

Android-Based Visual Audio in Training Single Category Pencak Silat Motion

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Abstract

The modern technology used in international martial arts is virtual reality, while the martial arts technology used in Indonesia is a guidebook, motion capture, video, VCD containing audio visuals, and video tutorials. The purpose of this study is to develop an Android-based audio-visual media in a single category martial arts exercise, testing product acceptance, and the effectiveness of the products produced. This research is a research and development conducted with ten stages of research and development from Borg and Gall. The stages of research undertaken are (1) literature review, (2) initial draft, (3) expert validation, (4) revision 1, (5) product 1, (6) small-scale trial, (7) revision 2, (8) product 2, (9) large-scale trial, (10) final product. The results of the research and development is a single-category android-based audio visual media motion pencak silat media product. The product has been validated by material experts and media experts with very good results (92.00%) and (89.17%), small-scale trials that were tested on trainers, judges and athletes of the Merpati Putih Pencak Silat UKM UKM Tidar Magelang State University with very good results (92.05%). Large-scale trials were conducted at PAMUR Magelang District Magelang and obtained very good results (88.75%). Operational tests were conducted at PAMUR colleges with the results of a significant increase in the test items (0.001 <0.05) and single category demonstrations (0.024 <0.05). The conclusions of the results of research and development of audio-visual media in the category of single-motion martial arts based on android is feasible and effective to be used for supporting media for the exercise of single-category martial arts. Suggestions for athletes, coaches and judges that this media can be used to support the training process.

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INTRODUCTION

The trend in martial arts technology used in international martial arts today is virtual reality. While the martial arts technology used in Indonesia is still around guidebooks, motion capture, video, VCDs containing audio visuals, and video tutorials. VR (virtual reality) allows participants to understand and follow movements without the help of an actual trainer in taekwondo martial arts (Jelani et al., 2018). VR is useful for improving response behavior in young karate athletes (Petri et al., 2019). VR presents in-depth information, which evokes a more realistic feeling about the environment and is therefore seen as more useful for training and evaluation especially for karateka (Anglin et al., 2017; Bandow et al., 2014; Donath et al., 2016; Petri et al., 2019; Witte et al., 2012). VR offers the opportunity for people to be together, regardless of gender, and it becomes part of a sports culture that can be used as healthy recreation (Bum et al., 2018; Cabero-Almenara et al., 2019; Sánchez-Cabrero et al., 2019). Unlike Indonesia, which has not yet touched virtual reality as a training media in the martial arts branch. In addition, VR is a useful tool to check athlete's anticipation realistically, training can use reality virtual in students to improve response behavior in karate kumite (Bandow et al., 2014; Burns, 2013; Eriya & R.Putri, 2018).

Various types of technology used by martial arts branches that can meet the needs include books, motion capture and Android applications. Motion capture or called video tutorials can be presented in the form of an Android-based video (Aljabar, 2016; Nuriman, 2018). Android application that contains videos and images to make it easier for karateka to remember movements, the philosophy of motion and functions of a single movement (Hasrun, 2018). Pencak silat uses a guidebook

for 9 - 12 years old children to make it easier for children to understand and master the movements in the form of martial arts moves (Lubis, 2016). While the comparison between guidebooks with motion capture or Android applications is certainly more interesting if the Android application is used as a handle in learning and training, especially in martial arts. Besides being more attractive, android is also easy to have because the price is affordable by the public. According to Sherif Salbino (2014: 7) Android is a Linux-based operating system that is open (open source) and is designed for touch screen mobile devices (touch screens) such as tablet computers and smart phones. Android system is openly designed so that it is possible to create their own applications according to the wishes and needs of its users.

Efficient and effective media for athletes, coaches and judges is media that can be accessed without limitations. Regional affordability, material shallowness, and boring forms are the limitations of the media. Floating media in this study will be carried out as follows: (1) video with a motion description subtitle in accordance with the movements of the talent demonstrated, the video is updated with different talents and additional points of view of the object. (2) Adding audio as a training guide in accordance with the description of the movement. (3) The picture of the correctness of motion adopts the actual picture from the guidebook published by IPSI / Persilat. (4) Android applications that contain media are designed offline.

Motion description subtitles in accordance with the movements exhibited by talent function to make it easier for users to provide actual movement orientation. The truth of the motion picture has increased in the form of a center of gravity or the key to the correctness of the motion of each movement made so that athletes, coaches and judges understand the correctness of the correct movement according to the rules of the match. Audio visual media designed offline that functions to avoid the internet network, so that the application can be used without relying on

the internet network. In other words, this application can be used anywhere and anytime.

