

DEVELOPMENT OF STRENGTH EXERCISE METHODS FOR CHILDREN AGE 9-14 YEARS IN THE VOLLEY BALL

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Abstract

Based on observations made in volleyball clubs throughout Pontianak, there is no Instructional VCD that broadcast strength training For children 10 to 14 years of age, it is necessary to develop a VCD strength training instructional method. The aim of this study was to develop instructional VCD volleyball strength training methods for children aged 10 to 14 years. This development uses an R&B development model with the ADDIE development model. Meanwhile, the data analysis technique, namely the percentage, was adopted from Sudjana (2016). The results of the development of the VCD instructional strength training method met the criteria valid enough for media experts to obtain 90.97% of the Very Eligible category, the material experts obtained 85% of the Very Eligible criteria, for the volleyball coach's assessment obtained 90% of the Very Eligible category, and the assessment for the trial group stage II obtained 87.77%. The conclusion of this study is that the development of instructional video-based strength training methods is very suitable as a medium for strength training in children aged 10 to 14 years.

Keywords: *Development, Exercise, Strength, VCD Media*

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INTRODUCTION

Volleyball was originally a recreational sport activity, but along with its development this sport has become one of the most popular achievement and prestige sports in the world, both from children to adults. really like and love this game. Volleyball is one of the sporting achievements that really need the best possible form of technical performance, basic techniques in volleyball games such as basic onion fitting techniques, basic top-fitting techniques, basic smash techniques, basic block techniques and basic service techniques (Wicaksono, 2015). The ability to serve the top is supported by the coordination of the whole

body movement which ends in the form of swing motion supported by the strength of the arm muscles resulting in good accuracy, good eye and hand coordination, is also advantageous to be able to direct the ball in the direction of the ball that is desired (Arisman et al., 2021). In carrying out as a ball attack in an empty opponent's area, it will be difficult for the opponent to reach the ball (Saptiani et al., 2019). It is not uncommon for players to serve by jumping as much as possible, hitting the ball as hard as possible. After the service ball is received it is fed, dismeshed with the maximum possible jump and the hardest possible shot. In other words, players often move with great force, and speed, or power. So the elements of muscle strength, muscle endurance, cardiorespiratory endurance, flexibility, muscle speed and body composition are very important components of physical condition in volleyball games. For this reason, the components of the physical condition need to be formulated in each of the main objectives of the exercise (Okilanda, 2017). In its implementation, an athlete to achieve maximum physical condition, a coach makes a good training program and training method, so that training effectiveness and training goals can be achieved properly (Fauzi et al., 2020).

Thus, during the training process, the arrangement of the physical exercise program must be given gradually and continuously in accordance with the characteristics of the age level. So to achieve high sports achievement requires a long time with the correct training process. Therefore, physical exercise should be done from an age. early, with the correct training stages (Okilanda et al., 2021). Maximum achievement will be achieved if players from an early age to the golden age are scientifically, continuously, gradually, increasing and continuously for approximately 10 years. So coaching from an early age needs to be a very serious concern because The starting point for the development of volleyball athletes is the initiation of children between the ages of 10 and 14.

A good achievement requires planning and physical coaching that is programmed in a systematic, pragmatic and conceptional manner where early childhood has an increasingly important meaning when it is associated with

investment with pe In the right management and treatment and handled by a professional trainer with a targeted and appropriate scientific training program, talented early age athletes will increase the chances of achieving high achievement, while mistakes in fostering the physical condition of early age athletes are the base of failure to achieve achievement. Performance sports cannot be separated from how good and correct techniques are, so that effectiveness, efficiency and safety will be obtained in presenting a technical movement (Wicaksono, 2015). Good physical condition is an important requirement for volleyball athletes. Physical condition is the main requirement in achieving achievement, the better the physical condition of the athlete, the greater the chance to achieve optimal performance. However, for early age athletes, coaches need to be careful in developing athletes' physical abilities, in addition to the general physical condition being developed fundamentally according to the athlete's growth and development according to their age (Putra et al., 2020).

Based on field observations and surveys of several volleyball clubs in the city of Pontianak that foster athletes from the beginner level, it is found that all volleyball coaches in Pontianak when physically training their athletes generally apply more conventional methods which do not refer to the basic theory basic of coaching true and seem careless in providing methods physical training. Many trainers approach physical training with an emphasis on the aspects of drilling or doing repetition of motion and do not pay attention to planting the concept of knowledge from strength training physical condition training (Nopianto at el., 2020). The training media owned by the trainer trainer is very limited, this causes the trainers in carrying out their duties to experience many obstacles and becomes less varied in choosing strength training methods to make it easier for athletes to achieve the expected physical condition. In addition, there are still many coaches who do not understand the characteristics of the biomotor components of the volleyball branch with many coaches who do not prioritize the safety and health of athletes by providing inappropriate doses of physical

exercise and not in accordance with the development and characteristics of the child or excessive loading. Forms and methods of physical exercise that are not varied and mis-targeted is one of the factors that will not achieve maximum achievement (Taufik at el, 2021).

