

Development of attacking tactics training based on audio visual media in handball

By Resha Avanza



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⁴⁰ Abstract

Study purpose. This study aims to evaluate the validity and feasibility of audiovisual media-based tactical training videos as a means of teaching handball tactics to coaches and athletes. The background to this issue stems from the difficulties experienced by coaches and athletes in understanding and applying tactics effectively during conventional training sessions. By utilising interactive audiovisual content, it is hoped that an improvement in tactical understanding can be achieved.

Materials and methods. The research method is quantitative, with data collection through four techniques: observation of the video production and usage process, in-depth interviews with coaches and athletes, documentation of materials and training recordings, and distribution of questionnaires to three groups of respondents: media experts, subject matter experts (handball tactics), and athletes. The data obtained was then analysed using validation percentages to assess the feasibility and suitability of the content.

Results. The validation results showed a score of 80% ('Suitable') from media experts, 83.33% ('Very Suitable') from material experts, and 83.54% ('Very Suitable') from athletes. The overall average score above 80% indicates that the video has a high level of validity and suitability.

Conclusion. In conclusion, this audiovisual media-based tactical training video has been proven to be valid and feasible as a tactical learning medium in handball. The implementation of this medium is expected to enhance tactical understanding, facilitate the delivery of material, and support the effectiveness of training and athletes' performance in matches.

Keywords: Development, audio-visual media tactics training, handball.

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Introduction

Handball is a team sport in which players use one or both hands to play with the ball. It falls under the category of team sports. According to (Robianto et al., 2022), Handball is a sport that requires high biomotor skills, such as speed, endurance, flexibility, and arm muscle strength, all of which are closely related to the anthropometric factors of athletes. Good physical condition, strong discipline, and good sportsmanship are necessary for this sport. Unlike (Yulita, 2016) This handball game is played by 11 players on each team by throwing the ball. Each team tries to score goals against their opponents and stop their opponents from scoring against them. Handball is a high-intensity team sport involving running, jumping, throwing, physical contact, and over 1,000 intense movements per match, including acceleration, deceleration, direction changes, and anaerobic activities that emphasise muscle strength and endurance. (Spieszny & Zubik, 2018). Performa bola tangan dipengaruhi oleh sejumlah faktor karena kompleksitas olahraga : karakteristik antropometrik, koordinasi, kekuatan, daya tahan, nutrisi, kognisi, strategi, faktor sosial, dan pengaruh dari luar (Safiraputri & Widodo, 2021).

A defender is allowed to hold and apply pressure to the opponent's throwing arm to stop a pass or shot by an attacking player (International Handball Federation, 2016) It is also permissible for a defender to block the path to the goal by using a bent arm and making contact with the opponent's upper body when feinting and breaking through. The official awards a free throw when this type of regular contact results in a turnover. According to the rules that have been debated for successful defence and used as a defensive strategy by coaches to disrupt attacks, more interruptions result in fouls. (Fasold & Redlich, 2018) . Pada saat yang sama (Karastergios et al., 2017) found that the winning team's defence had far more fouls than the losing team's defence. According to (Gümüş & Gençoğlu, 2020) Handball helps develop basic motor skills and specific knowledge about technical and tactical sports.

Technical training in handball, such as throwing, catching, and dribbling, is a fundamental aspect that needs to be developed through structured training models tailored to the characteristics of beginner players. (Tomasoa & Trianggara, 2022) developing a catch-and-throw training model for beginner handball athletes aged 16–18 years, which has been proven effective in improving these basic skills. In addition, (Rohman & Puriana, 2020) states that skills such as throwing, catching, dribbling, and shooting are key elements in improving the quality of play and player performance. Well-designed training can improve players' agility, as demonstrated by research using ladder drill hop scotch training to improve agility in handball. The development of passing training models is also a focus in improving basic passing techniques and making training more varied (Ramadan, 2018).

