

I-Spring Assisted Development of a Basketball Shooting Technique Program Desarrollo asistido por I-Spring de un programa de técnicas de tiro de baloncesto

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Abstract. This study aims to rectify the inadequacy in basketball shooting skills by devising a specialised training programme for the basketball extracurricular activities at SMA Negeri 1 Sampang. Utilizing Sugiono's Research and Development (R&D) framework, the study involved 23 participants from the basketball program at SMA Negeri 1 Sampang. Data collection methods included observation of activities, interviews, and questionnaires, focusing on gathering and analyzing pertinent data. The research incorporated a three-tier expert validation process, comprising assessments from basketball coaching experts (average score 80.75%), basketball theory experts (average score 84.89%), and media specialists (score 100%). The evaluation of the developed training model involved trials with the 23 student participants, divided into a smaller group of 6 and a larger group of 17. The trials yielded success rates of 96.15% and 96.43% for the small and large groups, respectively. These results indicate that the basketball shooting training model for Sampang Regency's extracurricular activities is of high validity, suggesting its suitability for implementation without the need for further modifications.

Key Words: learning media; extracurricular; basketball, High School degree, Shooting technique

Resumen. Este estudio tiene como objetivo rectificar la insuficiencia de las habilidades de tiro de baloncesto mediante la elaboración de un programa de entrenamiento especializado para las actividades extracurriculares de baloncesto en SMA Negeri 1 Sampang. Utilizando el marco de Investigación y Desarrollo (I+D) de Sugiono, en el estudio participaron 23 participantes del programa de baloncesto de SMA Negeri 1 Sampang. Los métodos de recopilación de datos incluyeron observación de actividades, entrevistas y cuestionarios, centrándose en la recopilación y análisis de datos pertinentes. La investigación incorporó un proceso de validación de expertos de tres niveles, que comprende evaluaciones de expertos en entrenamiento de baloncesto (puntuación promedio 80,75%), expertos en teoría del baloncesto (puntuación promedio 84,89%) y especialistas en medios (puntuación 100%). La evaluación del modelo de entrenamiento desarrollado involucró pruebas con los 23 estudiantes participantes, divididos en un grupo más pequeño de 6 y un grupo más grande de 17. Las pruebas arrojaron tasas de éxito del 96,15 % y 96,43 % para los grupos pequeños y grandes, respectivamente. Estos resultados indican que el modelo de entrenamiento de tiro de baloncesto para las actividades extracurriculares de Sampang Regency es de alta validez, lo que sugiere su idoneidad para su implementación sin necesidad de modificaciones adicionales.

Palabras clave: medios de aprendizaje; Extra curricular; baloncesto, Bachillerato, Técnica de tiro

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Introduction

Students' physical, technical, and tactical abilities can be enhanced through the usage of exercise models, which serve as training containers for the activities that students will really perform. Improving one's skills is crucial for peak performance; as such, basketball coaches, whether for club or league play, need to be able to offer their players a varied training model to keep them from getting bored during shooting drills. In doing this exercise requires repetitive training activities in order to obtain perfect movements and results, in basketball shooting is the most important element because in this sport of course you have to get the most points if you get a lot of points then that team is declared the winner, so shooting skills in basketball are the main key to victory. Consequently, this model for basketball shooting training can be used by coaches and instructors in extracurricular basketball to pique the interest and motivation of students to train.

Relevant to the field of education is learning media. According to (Dwijayani, 2019) states that the learning media delivered can increase student interest in new things.

Because with technological advances, it can help the development of current learning media (Harvey et al., 2020). One component of learning resources that facilitates the creation of learning media and its usage in the transmission of information about learning materials between instructors and students in the context of instructional and pedagogical activities is learning media, according to (Purwanti, 2015). Along with technological developments, learning media also have demands and needs (Mukan et al., 2021), which must be met in the learning process (Shalikhah, 2017). Meanwhile, (Aghni, 2018) states that students are more active using interactive media, so that it can generate motivation in learning. In addition, Prasetio, et al in (Kurniawan, 2021) state that optimal learning outcomes and a smooth, perfect and effective implementation process are the goals of using interactive media. Thus, it is reasonable to assume that the goal of incorporating learning media into the classroom is to pique students' curiosity about and engagement with the subject matter.