The purpose of this study is (1) to produce audio visual media that can improve mastery of single category martial arts movements, (2) test the acceptance of single category audio visual media for pencak silat movements for beginner judges, beginner trainers and pre-teen athletes, (3) test the effectiveness audio visual media for increasing mastery of single category martial arts.

METHODS

The research method used is a research and development tool that adopts the development model of Borg and Gall. The research design used is an instructional development model (Triprayogo, 2017) which develops audio-based audio visual media based on Android. This selection is based on the suitability of the product developed with the model used. As for the type of graphic media from the design of development used the type of graphic media Flow Chart (flow chart). Selection of flow usage chart because this type of media can describe the process of developing a product with arrows that describe the direction of the current. As for the stages of development research (1) literature review (2) planning (3) product 1 (4) expert validation (5) product revision (6) product 2 (7) small-scale trials (8) product revision 2 (9) if try large scale (10) The final product. Formula for processing data per test subject.

Sources of data obtained through the evaluation phase of media experts and martial arts experts, small-scale trials, large-scale trials and operational tests. Data analysis techniques used in this study used descriptive, quantitative analysis techniques with a percentage.

RESULT AND DISCUSSION

The initial result of this development was the initial draft (prototype) of the Android application containing a single category of audio-visual media of pencak silat and its use

book. The application contains three main menus. The main menu 1 (first display) contains a video tutorial along with 14 single category subtitles, a single category video game of pre-teen age, an evaluation of the motion video truth of the match video, a picture of truth of motion. Main menu 2 (second display) contains match equipment, arena matches, judges' assessment forms and how to fill them in, and match rules. While the main menu 3 (third view) contains the definition of martial arts, the history of Persilat (Parent Sports Pencak Silat International), about the author, and the basic techniques of the dominant single category. Then the draft (prototype) is validated to get product evaluation and revision.

The initial draft (prototype) of development after being validated and getting expert input was then revised according to expert input. The revisions made are (1) revising subtitles in the 3-motion interval and 4-motion stance of 3 because the subtitle does not match the audio, (2) video revision in the last 8 moves in the wrong position, (3) adding video highlights as an illustration initial about the single category in the initial display to 2 by giving a box button with highlighting text, (4) adding a button on the main menu in the form of a button to direct the command to enter the main menu 1,2 and 3, and (5) researcher adding a mark on the main menu 1 on the right, the main menu 2 on both layers is the right and left of the screen, and the main menu three on the left of the screen are thick white dots as a marker that there are 3 main menus by sliding the screen.

A small-scale trial was conducted on 2 trainers, 2 pencak silat jurors and 7 single category athletes at Merpati Putih Pencak Silat UKM, Tidar Magelang State University (UNTIDAR). The location of the small-scale trial was at Tidar Megelang University, Magelang City. Based on the results of the data obtained through small-scale trials it can be concluded that the development of audio-visual media in the category of martial arts motion based on Android according to trainers, judges and athletes from UKM Pencak Silat, Tidar

State University, Magelang City is very good. This is in the android application and user manual. From the data retrieval, there are two inputs from the trainer to eliminate shifts in the contents of the video and image menus and to distinguish between the home and back buttons and eliminate the next several buttons on several slides. After the researcher obtained the data, a revision of the layer shift in the video and image menu was then revised, changing the button back link from the main menu to the previous choice. While the next button on some slides is removed.

A large-scale trial was conducted on 4 trainers, 4 pencak silat judges and 21 athletes at the PAMUR martial arts school (Pencak Silat Muda Ratio), Magelang Regency. Large-scale trial locations are in the city of Magelang according to the athlete's home address and the District of Tempuran, Salaman, Mertoyudan, Borobudur, Magelang Regency. Based on the results obtained from large-scale trial data, it can be concluded that the draft (prototype) of audio-visual media in a single category-based martial arts motion based on android gets very good grades. This was obtained from large-scale trial data on trainers and judges in material and media with a percentage of 88.75% and 87, 39%. While the results of large-scale trial results on athletes in material and media are 89.59% and 89, 78%. Therefore, this draft product can proceed to the next research step, namely operational trials.

