Original Article

Application-based walking and running materials for middle school physical education

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Abstract:
Media use in learning can serve as a helpful means of delivering information and increasing interest in participating in learning, as fun learning will impact the maximum learning material obtained. Some of this research and development objectives are to develop learning materials for walking and running based on applications for PJOK junior high school teachers in Pasuruan Regency. This study uses an eight-step research and development model following eight steps. By using quantitative descriptive research and percentages, the results of the study of data from learning experts get a percentage of 95%, 86% from material experts, 97% from media experts, and involving 35 PJOK junior high school teachers in Pasuruan Regency who get 92.52% results in small group and 92.46% large group. Based on these data, it can be concluded that this application-based walking and running material learning product is very valid and suitable for PJOK SMP teachers in Pasuruan Regency.
Key Words*: **learning; physical education; run and walk; Application.**

Introduction

Technological changes in this era have progressed very rapidly. Everyone cannot be separated from technological developments. According to Danuri (2019), in his journal, which discusses human life, all have used technology with activities initially carried out manually by information systems. Technological developments spread throughout the field of education. Technological developments help the Indonesian education system improve quality to achieve a learning process that applies efficiency and effectiveness (Cholik, 2017). To increase the learning process's efficiency and effectiveness, it is necessary to develop various forms of learning that can increase students' interest in learning. Students' lack of interest and boredom will only cause delays in delivering material to students. Therefore, choosing suitable media can create a more varied learning atmosphere, evading lethargy in learning.

According to Mislan dan Santoso (2019), ideal learning occurs when there is a reciprocal process between the teacher and students, and students can understand the explanations given by the teacher. Pambudi, Winarno, dan Dwiyogo (2019) state that interaction between students and teachers is required in the learning process. But the reality in the field is that teachers have not fully interacted with students, only some students who actively participate in learning carry out interactions with teachers. This is in line with the opinion of Anggraeni & Akbar (2018) that if the learning process is carried out actively, it will result in a learning experience. In contrast, if one is less involved during the learning process, they will get less learning experience. The learning process occurs if dialogue or delivery of messages is carried out between the messenger and the recipient of the message. In this case, the definition of the message refers to a subject matter embodied in verbal and nonverbal communication symbols. Pane dan Darwis Dasopang (2017) argue that interesting rules are needed in learning and organizing the student environment for students to understand the material better in participating in the learning process. A learning medium must also support the implementation to avoid verbalism, which often results in students only being able to memorize words without understanding them (Rasyid, Azis, & Saleh, 2016). Physical education is part of the learning process and has become an integral part of education.

According to Bangun (2016), physical education is one of the factors in the standard curriculum of an educational institution from elementary to secondary. Physical education in schools has a very close relationship between teachers and students, where the role of a teacher is to assist students in fulfilling development, growth and knowledge in learning. In line with the opinion of Yuliansyah et al. (2021), physical education requires a close relationship between the teacher and the student. The teacher is in charge of a leader or teacher, while students are individuals or students who participate in the learning process. Fajar (2020), in his journal, discusses that physical education teachers still often use teaching methods that make students feel bored quickly, so they should be able to change learning methods so that they are not monotonous.

For this reason, good physical education learning is inseparable from the teacher's role in conveying knowledge demands and developing media as creatively as possible following the KI and KD that will be

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directed. Walking and running athletic learning includes learning taught in the odd/first semester, which has a total of 2 meetings, with an allotted time of 3 hours of lessons per week, with one hour of learning being 40 minutes (Permendikbud, 2014). Physical education provides walking and running material focusing on affective, cognitive, and psychomotor aspects in junior high schools (Kemdikbud RI, 2018:155).

Hiking and running are included in the athletic material contained in physical education learning in junior high schools. Utami & Purnomo (2019) argues that athletic learning is not successful because of limited methods, and there is no modification or development of new tools or facilities. If athletic learning is followed by boredom and displeasure, student fitness and freshness will be low, and the interest in participating in athletic education will decrease. The basic competencies that all students must achieve in participating in learning walking and running activities in the context of health and recreation physical education are practising specific basic techniques, variations, and combinations of specific walking and running movements that are written in basic competencies (Kemdikbud RI, 2018).