One component of learning resources that facilitates the delivery of instructional materials to students is learning. Educators and students engage in a two-way street when it

comes to learning; the key to complex meaning is learning, which in turn motivates students to be more passionate about the subject. and colleagues performed research (Waziana et al., 2016). At the same time, for there to be the intended learning, there must be contact between teachers and students (Pane & Darwis Dasopang, 2017). Learning, then, can be considered a crucial process for acquiring the information, insight, perspective, and character traits that emerge from the exchange of ideas between teachers and their charges.

The motion learning process has principles that are not much different from the learning process in general. According to (Nugraha & Yuliawan, 2021), the stages that are passed in the motion learning process are: 1) cognitive stage. At this stage, students learning motion are getting input information as material for the process of forming motion patterns in their memory system. 2) fixation stage. At this stage a person is applying the motion plan pattern. The enhanced performance of a talent is directly proportional to the accuracy of the motion pattern encoded in the memory system. 3) Autonomous stage. As a sequence of motion learning processes, this is the last stage. The mechanism's automated motions are now controlled by the autonomic nervous system rather than the central nervous system. Physical education and athletics are two examples of extracurricular activities that place a heavy emphasis on the autonomic nervous system, allowing students to hone their skills in a variety of ways (Ferry & Romar, 2020). According to (Lestari et al., 2019), extracurricular activities are those that students participate in when class is not in session. This is due to the fact that extracurriculars sometimes depend on school-sponsored initiatives and decisions to host specific events that cater to kids' interests as they grow. Subjects pertaining to large balls, particularly basketball, are included in the school curriculum, particularly within the realm of health and sports physical education. At the outset of each game, there are five players from Team A and five players from Team B. The sport is based on several fundamental skills, including dribbling, passing, and shooting, and the objective of each game is to score as many points as possible for the opposing team.

Each team has twelve regular players and five bench players who can step in when needed. The basketball is a sport that is favored by all circles (Rustanto, 2017). Basketball sports in the current era are growing rapidly so that, widespread in many new basketball clubs and even quite a lot is found in extracurricular activities in elementary, junior high, high school and equivalent schools, as well as universities, so that many people are very enthusiastic in joining club activities and extracurricular basketball that has been held at school (Harun et al., 2017). Learning basketball can develop psychomotor, affective and social traits (Hartanti et al., 2020). Basketball players certainly involve physical and emotional, so it needs to be learned to teach sportsmanship, honesty, a sense of responsibility, and discipline, therefore it is very important for extracurricular basketball students who need extra practice to achieve the

desired results, of course one of the most important techniques in basketball is shooting. In basketball, shooting is the most crucial skill since, of course, the goal is to score as many points as possible. What's more, according to (Sampurno & Suryadi, 2020), the winning team is determined by whose player scores the most points.

According to the above opinion, basketball shooting training requires engaging learning facilities to prevent boredom among students who participate in the basketball extracurricular activities at SMA Negeri 1 Sampang. This is especially important during the COVID-19 period, when extracurricular activities have been disrupted. To address this issue, it is necessary to introduce new learning resources that facilitate the training process and enhance students' knowledge, understanding, and proficiency in basketball shooting techniques. Previous research, researchers analyzed the results of research and development (Syahroni, 2019) the shooting training model has several exercises that lack a combination of several forms of basic technical movements in carrying out shooting training models which are usually carried out individually, in pairs, or in groups or can also be called variation and combination exercises, as well as learning media used by previous researchers regarding material that is not complex, and previous development research has not found any learning media regarding basketball shooting training models using the I-Spring application instead of ordinary android applications. Therefore, the shortcomings above researchers will develop the training model which will later be given to extracurricular students at SMA Negeri 1 Sampang.