The use of assessment or process measurement in physical training and the use of learning resources as an effort to provide feedback and reinforcement is also not optimal, this is due to, among other things, the limited knowledge of trainers about the basic basics of making exercise programs in physical conditions and training media and the lack of learning materials and resources. adequate. Trainers should use certain standards to evaluate the ability of the athlete's physical condition. In a strength training physical condition training, an athlete also needs a number of information as a guide to the work that should be done. For this reason, it is necessary to have training media that can help athletes and coaches convey information accurately to the athletes (Arisman & Agun Guntara, 2021). There are many media that can be used in the process of strength training in volleyball so that it can stimulate the thoughts, feelings, attention and interests of the athletes in such a way that the strength training process can run well. The forms of training or learning media are very diverse, both in the form of printed media such as books, props such as image models or electronic media, such as toturials with videos and computers as well as adroids.

In line with the rapid development of technology that currently brings many changes, one of which is that the volleyball branch gets a place to support the process of practicing training in multimedia form. The development of learning media plays an important role in a learning process (Christianto & Dwiyojo, 2020). Multi-media learning has several advantages, including: enlarging objects that are very small and invisible to the eye, reducing very large objects that cannot be presented directly, presenting objects or events that are complex, complicated, and take place quickly or very slowly, presenting distant objects or events, presenting objects and events that are dangerous, increase the attractiveness and attention of the athlete (Maretno & Arisman, 2020). Athletes

become smarter, training becomes more meaningful with the use of technology in the form of multimedia for volleyball, which tends to contain more about methods, models, forms and variations of training, both technical, physical, technical and strategic tactics.

Based on the above problems, we think it is necessary to develop a video tutorial on strength training training methods in volleyball which is intended for athletes aged 10 to 14 years. The results of the observations obtained by the researcher, that multimedia strength training training in volleyball specifically for athletes aged 10 to 14 years does not currently exist, it is hoped that with the development of multimedia video tutorials this training can be useful both individually or in groups for trainers and athletes as a guide. strength training method for athletes aged 10 to 14 years in volleyball.

METHOD

In this video tutorial development research on the method of strength training in volleyball which is intended for athletes aged 10 to 14 years using VCD media, this is a process used to develop and validate video products. The development model in education is very appropriate to use the *Research & Development* (R & D) development model from the ADDIE development model used is a development model based on (Dominique Simbolon, Markus. Wahjoedi, H. Putu Spyanawati, 2020) The design of learning video development in this study was adapted from the ADDIE development model which consists of five development stages, namely analyze, design, development, implementation, evaluation.

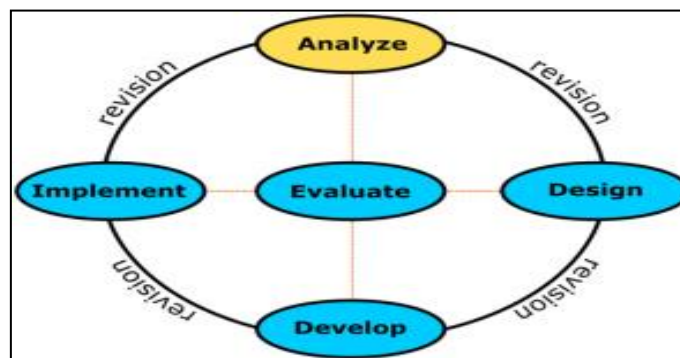


Figure 1. ADDIE Model Development Chart (Dominique Simbolon, Markus. Wahjoedi, H. Putu Spyanawati, 2020)

Table 1. Summary of ADDIE Model

Development Phase	Activities
<i>Analysis</i>	Pre-planning: The first time that is determined is an idea that will be developed, with collect information as a rationale for creating a concept.
<i>design</i>	Media script writing (product design), the form of the design is a story board product evaluation,
<i>development</i>	product revision I, revisions are carried out by the relevant expert, prototype production, carried out by taking product images with audio-visual media (video), Prototype testing, testing on field subjects in both phase I and phase II trials, then second product revisions, revisions are carried out by experts in order to obtain perfect results.
<i>implementation</i>	Reproduction, product refinement to get to the final product expected in development

This development research was carried out in six volleyball clubs throughout the city of Pontianak as for the clubs including; NN volleyball club, Rajawali volleyball club, ICM volleyball club, Porsela volleyball club, Brojomusti volleyball club, and JVC volleyball club. Determination of the research sample using purposive sampling where the sampling of research with certain considerations aims to make the data obtained later can be more representative (Sugiyono, 2013). So that the research trial subjects were obtained as follows:

Table 2. Research Subjects

Respondents	Total
Population of Athletes from Six Volleyball Clubs	180
Small Group Trials	30
Large Group Trials	90

Note: The number of athletes aged 10 to 14 years from six clubs: 180 athletes.