The use of audio-visual media in handball instruction has been proven effective in improving students' understanding and basic technical skills. Research by (Rejeki et al., 2019) shows that the use of audio-visual media in teaching the javeline pass technique significantly improves the learning outcomes of eighth-grade students at SMP Negeri 13 Kota Bekasi. Similarly, (Prayoga et al, 2022) found that audio-visual interactive media improved students' understanding of handball introduction material, covering affective, cognitive, and psychomotor aspects. A study by (Denny et al., 2018) also supports these findings, with results showing that the use of audio-visual media in teaching flying shoot handball techniques at Kemala Bhayangkara High School in Kubu Raya contributes positively to student learning outcomes. Overall, the use of audio-visual media in handball teaching can significantly improve student motivation, technical understanding, and learning outcomes.

To improve handball skills, every coach must be able to develop four factors—physical, technical, tactical, and mental in each training session (Ramadan, 2018). Handball strategies are designed to counter various offensive and defensive strategies. This is in line with (Viana & Melo, 2024) which states that handball tactics have different characteristics based on the most important basic skills mastered by players. All the skills and strategies learned to date are

intended to help players develop as players. Tactics and individual skills are very important, but they are rarely used separately. Despite the fact that team handball is played six against six, scoring opportunities typically involve small groups creating numerical advantages. This numerical advantage prevents a single player from being marked for an open shot if executed correctly (Alexander et al., 2021), and practising combinations in 4vs3 and 3vs2 situations will improve awareness, numerical superiority, and decision-making skills.

According to (Popa et al., 2020), A team needs good and varied attacking tactics so that the opposing team cannot read the coach's tactics. Attacking tactics in handball are a crucial element that determines the effectiveness of the game and the team's success in scoring goals. According to research by (Ferrari et al., 2022), tactical and situational variables have a significant influence on the success of attack sequences in elite European handball matches. This study shows that counterattacks have a higher probability of success than positional attacks or fast attacks. On the other hand, analysis by (Hatzimanouil et al., 2024) highlights the important role of wing players in organised attacks, particularly in 'running-in' acts as a second pivot, which contributes significantly to the effectiveness of the team's attack. This is in line with research by (Hadi et al., 2022) emphasises that attacking strategies in handball are highly dependent on each individual's mastery of basic techniques, such as passing, shooting, and dribbling. The lack of learning resources on attacking strategies poses a challenge for coaches and athletes in developing effective tactics. Furthermore, a study by (Berlyano et al., 2024) reveals that a team's success in handball is not only determined by physical ability and technique, but also by the application of appropriate and adaptive attacking strategies to the game situation. The significance of this research lies in its ability to increase insight and improve offensive strategies when playing on the field. It mentions that competitive tactics and strategies are very important for winning a match (Kang et al., 2020). Players must be able to perform their actions at any time in order to play well. A different perspective with (Ferrari et al., 2022) 46% of a team's success in winning is attributed to a strategy that matches its characteristics.

Based on field observations, there are several obstacles faced by Garut Regency handball athletes in understanding and implementing attack tactics. One of the main obstacles is the athletes' lack of understanding of attack patterns that lead to the final result. This makes it easy for coaches and opposing players to predict the attacking tactics used, as they are repetitive in nature. Additionally, the training methods employed by coaches are still dominated by traditional approaches, such as lectures, question-and-answer sessions, and discussions. These methods only require athletes to memorise information rather than analyse it critically, thereby failing to support the development of athletes' strategic thinking skills. Meanwhile, (Fahrtsani et al., 2019) revealed that one of the major obstacles in the development of sports in Indonesia is the training methods that are still based on experience. Many coaches ignore theory and advances in sports technology, resulting in suboptimal training and difficulty competing with other countries, can be seen in table 1;

Table 1. Field Findings Regarding Obstacles in Attack Tactics

No	Findings	Source
1	Handball athletes find it difficult to understand attack patterns that lead to the final result.	Field observation
2	Attacking tactics are repetitive, making them easy for opponents to read.	Field observation
3	Traditional training methods such as lectures and question-and-answer sessions still dominate.	Field observation

