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Teaching Sepaktakraw by Developing a Motion Ball-Based Soccer Training Model

Dedi Aryadi [1], Ira Arini [2]

[1] Universitas Setia Budhi Rangkasbitung, Indonesia; dediaryadipendor@gmail.com
[2] Universitas Setia Budhi Rangkasbitung, Indonesia; ira.arini@gmail.com

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Abstract

The sepaktakraw game is a team sport played by 3 people. Mastery of sepaktakraw skills cannot be separated from mastery of specific game techniques, namely kickkick/service techniques. Kick-off/service is a unique technique used to start the game in the sepaktakraw game, so many people say kick-off/service is the most important in the sepaktakraw game. This research aims to determine the procedures and feasibility of developing a training model in extracurricular learning for sepaktakraw sports, which is research using the R&D research method (Research and Development type ADDIE. The method stages in this research are (1). Literary research, (2). Role, (3). Making, (4). Comparative test, (5). Observation, (6). Validity test by experts. Game expert validation test 86, 363% > 81.25% (excellent), media expert validation test 88.636% > 81.25% (excellent), small class trials, it was found that 86.75 > 80, namely the strong category, and large class trials, it was found that 83.44 > 80 strong category. Based on the results of game expert validation tests, media expert validation tests, small class trials, and large class trials, it can be concluded that developing a motion ball-based soccer training model is suitable for use as a training model in sepaktakraw learning.

Keywords Model Development; Football Movement; Sepak Takraw

Corresponding Author
Dedi Aryadi
Universitas Setia Budhi Rangkasbitung, Indonesia; dediaryadipendor@gmail.com

1. INTRODUCTION

The sport sepaktakraw combines two forms of games, namely football and volleyball. It is said to be the same as soccer because it uses all body parts except the hands(Judge Abdul Aziz, 2007). Like the game of volleyball, it is played using a net, and the sepaktakraw game has the technique of giving a pass to a friend to smash into the opponent's court. To play sepaktakraw well, a person must have good abilities or skills. The ability in question is essential to play sepaktakraw(Amalia Yunia Rahmawati, 2018). Without this ability, a person will not be able to play. The basic technique in the game sepaktakraw is kicking using the legs playing the ball with the head, chest, thighs, shoulders, and soles of the feet. (Hanif, 2013). Mastery of sepaktakraw skills cannot be separated from mastery of special sepaktakraw game techniques, including the kick/service technique. Kickstart/service is a unique technique used to start the game in the sepaktakraw game, so many people say kickstart/service is the most important in the sepaktakraw game; with this, it is hoped that students will be able to master the kickstart/service technique which is done correctly and precisely so that students can play sepaktakraw correctly and precisely(Armelia, 2008).

Modifying the equipment is expected to handle the difficulty of performing kick/service techniques in the sepak takraw game(Darwis & Basa, 2012). With several modifications to the training model, it will be easier for students to control or kick the ball to master kickstarting/service techniques correctly (Firdaus, 2016). So that when kicking off/serving the ball, it is easier to control.

Based on researchers' observations at SMA Negeri 1 Maja Lebak-Banten, the sport sepaktakraw is taught for self-development or extracurricular activities, with one sub-material being football/service. Kick-off/service is material that students find difficult. They said that they experienced difficulties when hitting the ball when kicking. Sometimes, the ball is not kicked at the right moment, and the ball cannot cross the net when kicking/serving; when kicking/serving, the ball cannot be appropriately controlled. Sometimes, students kick too late and do it too quickly, so the difficulty occurs because extracurricular activities occur monotonously, where the coach immediately provides starting/service kick practice by throwing. Then, students perform kick-offs/services monotonously without paying attention to timing and the right moment. So, the result is that students are irregular when kicking off/serving.

