

# Developing Learning Media Software for the Stop Motion Technique in Floor Gymnastics using Android-based Smart Phones

Ratna Budiarti<sup>1</sup>, Agus Prestianto<sup>1</sup>

<sup>1</sup>*Sport Coaching Department, Universitas Negeri Yogyakarta, Jl. Colombo No. 1, Yogyakarta, Indonesia*

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**Abstract:** This study aimed to yield a product in the form of learning media software for floor gymnastics that could be used as a new method in technique learning in the sports branch of floor gymnastics for athletes. The research method was Research and Development. The data collecting instruments were an evaluation sheet and an assessment scale questionnaire. The data of the evaluation results were qualitative and quantitative descriptive data. The quantitative data were collected through the expert validation and the tryout activities in the form of inputs, responses, criticisms, and suggestions. The quantitative data were in the form of assessment, collected by a questionnaire for the product tryout in the tryout activity and analyzed using the quantitative descriptive technique. Based on the results of the data analysis in this research and development, it can be concluded that the product of learning media software for the stop motion technique in floor gymnastics using android-based smart phones can be used as learning media for floor gymnastics, indicated by the fact that 97.67% of the respondents state that the learning media are very appropriate/very adequate and 8.33% state that the learning media are appropriate/ adequate. On the whole, the aspects of the materials and design product attain a mean of 4.875 with the very appropriate category and 97.5% of the respondent's state that the media are very appropriate.

## 1 INTRODUCTION

Floor gymnastics is a sport that combines aspects of acrobatics, tumbling and beauty (Margono, 2009). Floor gymnastics is in demand by all age levels ranging from children to adults so that the floor gymnastics club is spread in every region throughout Indonesia. "Theory and Methodology of Training" the nursery for floor gymnastics athletes is carried out since children aged 6-7 (Bompa, 1983). Children at this range of age still have more flexible muscle and joint structures.

(Arsyad, 2010) Argued that the use of instructional media in the teaching and learning process can arouse new desires and interests, arouse motivation and stimulation of learning, and even bring psychological effects on students. The creativity of the trainer is indispensable for the process of training the athletes. Therefore, coaches need to know the right learning media given to athletes. The importance of learning media for athletes in order to create a pleasant training atmosphere, facilitate the trainer to convey basic motion techniques trained, so that athletes are

interested in and love the branches of floor gymnastics, creates motivation for athletes to be able to master basic motion techniques and advanced movement techniques well.

In the learning process the presence of instructional media has quite an important meaning. It is due to in these activities the obscurity of the material presented can be assisted by presenting the media as an intermediary. Based on observations made by researchers on the internet, there are many media learning applications for floor gymnastics but the majority is in English and use human videos as learning. The motion technique and the whole series in floor gymnastics are assessed using the Code of Point as a standard of evaluation in a race. Code of Point is a rule book created by the FIG as a reference assessment system for each level of technique in floor gymnastics branch ([https://en.wikipedia.org/wiki/Code\\_of\\_Points\\_\(artistic\\_gymnastics\)](https://en.wikipedia.org/wiki/Code_of_Points_(artistic_gymnastics))). Floor gymnastics learning software that already exists in the Play Store such as Gymnastics, Gymnastics Artistic App, Artistic Gymnastics applications using human videos as an object are considered less optimal in describing the

details of gymnastic movement techniques. And the material in the application is in the form of a link to YouTube, so the explanation of the material is less effective. In order to deliver the material more optimally, material in accordance with the technique in the Code of Point is needed in the form of animation so that it is able to display the correct and easier way understand the stages of the movement.

Based on the above background, the research entitled the development of learning media software "stop motion floor gymnastics techniques on android-based smartphones" needs to be done immediately.

## 2 RESEARCH METHOD

### 2.1 Type of Research

This research applied a Research and Development method. Research and development is a process or steps to develop a new product or improve existing products, which can be accounted for (Sukmadinata, 2011). Research and development is product-oriented research. States that research and development is research method employed to produce certain products, and test the effectiveness of these products (Sugiyono, 2011).

### 2.2 Research Place

Data collected at Selabora Floor Gymnastics FIK UNY and Yogyakarta City Floor Gymnastics Club. Data collection carried out during training hours and training grounds of each club.

### 2.3 Testing Subject

There are two test subjects in this research and development:

#### 2.3.1 Expert Trial Subject

(a) *Media Expert*: The referred media expert is the expert who is used to dealing with learning media.  
(b) *Material Expert*: The material expert is lecturer/teaching staff, trainer or floor gymnastics expert whose role is to determine whether the floor gymnastic material packaged in the learning media "stop motion floor gymnastics techniques on android-based smartphones" is in accordance with the level of material depth and authenticity of the material used or not yet.