4	Coaches tend to ignore theory and technology in sports coaching.	Field observation
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The final match between Denmark and Sweden at the 2021 IHF World Men's Handball Championship ended with Denmark winning 26–24. In this match, both teams demonstrated different tactical mechanisms. Denmark's fast attacks were dominated by organised goal attempts in a 'fast attack' formation, often involving no more than four passes from the pivot. In contrast, Sweden showed a negative correlation between fast attacks that resulted in goals and those that did not, reflecting a high number of unsuccessful attempts.

Denmark utilised a 3:3 formation in 'position attacks,' employing tactical concepts such as screens and transitions to support their attacks. Conversely, Sweden tended to use a 2:4 formation with more varied tactical behaviour, reflecting a more dispersed distribution of attacks across various areas of the field. This pattern highlights the strategic differences between the two teams, with Denmark being more effective at maximising offensive efforts through direct passes compared to Sweden's more varied approach.

The most comprehensive form of media is audio-visual, which requires both sight and hearing. According to (Jeljeli et al., 2022) Defining audio-visual media as the process of producing and disseminating information through the use of mechanical and electronic equipment to transmit audio-visual messages. Because it requires athletes to use their hearing and vision, audio-visual media is considered more effective. Both senses can help athletes understand the information conveyed by coaches through audio-visual media and provide students with the opportunity to gain deeper knowledge. The education system is highly dependent on audio-visual aids. In line with (Houtenbos et al., 2017) In the classroom, audio-visual media are used to encourage practice, make it more interesting, and facilitate understanding between coaches and athletes. Technical tools have a greater impact than dynamic tools because audio-visual media are considered the best tools for making the training process more effective and interesting for participants outside the classroom. The importance of this research is to broaden knowledge and improve attacking tactics when playing on the field. It mentions that tactics and strategies in competition are essential to achieve the goal of winning the match (Hassan et al., 2017). One of the requirements for playing well is that players must be able to perform actions at every moment. Another opinion is that (Ferrari et al., 2022) tactics that are suited to the characteristics and abilities of the players account for 46% of a team's success in winning. The impact of this research, if not studied, is that the Garut Regency handball team will not have the potential to improve in terms of offensive tactics training, so that when the game pattern is running on the field, there may be many technical errors in the playing pattern.

This research was conducted as a solution to facilitate coaches in the training process for athletes and to enrich their understanding of effective attacking tactics, while also adding to the knowledge of innovation in handball technology. The underlying problem in this research is the lack of effective, interactive, and easily accessible training media for coaches and athletes to learn attacking tactics systematically. The objective of this research is to develop animated video media that illustrate attacking tactics in handball, accompanied by narration as a form of training procedure that is easily understood by athletes and coaches, thereby supporting the enhancement of training effectiveness.

The strength of this research lies in the development of animation-based training media that not only serves as a visual aid, but also includes procedural narratives to provide clear step-by-step guidance. This media offers a new approach to conveying attacking tactics, which is expected to improve tactical understanding, training effectiveness, and the adaptability of coaches and athletes to various game situations.

Materials and methods

Study participants

Penelitian ini melibatkan tiga kelompok partisipan utama. Kelompok pertama adalah ahli materi, yang terdiri dari dua validator dengan latar belakang akademik dan profesional dalam cabang olahraga bola tangan, yaitu Eka Prasetya, S.Pd., seorang Guru PJOK, Wasit Nasional Indonesia, Pelatih Bola Tangan, dan Pengurus ABTI Kota Bekasi, serta Hidayat, M.Pd., seorang Guru PJOK dan Pelatih Bola Tangan di Kabupaten Garut. Kelompok kedua adalah ahli media, yang melibatkan dua validator dengan keahlian dalam desain media dan komunikasi visual, yaitu Rizqian Insan Muhammad T., S.Ikom., dosen Universitas Garut yang ahli dalam desain media, serta M. Firmansyah B., S.Ikom., M.Ikom., seorang dosen dan praktisi desain komunikasi visual. Kelompok ketiga adalah 16 atlet dari tim PORDA Kabupaten Garut, yang dipilih berdasarkan keterlibatan aktif mereka dalam pelatihan bola tangan untuk persiapan kompetisi PORPROV Jawa Barat 2021 di Subang.