Walking and running are primarily done in everyday life. This results in students' perceptions of walking and running as something easy and trivial. However, walking is defined as the movement of the heel touching the ground first, followed by the back foot without a flying phase. On the other hand, the running movement is a walking movement that is carried out faster, followed by alternating swings, and there is a flying phase (Mulyono, 2019). Learning to walk and run in the field is about practice and mastering its theories.

The teacher determines the learning model by considering the current situation and conditions (Cahyadi, 2021). Learning in normal circumstances requires learning media to be used as a supporting facility, which can attract students' interest in participating in the learning process—according to the Republic of Indonesia Ministry of Education and Culture circular letter Kemdikbud RI (2020) discussing learning from home through online/distance learning which is implemented to provide meaningful learning for students during an emergency period of Coronavirus Disease (Covid-19). Online learning utilizes multimedia technology, videos, virtual classes, online texts, animations, voice messages, emails and videos that can be carried out massively with an unlimited number of participants (Jayul & Irwanto, 2020). With the development of learning packaged as an application that can be used both under normal circumstances and during the pandemic, it can provide maximum learning material, and learning becomes more interactive with technology. Packaging theory is done as well as possible so as not to cause boredom, which can be realized through learning media.

Learning media indicates the learning process influencing teaching and learning success (Yuliansyah et al., 2021). Since media in learning is used as an intermediary to implement education, learning media must convey messages and stimulate thoughts so that students are willing to increase their interest in learning (Kuswanto, 2020). In its practice, it turns out that most teachers have not used learning media effectively and are still guided by using media such as textbooks, student worksheets, and modules. This causes some students to feel bored because they see the media used and the learning process as monotonous, which is also in line with Ritonga (2021). Yuniasih, Aini, dan Widowati (2018) offers an example of using *iSpring Suite* on smartphones. The application eases teachers in providing material, as it converts presentation files to *flash* and can include quizzes and videos.

Based on the results of observations on April 8-12, 2021, in Pasuruan Regency, researchers distributed a needs analysis questionnaire *PJOK* using the *Google form* SMP teachers in Pasuruan Regency. The observation revealed that 97% of teachers give walking and running material, 59% of teachers provide two meetings of walking and running material, 100% used book media, lesson plans, and LKS and additional videos, VCD, and PPT on walking and running material, 92% still using lesson plans, manual-based textbooks and evaluations, 61% of teachers have developed application-based walking and running materials, 100% have *smartphones*, 100% of teachers can operate computers/laptops, and 100% of teachers need the development of application-based walking and running learning materials. Hopefully, the development product can be used *offline* (outside the network) and *online* (in-network) learning as in the conditions of the Covid-19 pandemic.

Materials and methods

This study was research and development to create or develop a product to fulfil societal needs. The method developed was the stages adopted from Sugiyono (2016), but researchers only employed an eight-step model which includes; (1) Potential Problems, (2) Data Collection, (3) Product Design, (4) Expert Design Validation, (5) Design Improvement, (6) Product Testing, (7) Product Improvement, and (8) Final Product.

Preliminary data collection was carried out by distributing a needs assessment via *a* Google Form to MGMP PJOK SMP members in Pasuruan Regency. Dissemination of needs analysis (*need* assessment) in a questionnaire aims to study and determine the situation in the field. The second step is product design. It is the stage for planning the development of application-based walking and running learning materials, where the researcher designs a *storyboard*. When the *storyboard* is done, the researcher moves to the application design before the validation steps.