Thus, it is essential to provide a training model for this motion ball-based modified tool so that students are expected to be able to develop starting/service football techniques. Efforts to improve the skills of playing sepaktakraw must be carried out in systematic and continuous training, one of which is mastering special kickstart/service techniques. (Lumintuarso, 2013). This can be an appropriate training model so students can understand and perform kick-offs/services well and correctly. Borg and Gall (1983:775) developed 10 stages in developing a model: 1) Research and information gathering included in these steps include studying other literature related to the problem being studied, measuring needs, small-scale research, and preparing to formulate a research framework. 2) Planning, including preparing a research plan, which includes formulating skills and expertise related to the problem, determining the objectives to be achieved at each stage, designing or research steps, and, if possible/necessary, carrying out a limited feasibility study. 3) Developing the initial form of the product, namely developing the initial form of the product that will be produced. This step includes preparing supporting components, preparing guidelines and manuals, and evaluating the suitability of supporting tools. Examples of developing learning materials, learning processes, and evaluation instruments(Yusup et al., 2001), 4) Preliminary field trials, namely conducting initial field trials on a limited scale, involving 1 to 3 schools, with a total of 6-12 subjects(Ali et al., 2003). In this step, data collection and analysis can be done using interviews, observations, or questionnaires. 5) Revision of the main product, namely making improvements to the initial product produced based on the results of initial trials. This improvement is very likely to be carried out more than once, according to the results shown in limited trials, so that a primary product (model) draft is obtained that is ready to be tested more widely.(Singleton, 2010)6) Main field testing, usually called the main trial which involves a wider audience, namely 5 to 15 schools, with several subjects of 30 to 100 people. Data collection was carried

out quantitatively, especially on performance before and after the implementation of the trial. The results obtained from this trial evaluate the achievement of trial results (model design) compared with the control group. Thus, in general, this step uses an experimental research plan(Hananto & Rachman, 2013), 7) Revision of operational products, namely making improvements/refinements to the results of more extensive testing, so that the product developed is an operational model design that is ready to be validated, 8) Operational field testing, namely validation testing steps for the operational model that has been produced and implemented in 10 to 30 schools involving 40 to 200 subjects. Testing is carried out through questionnaires, interviews, and observation and analysis of the results(Hidayat et al., 2016). The purpose of this step is to determine whether a model being developed is truly ready to be used in schools without having to be directed or assisted by researchers/model developers. 9) Revision of the final product, namely making final improvements to the model being developed to produce the final product.), 10) Socialization and implementation, namely steps to spread the product/model being developed to the broader audience/community, especially in the education arena(Iyakrus, 2012). The primary step in this phase is communicating and socializing the findings/model through research seminars, journal publications, or presentations to stakeholders about the research findings.

So, developing a development model must go through various stages to perfect the results. Because this research is development research, several stages must be passed to create an output in the form of a kickstart/service training model using motion ball-based tools that utilize pipes/air ducts. This research is a development of previous research, including 1) Research conducted by Haris Munandar PPLP DKI Jakarta with the title "Stand Ball Based Smash Sepaktakraw Training Model for DKI Athletes"(Nasution & Suharjana, 2015). This research and development aims to produce a stand ball-based sepaktakraw smash training model for DKI Jakarta athletes. This research uses the Research & Development (R&D) research method from Borg and Gall. 2) Research conducted by Mas Setiananda Artyhadewa, Yogyakarta State University, titled "Development of the Sepaktakraw Game Model as Physical Education Learning for Upper-Class Elementary School Children." It is hoped that the model of the sepak takraw game developed can be used by elementary school physical education teachers to learn small ball games, especially sepaktakraw, well and effectively for upper-class children.(Mubarak et al., 2022). The model is compiled in a guidebook entitled "Guide to Playing Sepaktakraw: Physical Education Learning for Upper Elementary School Children" and a DVD developing the Sepaktakraw game model. 3) Research conducted by Ari Susan and Sapto Wibowo, Surabaya State University, with the title "Use of Modified Football Training Media on Sila Football Achievement Results in the Sepaktakraw Extracurricular (Study of Extracurricular Participants at SMP Negeri 3 Srengat, Blitar Regency)(Wargadinata, 2010)".