Study design

The purpose of this study is to develop a training video product that includes audio-visual media-based attacking tactics for handball. This study uses the Research and Development method. According to (Sugiyono, 2020) Research and Development is a research method used to produce specific products and test their effectiveness. This research method is used to produce and develop media products, specifically in the form of video training materials on attacking tactics for handball, intended for athletes and coaches. The video training materials on attacking tactics for handball explain clear training patterns where athletes are asked to analyse and study the training videos. In line with (Nusa, 2016), Research and Development is a deliberate, systematic research method aimed at discovering, improving, developing, producing, or testing the effectiveness of products, models, or methods/strategies/approaches that are superior, new, effective, efficient, productive, and meaningful.

The development model used in this study is Research and Development with the ADDIE development method. According to Sugiyono (2024) Research and Development is a type of research used to produce a product. The method used in this study employs a development model with the ADDIE approach. This method consists of five stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. The following is an illustration of the stages of the R&D research process using the ADDIE approach, can be seen in figure 1;

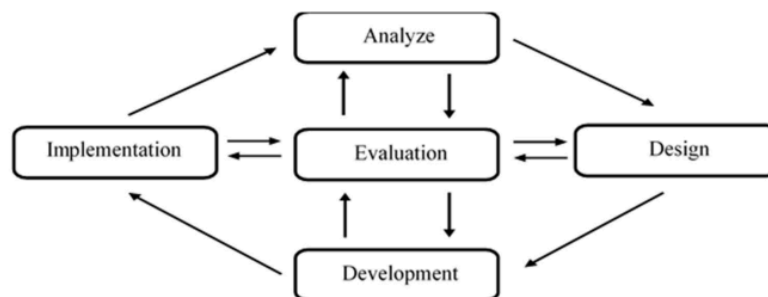


Figure 1. Stages of the ADDIE development model. (Tegeh, I Made; Jampel, 2015)

Statistical analysis

The ADDIE model consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. It provides a structured framework for developing instructional products, where each stage can integrate statistical methods. During Analysis, data such as learner needs or prior knowledge are gathered, often using descriptive statistics. In the

Design and Development phases, statistical tools help validate content and ensure reliability (e.g., item analysis, Cronbach's alpha). Implementation involves applying the intervention, commonly assessed with experimental or quasi-experimental designs, while Evaluation uses inferential statistics (e.g., t-tests, ANOVA) to measure effectiveness and guide revisions.

Results

This research and development study developed a tactical attack training video for handball. The training video was shown to coaches and athletes who were preparing for the 2021 West Java Provincial Sports Week (PORPROV) competition in Subang. The model used in this research and development study was the ADDIE model, which consists of the stages of analysis, design, development, implementation, and evaluation. Based on this research and development model, the following results were obtained.

This section contains research results or data, research data analysis, answers to research questions, and analysis of findings during the research.

a. Media expert

Expert media validation, conducted to assess the validity of the product in terms of tactical attack training video design, involved two experienced validators: Rizqian Insan Muhammad T., S.Ikom., a lecturer at Garut University with expertise in media design, and M. Firmansyah B., S.Ikom., M.Ikom., a lecturer and assistant lecturer at Garut University with an academic background and practical experience in visual communication design. The validation testers assessed the tactical attack training video and provided percentage ratings from the media experts, which are presented in Table 2 as follows:

Table 2. Media Expert Validation Results

Validator	Score Max	Average Total Score	Percentage	Description
Media Expert	60	48	80,00%	Valid

