12	72.5
18	14	80
13	9	55
18	10	70
15	11	65
16	10	65
16	10	65
Average SUS Score	73.42	

Based on table 4, the SUS Score result is 73.42 which is in the good category so that overall the application made is feasible to use and effective for use as a textbook based on user ratings.

CONCLUSION

The development of android-based dribbling exercises has been successfully made. With the results of the feasibility validity of the hockey learning textbook, the percentages are 83%, 87%, and 86%, which means that the application developed is valid and feasible to use. Based on the results of the SUS Score is 73.13 which is in the good category so that overall the application made is feasible to use and effective to be used as a guide for practicing dribbling

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