Data Collection Techniques

The instrument used in this study was to use a questionnaire distributed to material experts, media experts, volleyball coaches and athletes volleyball (in phase I trials and phase II trials) with the aim of knowing the response to the strength training video tutorials. that is being developed. The questionnaire instrument uses a Likert scale with four answer choices in the hope that there will be differences and provide opportunities to be neutral. The assessment scale for the validation and response of athletes can be addressed in table 3 below:

Table 3. Evaluation Scale of Validation and Response of Volleyball Athletes In adequate

Rating	Value
Very feasible	4
Feasible	3
not worth it	2
Not feasible	1

Response Instrument for Volleyball Athletes Ages 10 to 14 Years

The Athlete Response Instrument is used to see the level of satisfaction of athletes with users of strength training training video tutorials for athletes aged 10 to 14 years. The instrument grille is for the athlete's response to the assessment as follows;

Table 4. Grid for the Assessment Instrument for Volleyball Athletes Ages 10 to 14 Years

No	Aspect	Dimensi
1	Video System Uses	Video System Uses
		Video System Quality
		Video System Display

Data Analysis Technique

Data will be analyzed using quantitative descriptive analysis techniques with a percentage of the feasibility test products where data analysis techniques include assessments by material experts, media experts, volleyball coaches and volleyball athletes aged 10 to 14 years at volleyball clubs throughout the city of Pontianak. From the scoring results then converted to the norms of the eligibility category (Suharsimi, 2010) as follows:

Table 5.Categories of Percentage of Feasibility

Average Answer Score	Category	Score
$Mi + 1,5 Sdi < X \leq Mi + 3 Sdi$	Very Worthy	75,1 - 100
$Mi < X \leq Mi + 1,5 Sdi$	worthy	50,1 - 75
$Mi - 1,5 Sdi < X \leq Mi$	less worthy	25,1 - 50
$Mi - 3 Sdi < X \leq Mi - 1,5 Sdi$	Not feasible	0,0 - 25

DISCUSSION

Based on the data analysis above, it can be described the results of data analysis from media experts, material experts, volleyball trainers and age volleyball athletes. 10 to 14 years (Phase I trials and phase II trials).

Data Analysis Results from Media Experts

Based on the media expert's assessment that has been carried out using a questionnaire of 36 questions with a score range using the Likert scale, aspects of quality attributes are based on three dimensions with 13 questions, namely functionality, reliability, and use. There are 3 dimensions to training media design aspects with 13 question items, namely; balance, rhythm and emphasis and unity. The display aspect has two dimensions with 10 questions, namely; aspects of the appearance and usefulness of the video.

Data Analysis Results From Material ExpertMaterial

Assessment expert judgment is based on data obtained from a questionnaire with 30 questions and with a range of scores Using the Likert scale, there are two aspects to be assessed, namely the material substance aspect with 15 questions and the exercise design with 15 questions.

Results of Data Analysis from the Volleyball Trainer's

Assessment The volleyball coach's assessment is based on data obtained from a questionnaire with 30 questions and with a score range using a Likert scale, there are two aspects assessed, namely the substance aspect of the material with 15 item questions and exercise design with 15 question items.

Results of Data Analysis From the Assessment of Volleyball Athletes Ages 10 to 14 Years

The assessment for athletes' responses with a questionnaire of 20 questions to see product performance regarding athlete's satisfaction with the product is divided into three aspects of satisfaction, namely; the aspects of the use of the video system were 6 questions, the video quality aspects were 7 questions and the video display quality aspects were 7 questions that were tried out in small groups to be tested for the validity and reliability of the instrument. Of the 20 questions, only 15 instruments were declared valid and reliable, which were then tested in large groups.

CONCLUSION

From the results of the development and procedures that have been carried out above, it is concluded that the development of video tutorial-based strength training training for children aged 10 to 14 years is very suitable to be used as a tutorial media for methods of training children's physical conditions. The results of the conclusions from this development research are as follows: (1) The assessment of the media expert obtained a score of 90.97%, the Very Appropriate category. The expert's assessment of the material met the Very Eligible criteria by obtaining a score of 85%. As for the assessment from the volleyball coach, he obtained a score of 90% in the Very Eligible category. And the assessment of volleyball athletes aged 10 to 14 years in the large group (phase II trials) obtained a score of 87.77% in the Very Eligible category.

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