Design validation in research and development involves three competent experts: one learning expert, one material expert, and one media expert. In the process, each expert provides criticism and suggestions regarding the shortcomings and weaknesses of the learning media that have been developed by researchers so that there are various criticisms and suggestions from researchers to improve the product so that later

application-based walking and running material learning is realized as feasible for use. Then the next step is product improvement. The researcher fixes the application product that matches the validation questionnaire results that the validator has filled in, then continues with product trials.
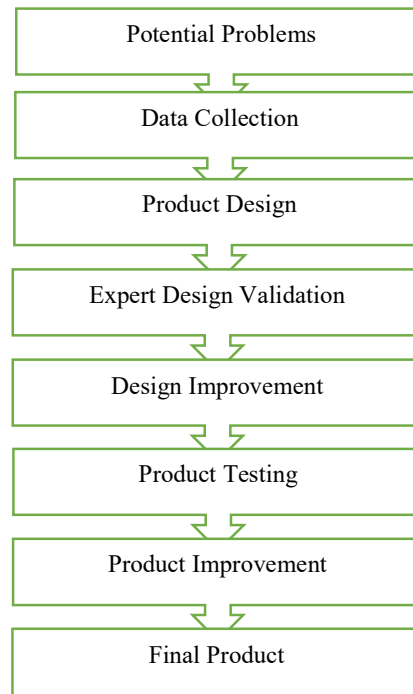
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Figure 1. Chart of Research and Development Procedures
(Source: Sugiyono, 2016)

In the trial, this product consisted of 235 PJOK SMP teachers in Pasuruan Regency (157 from public schools and 78 from private schools). The sample taken in this research and development was 15% of the existing population (Arikunto, 2019), so the sample used In this research and development, there were 35 subjects, while the intended subjects were members of the MGMP PJOK SMP in Pasuruan Regency. Product trials aim to obtain data for improvement in the learning media being developed. The small group was represented by 12 PJOK SMP teachers in Pasuruan Regency. A large group of 23 PJOK SMP teachers in the Pasuruan District conducted the final product trial. The trial then continued with improving the product based on the results of the trial questionnaire before moving to the data review stage to obtain a product feasibility percentage value. At last, the study ended with the final product stage.

This data was processed by descriptive quantitative data analysis involving needs analysis, expert validation and product trials. To answer the validation, the researcher used the *Likert* provided by (Sugiyono, 2016, p. 98). The score section on the *Likert* will be described according to the table below:

Table 1. Type of Rating Likert Scale

Number	Value	Information
1	4	Very Good
2	3	Good
3	2	Not Good
4	1	Very Bad

(Sugiyono, 2016)

The formula used in processing the validation data is as follows:

$$V = \frac{Tse}{Tsh} \; x \; 100\%$$

Description:
V   : Validity
Tse   : Total empirical score achieved
Tsh   : Maximum total score
100%   : Constant number

Data processing results were then adjusted to the product category, making it easier to conclude from the results of data studies. The following are the percentage criteria used in this research and development:

Table 2. Percentage

Criteria Criteria	Information	Meaning
75.01% - 100.00%	Very Valid	Used without revision
50.01% - 75.00%	Valid Enough	Used with minor revisions
25.01 % - 50.00 %	Less Valid	Cannot be used
00.00 % - 25.00 %	Invalid	Forbidden to use

Results

This section discusses product development and presents the validation and test results data. This development product used the help of the *iSpring Suite* app that converts the presentation file into HTML form, which then uses the APK Builder to convert the HTML form into an Android application. On the main menu page, there are six options: competencies, learning materials, learning videos, evaluations in the form of quizzes, bibliography and author biodata which are packaged in the form of an application. There are also several main buttons, including the *back, next*, *home,* and *play buttons.*

Figure 1. Appearance of Application Icons

Figure 2. Main Page of Product Development

Table 3. Acquisition of Study Expert Study Data

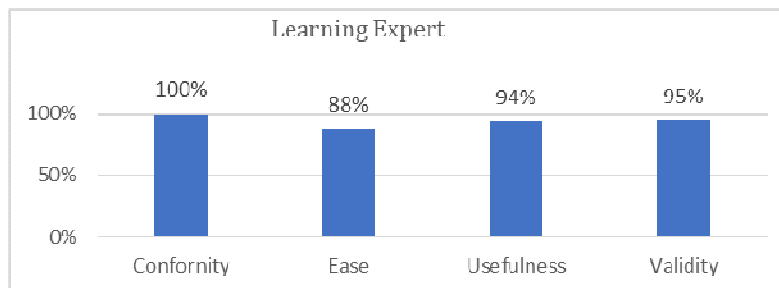| No	Factor	%	Category
1	Conformity	100	Very Valid
2	Ease	88	Very Valid
3	Usefulness	94	Very Valid
	Validity	95	Very Valid