Based on the conducted research, the researcher obtained the results of the initial needs analysis conducted on January 6-27, 2022, involving 23 basketball extracurricular students from SMA Negeri 1 Sampang. The findings indicate that all basketball extracurricular students (100%) possess smartphones capable of downloading applications and accessing the internet. Furthermore, 58.3% of students expressed difficulty in learning basketball shooting techniques. The data also reveals that 79.2% of students require a shooting training model utilising an android application, specifically the I-Spring application. Additionally, 79.2% of students expressed a strong need for skill training in shooting mastery, while all students (100%) emphasised the importance of a shooting training application as a learning medium.

In light of the findings of an initial needs' analysis conducted at the basketball extracurricular of SMA Negeri 1 Sampang, the researchers proceeded to interview the extracurricular coach. The interview with the coach revealed that students had insufficient proficiency in shooting techniques. This was attributed to the temporary suspension of training caused by the COVID-19 pandemic. Additionally, the coach mentioned that the lack of training resources in extracurricular basketball activities resulted in deficiencies in delivering theoretical training materials. The coach has so far only provided material in the form of theory through whatsapp messages as a medium for joint discussion and

for material in the form of practice, the coach can only send YouTube links to show the movement techniques he wants to convey.

Research related to basketball has been carried out by many researchers, among others: (Johnson & Sánchez, 2021); (Díaz-Aroca & Arias-Estero, 2022); (Hernández-Beltrán et al., 2023); (Ramadhan et al., 2024). Apart from that, research related to physical education and sport has been conducted by many researchers, including (Hall-López, 2020); (Burgueño et al., 2021); (Botelho & Moreira, 2022); (Setyawan et al., 2023); (Moya-Mata et al., 2023); (Setyawan et al., 2023); (Meriño et al., 2024); (Setyawan et al., 2024). However, this research has not studied the development of media applications for basketball shooting techniques. Thus, after conducting a needs analysis with students and interviewing extracurricular coaches, the researchers determined that developing application-based media was the most suitable solution to address the challenges caused by the COVID-19 pandemic in relation to basketball shooting training at SMA Negeri 1 Sampang.

Material & methods

This research uses a research method in the form of an R&D method (Research and Development) developed by (Sugiyono, 2016), in this study researchers used 8 steps out of 10 steps owned by R&D (Research and Development) research.

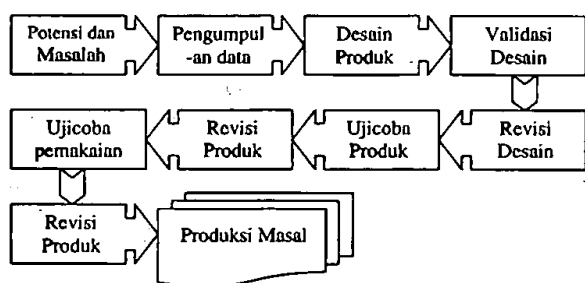


Figure 1. Steps for Using the Research and Development (R&D) Method (Sugiyono, 2016)

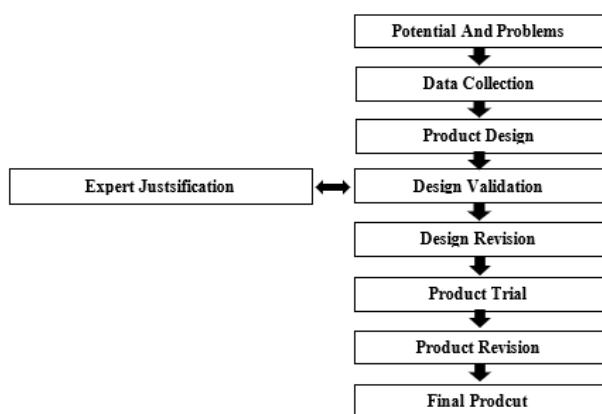


Figure 2: Chart of Research and Development Procedure

The investigation was undertaken to tailor the steps employed to the specific requirements of research and development (Syahroni, 2019) defines the research and development process as a research model with the objective of generating a product that is capable of being further developed. Data collection is conducted by administering online surveys via Google Forms to students enrolled in basketball extracurricular activities at SMA Negeri 1 Sampang. Subsequently, once the data collecting phase has been concluded, the subsequent phase entails the development of the intended learning media product.