Table 1. Operational test table questions

No Atlet	Data Awal	Data Akhir
1	76	90
2	73	86
3	66	83
4	56	80
5	36	66
6	33	50
Rata-rata	57	76

Based on the results of the pretest and posttest that have been obtained through working on the problems in the sample, the researchers conducted homogeneity, normality

and different tests on the data. The homogeneity test on the data shows a significance value of 0.520. This means that it is greater than 0.05, which indicates that the data are homogeneous. The results of the normality test, the data showed a significance value of 0.283 at pretest and significance of 0.261 at posttest. This shows that the two significance numbers are greater than 0.05, which indicates that both data are normally distributed. Based on the results of the T test, the data show a significance value of 0.001 smaller than 0.05. this shows that there is a significant difference in the data between pretest and posttest with an increase of 19 points. Different test on the test shows that the audio-visual media of pencak silat single category based on android is effectively used as a supporting medium for learning single category theory. This is evidenced by the increase in operational test results can work on a single category. Therefore, it can be concluded that this media is suitable to be used as material for learning the theory of silencers, especially single categories.

Based on the results of the pretest and posttest that have been obtained through the demonstration of athletes, in the sample, the researcher conducted a homogeneity test, a normality test and a different test on the data. Homogeneity test on the data shows a significance number of 0.762. This means that it is greater than 0.05, which indicates that the data are homogeneous. Normality test, the data shows a significance value of 0.125 at pretest and significance of 0.151 at posttest. This shows that the two significance numbers are greater than 0.05, which indicates that both data are normally distributed. Difference test on motion demonstration. The results of normality test and homogeneity test data show homogeneity and normal distribution, then the data can be tested differently with parametric statistics, namely the difference test / T test. Based on the results of the T test, the data shows a significance value of 0.024 smaller than 0.05. this shows that there is a significant difference in the data between pretest and posttest with an average increase of 4 points. From the three test data above, it

shows that the audio visual media of single category-based martial arts movements is effectively used as a supporting medium for single category motion exercises. This is evidenced by the increase in operational test result

ts in a single category motion demonstration. Therefore, it can be concluded that this media is suitable to be used as supporting media for single category motion exercises.

Table 2. Demonstration operational test table

No	Data Awal			Data Akhir		
	Kebenaran Gerak	Stamina	Jumlah	Kebenaran Gerak	Stamina	Jumlah
1	92	56	148	95	55	150
2	89	56	145	91	55	146
3	86	55	141	90	55	145
4	81	54	135	83	55	138
5	53	54	107	62	54	116
6	44	54	98	47	54	101
	Rata-rata		129	Rata-rata		133

The resulting product is an android application and user manual. Android application that is produced, in which there are video tutorials, match videos, evaluation video matches, pictures of the correctness of motion, rules of the match, judges value form and how to use them, the basic techniques are dominant in a single category, a brief history and definition of pencak silat. Whereas the usage manual contains the same content plus how to use it in the form of an Android application display image and its description. In addition to pictures and picture captions, in the user manual there is also a description of the button on the android application display.

The final product has passed the stages of expert validation, small-scale trials, and large-scale trials. The results of the assessment of the validation experts get very good results. The results of the assessment in small-scale trials get very good results. The results of the assessment in large-scale trials also get very good results. Therefore, the final product is declared suitable for use and is accepted as a single-category audio visual motion media. This product can be used as a media to support the exercise of improving the category of martial arts movements single. The effectiveness level of audio-visual media in single category martial arts movements has a very good value in

accordance with the results of operational trials. This is evidenced from two operational trials where both trials have data with a significant increase. Therefore, this product is effectively used as a supporting medium to improve the ability to move a single martial arts category.

Athletes who begin to memorize the motion of a single category or who have memorized a single category can be given this application as a media to support exercise at home. Not only athletes, novice trainers who have difficulty in understanding the details of motion and memorizing motion can use this application as a support for training media. Furthermore, the trainer can evaluate the movements of the trainee during practice. For novice judges (level 1 residency) who have difficulty understanding and remembering the correctness of motion, competition rules, especially judgments, can use this product to increase knowledge and understanding of single category motion. This is very useful for judges to judge a single category match. In addition to athletes, coaches and judges, teachers and the general public can also use this application as a learning medium.

CONCLUSION

The research and development carried out resulted in a single category of android-based audio-visual media products of pencak silat motion with the results of validation from martial arts experts and media experts with excellent results. From the results of small-scale trials and large-scale product trials conducted at UKM Merpati Putih UNTIDAR and Pencak Silat PAMUR got very good results so that it was declared accepted and fit for use as a training support medium. The operational test was carried out at the PAMUR college and obtained data that showed a significant increase through the T test on the single category test and demonstration, so that the media was declared effective as a single category training medium. Therefore, it can be concluded that the single category of pencak silat audio-visual media in the form of an android application called Master Silat 2020 is a research and development product that fits into a single category, is accepted as a training medium and is effectively used as a single category of pencak silat training media.

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