### 2.3.2 User Trial Subject

The trial subjects in the use of this product are athletes who practice at a gym club in Sleman Regency. The trial was carried out through several stages. The first stage was one by one trial with the number of research subjects as many as 3 athletes and the next stage was a field trial with a total of 10 research subjects.

The technique of determining the subjects of trials in this research development is the simple random sampling method. Simple random sampling is a sampling technique or subject that provides equal opportunities for each element (member) of the population to be elected as a sample or subject member (Sugiyono, 2011).

### 2.4 Data Collection Instrument

An instrument is a tool used to measure observed natural or social phenomena (Sugiyono, 2011). The instrument for collecting data in this research development applying a questionnaire, namely open questionnaire and closed questionnaire. Open questionnaire is used to find out the advice of the sample given, and a closed questionnaire containing the statements chosen by the trial subjects and material experts.

### 2.5 Instrument Validation

Validity in this instrument is content validity. The instruments that have been made are tested by material and media experts by comparing material or product plans to be developed.

Technically testing the content validity can be supported by using the instrument reference, or the instrument development matrix (Sugiyono, 2010).

### 2.6 Data Analysis Technique

After the data is collected, the data is classified into two data groups, namely qualitative data and quantitative data (Arikunto, 1996). Qualitative data obtained through expert validation and trial activities in the form of opinions, responses, criticism and suggestions. Quantitative data in the form of assessment, collected through questionnaires or product trial questionnaires, at the time of the trial activities, analyzed with descriptive quantitative analysis. Percentage is intended to find out the status of the entity presented as a percentage. After reaching the percentage later be interpreted with a sentence qualitatively.

Then for the quality assessment category of learning media in the form of floor gymnastics learning media can be seen in the table.

Table 1: Quality assessment criteria for development of floor gymnastics learning media.

Level Assessment	Category
0%-20%	STS (Very Relevant)
21%-40%	TS (Irrelevant)
41%-60%	KS (Less Relevant)
61%-80%	S (Relevant)
81%-100%	SS (Very Inappropriate)

### 3 RESEARCH RESULT

This research and development resulted in the product "Learning Media Software for The Stop Motion Technique in Floor Gymnastics Using Android-Based Smartphones" can be used as learning media in floor gymnastics with a percentage of 91.67% of respondents state that the learning media is Very Relevant/Very Feasible and 8.33% of respondents state the learning media is Relevant/Feasible. Overall regarding material aspects and product design obtained an average of 4,875 with the category of Very Relevant or the percentage of 97.5% of respondents state Very Relevant.

### 4 DISCUSSION

The developed learning media product can be used as an innovative step in learning by utilizing the product at the floor gymnastics club. The eminence of this learning media software stand on its more optimality and interesting in the delivery of material compared to existing softwares because the video on the Artistic Gymnastic software uses stop motion animation so the details of the motion exercises on the floor gymnastics are easier to learn. This learning media is also more effective than the existing gymnastic learning media softwares because Artistic Gymnastic software contains material directly, meanwhile the existing softwares that use the YouTube links so it requires an internet connection. The developed learning media can be used as a source of learning for athletes, so that athletes can more easily learn floor gymnastics techniques and thus it is expected that floor gymnastics learning becomes more interesting.

After being validated by material and media experts as well as small group and field trials, it is concluded that the "Learning Media Software for The Stop Motion Technique in Floor Gymnastics Using Android-Based Smartphones" is a Very Relevant learning media.

### 5 CONCLUSION AND SUGGESTION

The results of data analysis in this research development, it can be concluded that the result of the product assessment "Learning Media Software for The Stop Motion Technique in Floor Gymnastics Using Android-Based Smartphones" can be used as learning media in floor gymnastics with a percentage of 91.67% of respondents stating that learning media is Very Relevant/Very Feasible and 8.33% of respondents state the learning media is Relevant/Feasible. Overall regarding material aspects and product design it is obtained an average of 4,875 with the category Very Relevant or the percentage of 97.5% of respondents stated Very Relevant.

Based on the results of the research stated that this research development is appropriate and validated by media experts and gymnastic material experts, then there are some suggestions as follows: (1) For trainers who need variations in learning the floor gymnastics technique, it is suggested to use the Artistic Gymnastic application since it is proven to be effective in learning the floor gymnastics technique. (2) This learning media product should be utilized by club coaches and athletes with the guidance of a coach, so that the use of this media can be an alternative learning material for floor gymnastics enjoyably. This learning media opens possibility to use personally in a club or public. (3) Researchers realize that the developed learning media products still have shortcomings and are not perfect, it is expected that it can be improved to be better and more interactive.

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