During the product design stage, the initial step involves researchers gathering the necessary materials for the media development process. The culmination of this research yields a novel product, accompanied by comprehensive specifications. This product is composed using Microsoft Power Point, while the learning application product is created using the iSpring Suite programme and Website 2 APK Builder Pro. Following the completion of the product design stage, the subsequent stage is design validation.

The media validation stage in this research and development involves three experts who are in accordance with their respective fields, the three experts involve one basketball coaching expert, one basketball material expert, and one media expert. During the media design validation process by experts, researchers will get criticism and input regarding the results of the products produced regarding their weaknesses and shortcomings. After receiving criticism and input, the researcher makes a design revision, this design revision stage is a stage where the researcher improves the product he has developed. Then after the design revision stage has been completed, the next step is to proceed with the product trial stage.

During this experimental phase, a total of 23 kids who participated in extracurricular activities were involved. I attended Sampang High School, where I played basketball. The objective of conducting product trials is to assess the viability of the product and gather data to serve as a foundation for enhancing the product. Obtain data as a foundation for enhancing the product. During the process of product trials, the product is segmented into two distinct phases: small group trials and big group trials. Massive-scale experiment. The preliminary phase involved 6 student representatives from the extracurricular group for the small group trial. Similarly, the large group trial involved 17 student representatives from the extracurricular group. Subsequently, the study progressed to the next stage, which focused on data analysis techniques. The subsequent phase, specifically the stage of data analysis technique.

The research data analysis will use quantitative descriptive articles. Thus, a Likert scale is used to measure people's thoughts, qualities, and attitudes on social phenomena (Sugiyono, 2016). Product feasibility can be determined by the assessment category:

Table 1. Rating Scale on Likert Scale

No	Description	Positive Score
1	Strongly Agree (SS)	4
2	Agree (S)	3
3	Undecided (RG)	2
4	Disagree (TS)	1

(Sugiyono, 2016)

The formula used to process data from validation results includes the following:

$$V = \frac{TSEV}{S - Max} \times 100\%$$

Description:

V: Validity

TSEV: Total empirical validity score

S-Max: Expected maximum score

100%: A constant number

The end of data processing is adjusted to the product category to simplify the process of retrieving the data analysis results and drawing conclusions from the product's suitability, attractiveness, and benefits. Research and development percentage classification criteria are below.

Table 2. Product percentage criteria

Criteria	Description	Meaning
75,01%-100,00%	Very valid	Used without revision
50,01%-75,00%	Valid	Used with minor revisions
25,01%-50,00%	Invalid	Unusable
00,00%-25,00%	Very invalid	Prohibited use

(Akbar & Sriwiyana, 2011)

Results

The results of the research obtained will discuss the feasibility of learning media products that have been developed. The items generated and statistics from basketball coaching, material, media, and small and big group trials by extracurricular students will be discussed in this chapter. The development of this learning media product uses supporting applications, namely, I-Spring Suite which will convert presentation files into html, and then use the builder application which is used to convert the html format into an application that can be accessed via an Android Smartphone.



Figure 3. Application Icon Display and Main Page of Development Product

The analysis of data obtained from expert validation, small group trials, and large group trials is presented as follows:

Table 3. Results of Data Analysis of Coaching Experts

Aspect	%	Categories
Compatibility	75	Valid
Clarity	79,16	Valid
Ease	87,5	Very Valid
Usability	81,25	Very Valid
Average	80,72	Very Valid

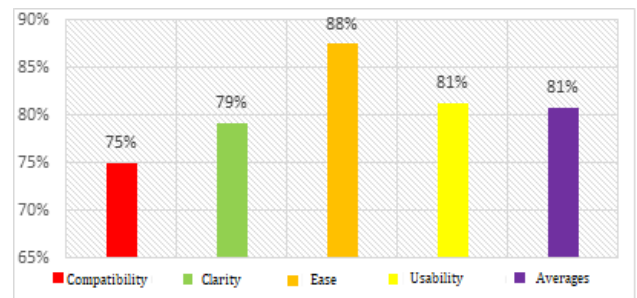


Figure 4. Diagram of coaching expert assessment

The coaching expert scored 80.72% in the validation test, which was translated by category to determine that the product was genuine, needed minor adjustments, and was suitable for small and large group trials.