Based on the results of media expert validation in the table above, the average score was 48 and the percentage score was 80.00% with a good category, so it can be concluded that the development of attack tactic training videos based on media expert assessment is 'valid' for use in attack tactic training.

b. Material Expert

Expert validation of the material was conducted by two validators, namely Eka Prasetya, S.Pd., a Physical Education Teacher, National Referee of Indonesia, Handball Coach, and Member of the ABTI City of Bekasi, as well as Hidayat, M.Pd., a Physical Education Teacher and Handball Coach of Garut Regency, with their expertise focused on testing the validity of the tactical attack training material presentation to ensure the product's suitability in terms of the content presented. The validators assessed the tactical attack training material presentation and provided percentage scores, which are presented in Table 3 as follows:

Table 3. Results of Expert Validation of Materials

Validator	Score Max	Average Total Score	Percentage	Description
Material Expert	60	50	83,33%	Very Valid

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Based on the results of expert validation of the material in the table above, the average score was 50 and the percentage score was 83.33%, which is classified as very good. Therefore, it can be concluded that the development of tactical attack training videos based on expert assessment of the material is 'highly valid' for use in training.

c. Athlete Response

The subject matter expert tested the feasibility of the attacking tactics training by providing assessment percentages, which are presented in Table 4 as follows:

Table 4. Results of Athlete Fitness Tests

Response	Score Max	Average Total Score	Percentage	Description
Athlet	60	52,375	87,29%	Sangat Valid

1
Based on the results of the athlete response feasibility test in the table above, the average score was 52.375 and the percentage score was 87.29%, which is classified as very good. Therefore, it can be concluded that the development of attacking tactic training videos based on athlete assessments is 'highly valid' for use in training.

Data analysis in this study was conducted using quantitative descriptive methods to measure the validity and practicality of the attacking tactics training video media. Validation by subject matter and media experts was carried out by calculating the validator's score using the product feasibility percentage formula, namely $\text{Percentage} = \frac{\text{Maximum score}}{\text{Average total score}} \times 100\%$. The results of the subject matter expert validation showed a percentage of 83.33%, which falls into the highly valid category, while the media expert validation yielded a percentage of 80%, which falls into the valid category. Athletes' responses to the media were analysed using a similar method, yielding a percentage of 87.29%, which also falls into the highly valid category. Based on the statistical analysis results, this media is deemed valid and suitable for use in attacking tactic training in handball. All data was calculated manually and re-verified to ensure the accuracy of the results.

The development of audio-visual media in handball in the Garut PORDA team was carried out in accordance with development procedures using the Research & Development method. This Research & Development study utilised the ADDIE model or approach to media design.

The first stage is the Analyse stage

The analysis consists of two stages of Needs Assessment, which involves analysing the field conditions by conducting interviews with several relevant parties, including subject matter experts, media experts, and respondents, as well as collecting reference materials that will be used as the basis for media development. Information regarding the training process, athlete characteristics, and training media development was obtained from observations conducted on the PORDA Garut team from 9 October 2023 to 16 October 2023 at the Uniga and Rancamaya futsal fields. The next activity was Front-end Analysis, which involved collecting references such as attacking training materials, attacking match video materials, video designs, and video narrative materials required for the development of attacking training media. Based on the

analysis of attacking training, 16 videos were selected as the focus of development. The main content of these videos pertains to audio-visual media-based tactical training in handball.

The second stage is Design.

The design stage is the stage of designing audio-visual media, which includes material (images, sound, video, training materials), the formulation of the objectives for creating the tactical attack training video, the creation of the narrative opening and image guidelines, which serve as the initial design or preliminary outline for the tactical attack training video design, followed by the creation of a storyboard to present the tactical training video module in written form, the collection of design objects, and the development of validity testing instruments.

The third stage is Development.