Figure 3. Diagram of Study Results Learning Experts

The validation test by learning experts obtained 95% of the results from 3 factors: the suitability, convenience, and usefulness factors. The results were changed based on the percentage criteria table indicating that the development media for application-based walking and running material learning met valid benchmarks.

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Table 4. Acquisition of Material Expert Study Data

No	Factor	%	Category
1	Conformity	88	Very Valid
2	Ease	100	Very Valid
3	Accuracy	75	Fairly Valid
4	Usefulness	75	Enough
	Validity	86	Very Valid
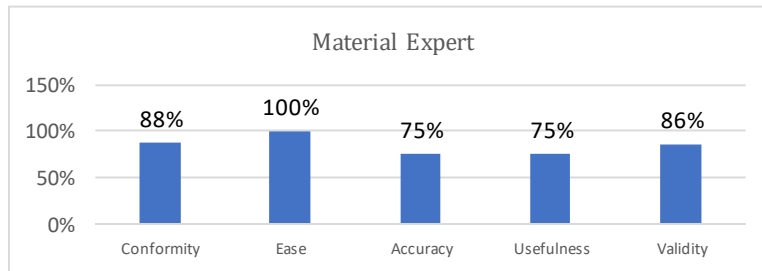
Figure 4. Diagram of Expert Study Results Material

The validation test by expert material gets a percentage of 86%. Four factors involved were the suitability factor, the convenience factor, the accuracy factor, and the usefulness factor. The results were changed based on the percentage criteria table showing that the application-based learning development product for walking and running materials has met very valid benchmarks.

Table 5. Acquisition of Media Expert Study Data

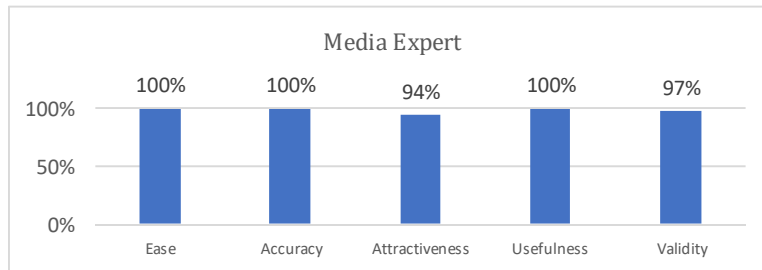| No	Factor	%	Category
1	Ease	100	Very Valid
2	Accuracy	100	Very Valid
3	Attractiveness	94	Very Valid
4	Usefulness	100	Very Valid
	Validity	97	Very Valid

Figure 5. Diagram of Media Expert Study Results

Validation test by experts in the media gets a percentage of 97%. These results were obtained from 4 factors, namely the convenience factor, the accuracy factor, the attractiveness factor, and the usefulness factor. Based on the percentage criteria table, the product of learning development of walking and running materials has met very valid benchmarks.