Table 4. Design Revisions from the Coaching Expert

No	Assessment and Suggestions	Description
1	The material is better made per subchapter, so it is not difficult to access the material you want to see.	Revised

Table 5. Results of Data Analysis of Basketball Material Experts

Aspect	%	Categories
Compatibility	87,5	Very Valid
Accuracy	75	Valid
Ease	83,33	Very Valid
Usability	93,75	Very Valid
Average	84,89	Very Valid

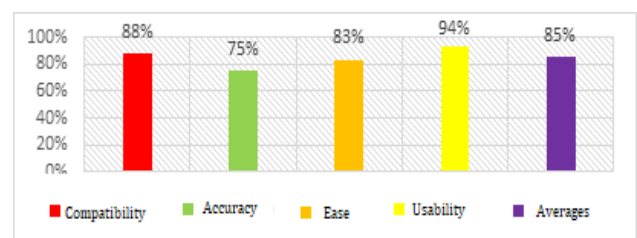


Figure 5: Diagram of Basketball Material Expert Assessment

The material expert validation test averaged 84.89%, which was translated by category to determine that the product is very valid and acceptable for small and large group trials.

Table 6. Design Revisions from Basketball Material Experts

No	Assessment and Suggestions	Description
1	The video material is good and easy to understand and further optimize the visual design (layout) on the Home and Cancel buttons.	Revised

Table 7.
Media Expert Data Analysis Results

Aspect	%	Categories
Compatibility	100	Very Valid
Attractiveness	100	Very Valid
Clarity	100	Very Valid
Accuracy	100	Very Valid
Usability	100	Very Valid
Averages	100	Very Valid

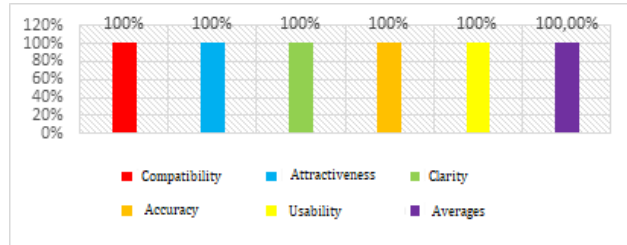


Figure 6. Diagram of Media Expert Assessment

In the media expert validation test, the average acquisition was 100%, and the average results were converted by category. The product is very valid and ideal for small and big group trials.

Table 8.
Design Revision from Media Expert

No	Assessment and Suggestions	Description
1	In general, it is good enough and feasible to be implemented or tested further.	Without revision

Table 9.
Small Group Trial Analysis Results

Aspect	%	Categories
Compatibility	94,16	Very Valid
Attractiveness	94,44	Very Valid
Accuracy	97,03	Very Valid
Ease	97,92	Very Valid
Clarity	97,22	Very Valid
Averages	96,15	Very Valid

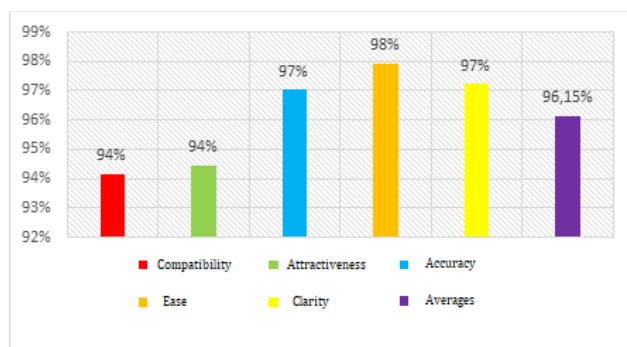


Figure 7: Diagram of Small Group Trial Assessment

Table 10.
Large Group Test Analysis Results

Aspect	%	Categories
Compatibility	94,41	Very Valid
Attractiveness	94,12	Very Valid
Accuracy	97,27	Very Valid
Ease	96,33	Very Valid
Clarity	100	Very Valid
Average	96,43	Very Valid