This development stage involves creating and developing tactical attack training videos from all the prepared components into a complete whole in accordance with the storyboard designed using Capcut Professional and Corel Draw X7 software. Once the media has been created, it is validated by media experts and subject matter experts to obtain input on its development, accompanied by an assessment instrument for the suitability of the tactical attack training videos in handball.

The fourth stage is Implementation.

According to (Subagyo Joko, 2015) A small group trial was conducted on 4-14 respondents. The small group trial yielded good results, so the handball attacking tactics training video was developed and revised based on the above findings. The trial subjects included a small group trial with 1-16 respondents. In the next phase, the audio-visual tactical training video for handball, which had been developed, was implemented with athletes from the Garut Regency PORDA team. This implementation aimed to assess the athletes' responses to the audio-visual tactical training video developed. From this phase, the feasibility and practicality of the developed training media would be determined. The athletes were then asked to complete a questionnaire to provide feedback on the interactive learning media.

The fifth stage is Evaluation.

The evaluation conducted consisted of a development evaluation and evaluation of the suitability of the training video product. The development evaluation was carried out by media experts and subject matter experts to determine the suitability of the developed training media and to assess whether the developed training media should be produced, distributed, and used by the handball team. PORDA Garut Regency. Data evaluation or product feasibility in the form of suggestions was obtained from athletes using a response questionnaire from the implementation stage, which was used to improve the product developed by the researchers. The evaluation of the training media product was conducted by athletes to determine their response to the developed media. The evaluation provided data describing the quality of the training media product, whether it was valid or invalid.

The development process was carried out with several supporting factors that underlie the development of tactical training video media in handball and skills collected through needs analysis in the form of questionnaires and preliminary observations. The development of this training video media was also based on a number of supporting theories and research results as a foundation for its development. The rapid advancement of technology demands changes in sports processes, including the use of training video media in the sports world. One of the training video media referred to in this research is tactical attack training video media in handball.

The objective of this research on the development of audio-visual media-based attacking tactics training in handball is to produce valid attacking tactics training video media. The validity test was conducted using a questionnaire data collection instrument and was proven by the documentation of the research activities.

1. Prototype of the development results

Audio-visual tactical training media for handball is a training medium in the form of a video that contains material, images, animations, sounds, background music, videos, and image files about handball. This medium displays a video presentation containing tactical training content.

The following are parts of the results of developing tactical attack training videos using Capcut Professional software;

- a. Opening Display
Part of the opening display shows the logo and font for the title.
 - b. Animated Video Rules Guide
This image shows arrows and player movements in animated form so that viewers can understand the video.
 - c. Animated Images and Videos
The following image shows tactical instructions related to the video.
 - d. Closing Image
The following image shows the closing image of the video.
2. Practicality testing of audio-visual media-based tactical training video products conducted by athlete and coach respondents through small group trials and coach feedback.
Small group test The assessment of athletes in the small group test is as follows: athletes can understand the clarity of the tactical training objectives contained in the video, as well as the completeness of elements such as the font used in the video, which are of very good quality. The ease of understanding the tactical material in the video and the appeal of the video media display are also assessed. Based on this assessment, the average score for the tactical training video produced from the small group trial is classified as 'highly valid.'
 3. Responses from subject matter experts, media experts, and respondents
 - a. Subject Matter Expert (informant 1)
According to informant 1, a coach is someone who is responsible for preparing athletes and individuals physically, tactically, and mentally. He said that team sports, especially handball, are attractive sports that require good communication and cooperation so that when tactical instructions are given, they can be applied as desired by the coach. However, the conventional method used by most coaches is usually lectures and question and answer sessions, so some athletes do not fully understand the theory being explained and tend to get bored trying to understand what the coach has explained.
 - b. Media Expert (informant 2)
According to informant 2, media experts are influential in the existence of audio-visual media that supports athletes to be able to understand the discussion in the form of a video which is a communication approach that shows an overview during the match.
 - c. Athlete Response (informant 3)
According to informant 3, athletes as tactical players in handball affect the course of the match, therefore it is very important, because it is to support the systematic game which emphasizes effective games so as to reduce individual movements that drain stamina during the game.