Table 6. Acquisition of Small Group Trial Data

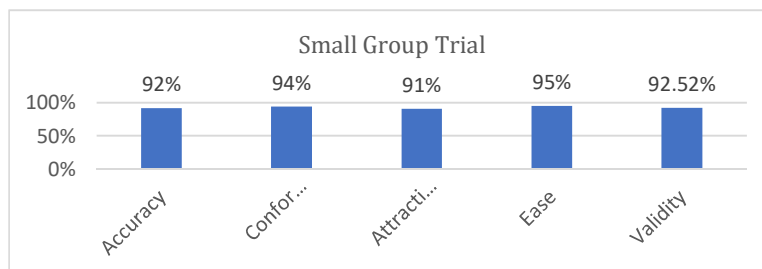| No	Factor	%	Category
1	Accuracy	92	Very Valid
2	Conformity	94	Very Valid
3	Attractiveness	91	Very Valid
4	Ease	95	Very Valid
	Validity	of Use	Very Valid

Figure 6. Diagram of Small Group Trial Results

Based on the small-group trial results, the percentage was 92.52%. Four main factors involved were namely the accuracy factor, the suitability factor, the attractiveness factor, and the convenience factor. These results were changed based on the percentage criteria table, which stated that the application-based learning development product for walking and running materials had met the valid and feasible benchmarks.

Table 7. Acquisition of Large Group Trial Data

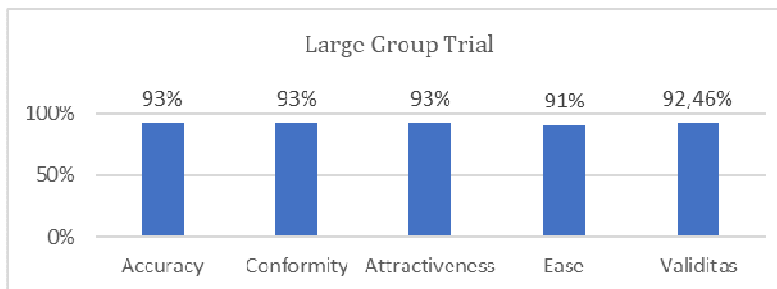| No	Factor	%	Category
1	Accuracy	93	Very Valid
2	Conformity	93	Very Valid
3	Attractiveness	93	Very Valid
4	Ease	91	Very Valid
	Validity	of Use	Very Valid

Figure 7. Diagram of Large Group Trial Results

Based on the results of a large group pilot study by PJOK SMP subject teachers in the Pasuruan Regency, the trial obtained a percentage of 92.46%. These results were obtained from 4 factors, namely the accuracy factor, the suitability factor, the attractiveness factor, and the convenience factor. These results were changed based on the percentage criteria table, which stated that the application-based learning development product for walking and running material met the benchmarks of being valid and feasible.

Discussion

The development of walking and running learning materials is based on the *iSpring Suite,* with videos, texts and quizzes. According to Nuraini dan Narimo (2019), learning media *iSpring Suite* can provide practicality and effectiveness. Meanwhile, Maryam Ramadani (2020) stated that the features included in the *iSpring Suite* work as *add-ins* in *PowerPoint*. The *software* can be applied to create learning devices that interact with each other using text, images, graphics, sound, video, and quizzes. In line with the opinion of Ninawati, Burhendi, dan Wulandari (2021), learning methods also need learning media that can be used anywhere without space and time limits.

According to the needs analysis *(need assessment) results* of PJOK SMP teachers in Pasuruan Regency, 100% need the development of application-based learning that can be used during the learning process. Finally, with the emergence of the *iSpring Suite*, there is a learning that can positively influence it as a means of conveying learning. The results of expert validation that learning experts have given have concluded that learning is supported by learning media so that it can create pleasant conditions to motivate and attract students to learning. According to that, using learning media in physical education can help smoothness and quality and quantity in learning physical education itself. Learning media can increase and focus students' attention on learning to be more focused and generate motivation to learn. The learning process will achieve its goals if there is an interaction between the recipient of the message and the source through learning media (Swadesi dan Kanca, 2018). This is consistent with Cahyadi (2019), stating that learning media is a tool, means or intermediary to spread or convey a message, increasing students' interest and interest following the learning process.