The data analysis results from a small group trial consisting of six students who participate in extracurricular

basketball yielded a score of 96.15%. According to the feasibility table, the product findings have successfully fulfilled the criterion of being highly valid and appropriate for usage.

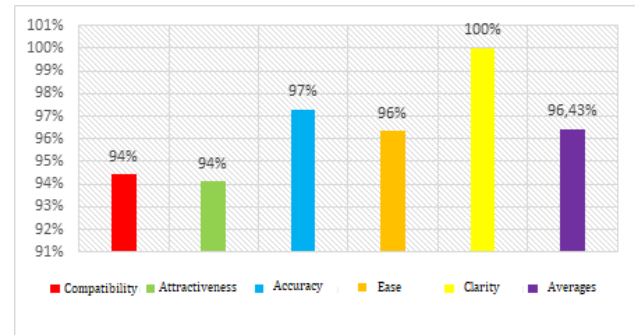


Figure 8. Diagram of Large Group Trial Assessment

The analysis of the trial data from the large group yielded a result of 96.43%. According to the feasibility table, it indicates that the product has successfully fulfilled the requirements of being highly valid and appropriate for usage.

Dicussion

The outcome of this research and development endeavour is a basketball shooting training application, created using the I-Spring Suite application and web2apk builder pro. In making the shooting training models application, there are several features that can help students who are members of the basketball extracurricular SMA Negeri 1 Sampang to facilitate the learning process of basketball shooting training, which contains shooting training model image techniques and how to do them and video shooting training models. According to (Kusuma, 2018) learning a technique in shooting requires habit, skill, concentration and confidence in practicing shooting, will get the desired results. Thus, the media application of basketball shooting training models progresses from the simplest to the most challenging, incorporating captivating materials such as images, text, and videos. This facilitates extracurricular students' learning process, enhances material retention, and fosters enthusiasm for learning at any time and place. This Ispring application is very helpful for learning and helps users understand the learning material from understanding refereeing and organizing material (Heynoek, Aji, et al., 2022).

The I-Spring Suite application can effectively support the delivery of learning materials (Larassaty, 2021). Similarly, (Purnama Sari & Ridwan, 2020) assert that the I-Spring Suite application offers media facilities with Microsoft Power Point features, making it a suitable choice for contemporary learning media, particularly for smartphone users. The advantages of I-Spring for learning media that can be used on cellphones, laptops, and computers (Setianugraha, 2019). Not only that, (Farman et al., 2021) also said that the android-based I-Spring Suite application can also attract students' interest in the process of delivering learning materials both directly and indirectly. Thus, from

several opinions of the experts above, the use of multimedia that is suitable for learning material does not rule out the possibility that students are able to master the material that has been conveyed.

Educational media serves as a means to facilitate the process of acquiring knowledge. (Sherley et al., 2021) categorise learning media into many forms, including application-based media, which allows for extensive knowledge exploration. According to (Ayu et al., 2021) stated that the learning media delivered can increase students' interest in the learning process by getting new things. In addition, according to (Herliandry et al., 2020), learning media plays a crucial role as a supportive tool in the teaching and learning process. The effectiveness of the learning system is contingent upon the quality of the media provided to educators and students. Based on the media validation results, the researchers' application product can have a positive impact on the convenience and benefits for users of the learning media application. Motivation here is also important to support students' interest, especially female students, because it is difficult for women to understand theoretically (Heynoek, Bakti, et al., 2022). This learning tool can make it easier for students to understand basketball material.