A previous research study conducted by Ilham Efendi Nasution et al. concluded that the results were an agility-based soccer training model with a play approach for soccer school students aged 10-12 years, containing nine games. This research is different from the research that will be carried out because This research produces a playing approach, while the researchers will develop a starting/service football training model(Nasution & Suharjana, 2015). Another research conducted by Gusti Dicki Mubarak et al. stated that "Football Training Equipment (Service) Development Sepak Takraw" could be categorized as feasible from material expert assessments of 93.33 and expert practitioner assessments of 97.5 as well as assessments from small-scale trials of 90—.18 % and large-scale trial usage assessment 93.68%. Thus, the conclusion is that the development of football training tools (services) in the sepak takraw game can be declared suitable for use as a tool in training. This research is different from the research that will be carried out in terms of developing service training tools, while the research that will be carried out is to develop a starting/service soccer training model.(Ahmad & Asry, 2014).

This research aims to determine how much football training media has modified sila football performance in sepaktakraw in extracurricular participants at SMP Negeri 3 Srengat-Blitar.

2. METHODS

This research uses a quasi-experimental type of research using a quantitative descriptive approach with a One Group Pretest-Post test design research design. Meanwhile, the research procedure adopted the ADDIE development model(Gall et al., 2007). This research procedure was carried out in the following stages: Analysis: This stage consists of various activities, namely: a. Analysis of the needs for a kickstart/service soccer training model using motion ball-based aids as an alternative model for kickstart/service sepaktakraw training. This analysis is used as a basis for not needing a starting/service football training model using motion ball-based aids in training activities. b. Analysis of the material was carried out through library study activities on books or literature related to the subject of kick-off/service in the sepak takraw game. Design: at this stage, the researcher carries out a design that will later participate in training activities; the researcher prepares the creation of a training model that will be used in future training activities using basic pipe materials. The creation of this training model is adapted to the needs of the field in order to achieve the intended research objectives at the outset. Role: At this stage, the researcher will design a starting/service football training model using motion ball-based tools that are easy for students to use so that students are more active and enthusiastic in training. This training model will make it easier for students to practice starting/service football techniques in the sepaktakraw game. Manufacturing: at this stage, after the researcher has completed the design stage and design stage, the next step the researcher takes is to carry out the manufacture in its actual form. This is intended to carry out testing by game experts, media experts, and respondents to get responses regarding the feasibility test of the starting/service football training model using motion ball-based tools. Evaluation. At this stage, the kickstart/service training model using motion ball-based aids resulting from improved research can be used by students who are members of the extracurricular sepaktakraw at SMA Negeri 1 Maja as a training model for the sepaktakraw game.

3. FINDINGS AND DISCUSSIONS

Developing a model for kickstart training/service sepaktakraw using motion ball-based aids for the sepaktakraw extracurricular at SMA Negeri 1 Maja Lebak-Banten, this development research was carried out for 5 months at SMA Negeri 1 Maja Lebak-Banten.

The research procedure used in developing this training model is the ADDIE model, namely a development model consisting of analysis, design, development, implementation, and evaluation. However, this research has only reached the implementation stage and has not yet reached the evaluation stage. The results will be explained below:

Analysis (Analysis)

Analysis of the needs for a kickstart/service soccer training model using motion ball-based aids as an alternative model for kickstart/service sepaktakraw training. This analysis is used as a basis for not needing a starting/service football training model using motion ball-based aids in training activities. After carrying out a needs analysis, the next step is to carry out a material analysis, which is carried out through library study activities on books or literature related to the subject of football kicks/service in the sepaktakraw game. Then, the results of this analysis are packaged as a guide to a starting/service football training model using motion ball-based tools in the form of printed media.

Design (design)

The design of the initial development plan for the kickstart/service sepaktakraw training model using motion ball-based tools can be broadly visualized in the form of an illustrative image as below:

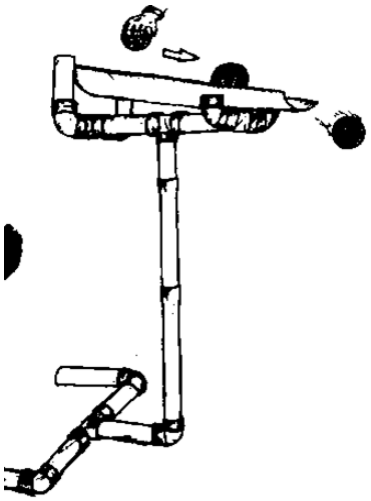


Figure 1. Illustration of a ball movement tool

The tool used is made from pipes that are arranged to form a tool called "motion ball."