Based on validation data by media experts, the application products that have been developed can provide benefits and convenience for users. The results of field trials also state that using instructional media in physical education is necessary to increase student motivation in learning. Adi S (2020) argues that teachers must know technological situations integrated with education to be useful for students and get used to technology-based learning.-based development products *iSpring Suite* includes learning that can make a positive impact. Product development can also be used to conduct learning in the room. Sastrakusumah (2018), in his research, gave the result that with the help of learning media, the functions and benefits can increase, students' enthusiasm for learning increases, the learning process becomes more interesting, and the quality of learning can be optimized. In line with Afandi (2017), the presence of media can lighten the teacher's burden in providing material, and students are more interested in learning to succeed in the teaching and learning process. The materials and videos in this development product contain elements of walking and running.

Sourced from an interview with one of the PJOK teachers in Pasuruan Regency, he stated that physical education in schools also plays an important role in shaping student character and personality. Physical

education itself is learning that is distributed to early-level schools that function as a complement to existing learning methods. Therefore it is expected to have a learning process and experience changes in behavior (Taqwim & Winarno, 2020). Physical education planning is carried out to complement each student's development and behavioral needs. Physical education does not only focus on psychomotor development but also cognitive and affective aspects as well. In physical education, several components influence learning, including the pedagogic components (planning, implementation, and assessment), in the process of teaching (Saitya, 2021). In line with that, (Buana & Kristiyandaru (2021) stated that the purpose of learning physical education is to maintain fitness and train movement skills, while its function is to develop and improve physical abilities.

According to Syarifudin (2017), running motion is a movement to change the body forward and follow in its footsteps. This is in line with Satun (2018) that running is an activity used in all sports and can build endurance. Meanwhile, according to Windarto (2020), walking is defined as forward movement without disconnection from the ground. Walking is an activity of moving places carried out with one leg alternately with one leg still being exposed to the ground. Walking sports are always associated with fast walking, which is often contested. (Ismawati, Safari, dan Akin 2018) concluded that in walking and running, learning should be oriented towards student development, interest and fun in participating in learning. The final product for developing learning materials for walking and running is packaged in an application that can be run on Android and computers. The contents of this development product include walking and running materials for grades VII, VIII, and IX, which contain learning materials, learning videos, evaluations, biodata, basic competencies (KD), and a bibliography packaged on an application basis.

It is hoped that the creation of modern application-based learning development can increase student learning interest and knowledge for teachers in carrying out application-based learning development. Ninawati et al. (2021) state that the development of *iSpring Suite* can produce products in the form of applications used on Android and serve as teaching materials that are easy to use and accessible without being limited by space and time. The use of learning media with the help of the *iSpring Suite* can increase students' participation in the learning process and their curiosity about the material being taught so that students become more active and focus on learning independently (Larasati, Wrahatnolo, Rijanto, & Anifah, 2021). This is in line with Setyantoko (2016) that increasing *mobile learning-based android* for athletics for seventh-grade junior high school students can be used as a learning aid because it has been proven in material factors, media factors and *usability*. Meanwhile, Yuliansyah et al. (2021) stated that the study's results showed that application-based running basic movement learning products were adequate for learning and could be used as aids in learning the basic running motion material.

Conclusions

Based on the results of the development of application-based walking and running learning material, the conclusions that can be conveyed are as follows (1) Learning walking and running material is given at the junior high school level from grades VII, VIII, and IX, which is given in odd semesters in 2 meetings with time allocation of 3 hours per week with one hour lesson of 40 minutes; (2) Walking is a movement of stepping without being followed by a flying phase and bending the knees, while running is a movement of quick walking followed by a flying phase. If it is not permissible to run during walking, it is the other way around in running movements. It is acceptable to walk; (3) Application products have their advantages, such as that the product can be used without using a data package *(offline),* the product has a capacity of 59MB, the product can be used on *Android*, and in learning products, there is an evaluation in the form of a quiz; and (4) From the small group data of 92.52% and large group data of 92.46%, it can be concluded that the application-based learning product development of walking and running material is feasible to use in PJOK learning of walking and running material for grades VII, VIII, and IX of junior high school, and can be used as a support for learning in the subject of Middle School Sport and Health Physical Education on walking and running.

Conflicts of interest
The authors declare that there are no conflicts of interest.

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