Based on the results of the validity trial that has been carried out, the video media product for tactics training in handball is declared feasible based on the percentage results obtained. With the achievement of the feasibility of the tactics training video media, of course

this can increase the awareness of athletes regarding the importance of practicing tactics of playing handball in accordance with the technique so as not to cause many mistakes when competing in handball.

A video media program is said to be effective if the media can help the training process, whether mass, individual or group training, according to (Dewi et al., 2018). The video media program is said to be valid based on the fact that training video media is one type of audio-visual media that can describe an object that moves together. Informational videos present information, describe processes, explain complex concepts, shorten time, and influence attitudes (Fauziyah et al., 2021).

The advantages possessed in the training video media products that have been developed:

- a. This attack tactics training video media is interactive
- b. This video media is equipped with narration so that athletes and coaches can better understand the tactics or techniques of the handball game shown in the video.
- c. In this video media is equipped with background music and narration sounds that contain the steps of attacking tactics of handball games.
- d. This video media has a capacity of 50,000 KB so that this training video media can be operated on an android /ios cellphone or on a PC / laptop.

There are also shortcomings of this attack tactics training video media, namely, only in the form of video files and only displaying 2-dimensional animation.

Problems in the development process and how to overcome them The development of attacking tactics training video media in handball is not easy, in developing this training video media there are many obstacles, such as the process of editing each scene so that it becomes a training video media product, the arrangement of na which changes every time. However, these obstacles have been overcome so that a training video of attacking tactics in handball is produced which is integrated in training according to the tactical needs for the preparation of the Garut Regency handball PORDA team.

The solutions carried out by researchers in overcoming these obstacles are

- a. Researchers use handball tactical pad software as well as Corel Draw x7 and Capcut Professional software to help the process of editing each scene so that it becomes video media.
- b. Researchers compile scripts and storyboards then map each scene to make it easier in the process of making video media for attacking tactics in handball.

Discussion

The results of this study indicate that audio-visual-based training media for attacking tactics in handball can be well received by athletes and coaches in Garut Regency, with valid and very valid categories based on the validation of material experts, media experts, and athlete responses. This finding supports the theory put forward by (Sugiyono, 2020) that a Research and Development-based approach can produce products that are relevant and effective in improving the quality of learning or training.

In addition, this research is in line with the study (Fahrizani et al., 2019) which states that technology-based innovations, such as audio-visual media, can be a solution to overcome the limitations of repetitive traditional training methods. The media developed not only helps improve athletes' understanding of attack patterns, but also trains their ability to analyze game situations more critically, supporting the argument that the media can be used to improve athletes' understanding of attack patterns (Nusa, 2016) on the importance of systematic and technology-based coaching methods.

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The new contribution of this research is the development of audio-visual-based media specifically designed for the sport of handball, which has not previously been studied or developed specifically in Indonesia. This media is equipped with narration and visualization of detailed attack patterns, allowing athletes to learn independently or under the guidance of a coach, thus accelerating the process of understanding attack tactics. As such, this study provides new findings relevant to the development of technology-based training methods in handball. If needed, these results can be further compared with similar research at the international level to enrich its insights and practical applications in a broader context.

Conclusions

The development of attacking tactic training based on audio visual media in handball in the Garut Regency team received valid and very valid categories based on the validation results of each expert. The results of the first validation by (material experts) resulted in a validation percentage value of 83.33% which can be categorized as "very valid", while the second (media experts) resulted in a validation percentage value of 80% which can be categorized (valid), and for the response answers (athletes) resulted in a validation percentage value of 87.29% which means it can be categorized (Very Valid). This attacking tactic video training media also received a positive response from material experts, media experts and athletes. This can be seen from the overall average results of validation and response to the video training of attacking tactics in handball with a percentage of 83.54% which means it can be categorized as "very valid".

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