Consequently, the research of the demands of basketball extracurricular students at SMA Negeri 1 Sampang reveals that 79.2% of them require the creation of adaptable learning materials. Therefore, the existence of the I-Spring Suite application developed by researchers is useful as a tool to convey learning, very influential in a positive way, from the results of the validation of coaching experts it can also be concluded that the implementation of learning supported by learning media can create pleasant conditions and can increase the progress of extracurricular student members on the material that has been learned so far so that they have new learning media insights. This kind of ispring application was very useful when it was affected by the Covid pandemic last year, so the ispring application is very helpful in learning remotely, and makes the application easy for students to use (Aryanti & Marwan, 2021).

According to interviews with SMA Negeri 1 Sampang's basketball extracurricular coach, basketball is one of the non-academic activities that shapes students' personalities and character outside of school hours. Basketball has been taught in elementary school physical education and athletics. That basketball has two teams with five players each (Lestari et al., 2019). Basketball games promote teamwork (Farias et al., 2022). This basketball game helps practice discipline, sportsmanship, and shooting skills.

Shooting basketball is a technique of putting the ball into the opponent's basket to get points. In every match the final attack carried out by basketball players aims to end with a shot, therefore shooting is an important technique in basketball that must be learned properly and correctly. According to (Rubiana, 2017) shooting is the most important skill that every player must master. According to (Sampurno & Suryadi, 2020) also stated that the

implementation of shooting in basketball is not influenced by the situation and conditions when the game takes place but one of the techniques that is really mastered by the players because the shooting technique is most important, so shooting is one of the main points in a basketball game to get a victory with a lot of numbers. After evaluating the expertise of the basketball material specialist, it can be concluded that this extracurricular basketball programme is generally effective. However, there are a few areas for improvement. Specifically, the shooting training model video should be enhanced or clarified to ensure that students can easily comprehend it.

The final product resulting from the research and development of learning media for basketball shooting training models has been aesthetically designed and possesses user-friendly features. In this basketball shooting training model application product, it is available from the main menu which contains the main contents of the learning material for the basketball shooting training model, namely, 1) learning objectives, 2) basic technical material which contains the history of basketball, basketball unions in Indonesia, basketball rules, facilities and infrastructure, and various basic shooting techniques, 3) basketball shooting training models (chart strategy images and video learning models, 4) researcher biography and, 5) references.

According to the validation test carried out by researchers, which involved three validation experts, the results were as follows: 80.75% for coaching validation experts, 84.89% for basketball material validation experts, and 100% for media experts. Meanwhile, the trial results obtained 96.15% for small groups, and 96.43% for large group trials. Considering all the collected data, it can be concluded that the product made by researchers is very valid and suited for utilisation. The introduction of basketball shooting training model applications in the form of research products aims to enhance the learning experience for basketball extracurricular students at SMA Negeri 1 Sampang. These applications are designed to facilitate comprehension of the presented material and boost the motivation of students, thereby fostering a more enthusiastic approach to the learning process and ultimately leading to greater achievements.

Therefore (Luh & Ekayani, 2017) say learning media is a benchmark tool to stimulate student activity in learning activities. The benefits of learning media based on m-learning will facilitate and accelerate understanding in the learning process (Amiq & Prayogi, 2021), not only that (Irtawaty et al., 2018) said that learning media using the I-Spring application makes it easier for students to learn anywhere and is able to display a combination of text, images, and videos to facilitate and clarify shooting practice learning material.

The final results of learning media products in the form of learning applications with learning videos of basketball shooting training models can be useful for students and teachers to support teaching and learning activities, but this research and development product has disadvantages and advantages. According to the experts, beautiful learning

media would motivate pupils to learn, especially basketball shooting activities, making learning easier.

Conclusions

The research findings indicate that the small group achieved a success rate of 96.15%, while the large group achieved a success rate of 96.43%. Therefore, it can be inferred that the basketball shooting training models used as learning media, specifically through the I-Spring application, are suitable for enhancing motivation, enthusiasm, and interest in learning basketball among extracurricular students at SMA Negeri 1 Sampang.

Conflicts of interest

All authors stated that there are no conflicts of interest to declare.

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