***Development* (Development)**

1. Initial Design Results

The results of the initial plan following the initial development design will be displayed in the form of the image below:

Figure 2. Actual Ball Movement Tool

Kickstart/service training using a motion ball-based aid is a development of the training model of the sepaktakraw game, where this exercise utilizes a prop that makes the ball move, which is almost the same as the result of a ball thrown by an apit for kickstart/service.

This training model familiarizes someone practicing starting kicks/services to get the right touch or momentum when doing kick starts/services.

The way to make this ball movement tool is straightforward. Just arrange various pipe shapes with predetermined sizes. The steps for making this motion ball tool are as follows.

Table 1. Steps for Using the Motion Ball Training Aid

No.	Picture	Description
1		Ready position to carry out kick-off/service training using a motion ball tool. Assisted by the person who keeps the ball in the motion ball device.
2		Measure the desired height of the ball using one hand.
3		When the ball has been stored in the tool by the person in charge of storing the ball, focus on the tool and spin the ball.
4		When the ball is at the machine's end and about to fall, immediately pull your feet back to kick off/serve.
5		Kick the ball when it is at the height that was measured earlier.
6		Body rotation movements during kick-off/service training after the ball is kicked.
7		After taking the kick, the next movement is carrying out the kick-off/service practice.

Game Expert Validation Results

The first validation or expert test carried out by game experts obtained the following results:

a. Design suitability
b. Features interesting training tools
c. Simple and simple
d. The ball drop results are stable
e. High level of tool security
f. It makes starting/service football practice easier
g. Practical disassembly tool
h. The height of the tool can be adjusted as desired
i. Easy to make
j. Easy to use
k. Following the times

From the results of the game expert review, there are notes/suggestions intended to make this training model better in the future, including the following:

a. The security level of the tool is not high enough

The scores given by game experts will be displayed in the following table form:

Table 2. Game Expert Validation Scores Against Training Models

Media Expert	Evaluation
Mr Kosim, M.Pd	38

From the table above, the results of game expert validation are obtained, where an expert is given a questionnaire with 11 statements with a maximum score of 4 for each statement, resulting in a score of 38 from a maximum score of 44. To determine product eligibility criteria are shown in Table 8.

Table 3. Game Expert Validation Product Eligibility Criteria

Questionnaire scores	Criteria
81.25% < score ≤ 100%	Very good
62.50% < score ≤ 81.25%	Good
43.75% < score ≤ 62.50%	Pretty good
25% < score ≤ 43.5%	Not good

Based on the calculation results obtained at 86.363% > 81.25%, it can be concluded that the game section has a 'Very Good' score criteria.

2. Media Expert Validation Results

Media experts carry out the second validation or expert test. From the review carried out, the following results were obtained:

a. The sentences used are easy to understand

b. The language used is communicative

c. Completeness of Information

d. The material contains the game Sepaktakraw

e. The material is concise and clear

f. Match the title to the material

g. Availability of examples of techniques in the sepaktakraw game

h. Steps to perform one of the techniques in the sepaktakraw game

i. Videos and images according to the material

j. Material, images, and videos are presented systematically

k. Videos and images support the completeness of the material

From the results of the media expert review, there are notes/suggestions intended to make this training model better in the future, including the following:

a. The language used is less communicative

b. Material, images, and videos are not presented systematically but are not related

As for the scores given by media experts, an expert is given a questionnaire with 11 statements with a maximum score of 4 for each statement, resulting in a score of 39 out of a maximum score of 44. To determine product eligibility criteria are shown in Table 10.

Table 4. Media Expert Validation Product Eligibility Criteria

Questionnaire scores	Criteria
81.25% < score ≤ 100%	Very good
62.50% < score ≤ 81.25%	Good
43.75% < score ≤ 62.50%	Pretty good
25% < score ≤ 43.5%	Not good

Based on the calculation results obtained 88.636% > 81.25%, it can be concluded that the media section has a 'Very Good' score criteria.

Application

1. Small Class Trial

Testing is done by asking students to perform kickstarting techniques/*serve* using a tools-based *motion ball*. After doing so, students are asked to feel the tools' effects. The respondents asked to carry out this test were 30 students who were members of the sepaktakraw extracurricular at SMA Negeri 1 Maja Lebak-Banten. After that, students were given a questionnaire containing 15 statements using a scale to provide an assessment score. Data was obtained from this small class group testing results, which will be included in the table.

Table 5. Total Score for Each Respondent in Small Class Training Model Trial

No.	Interval Score	Many Respondents	Category
1.	0% ≤ NRS < 60%	0	Very weak
2.	60% ≤ NRS < 70%	0	Weak
3.	70% ≤ NRS < 80%	5	Enough
4.	80% ≤ NRS < 90%	16	Strong
5.	90% ≤ NRS < 100%	9	Very strong
Number of Respondents		**30**	

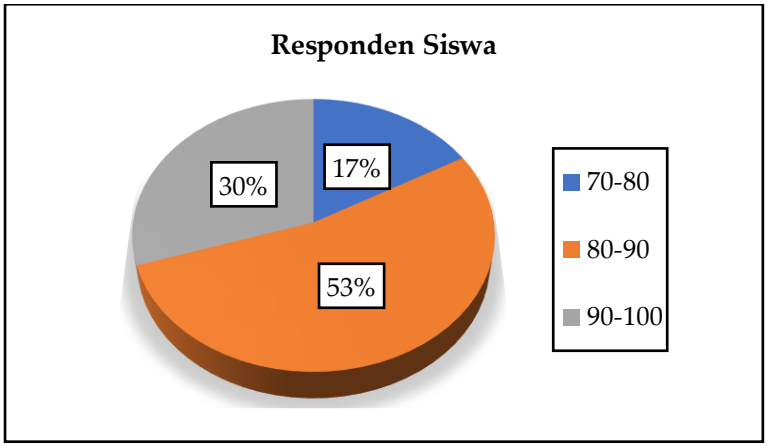
Total Score: 2,602.57

Many Respondents: 30

The table above shows student responses to the training model from the interval score 70% ≤ NRS < 80%. There were 5 respondents with a score of 80% ≤ NRS < 90%. There were 16 respondents and a score of 90% ≤ NRS < 100%. There were 9 respondents. So, the number of respondents in this small class trial was 30, with a total score of 2,602.57.

If the data in the table is presented in the form of a pie chart, it will look like the following:

Figure 4. Small Class Trial Student Respondent Diagram



From the circle diagram above, student responses to the training model gave varying scores; student responses were 17%, meaning they gave scores in the 70-80 interval; student responses were 53%, meaning they gave scores in the 80-90 interval, student responses were 30%. Meaning they give scores in the interval 90-100.

It can be concluded that the data was distributed evenly among each group of students who responded to the motion ball-based training aid model that the researcher provided. Positive responses can be seen from 86.75 > 80, with a higher frequency of positive responses than responses that do not meet the criteria. If the data in the table above is calculated as an average value, it will produce an average value of 86.75 and is included in the 'Strong' category.

2. Large Class Trial

Testing is done using small class trials, where students and athletes are asked to start/*serve* using a tools-based movement *ball*. After doing so, students and athletes are required to feel the effects felt after using these tools. The respondents asked to carry out this test were 60 students who were members of the extracurricular sepaktakraw at SMA Negeri 1 Maja Lebak-Banten and the PSTI sepaktakraw athletes from Lebak-Banten Regency. After that, students and athletes were given a questionnaire containing 15 statements using a scale *linkert* to provide an assessment score. Data is obtained from testing this large class group, which will be included in the table.

Table 7. Total Scores for Each Respondent in the Large Class Training Model Trial

No.	Interval Score	Many Respondents	Category
1.	0% ≤ NRS < 60%	0	Very weak
2.	60% ≤ NRS < 70%	0	Weak
3.	70% ≤ NRS < 80%	12	Enough
4.	80% ≤ NRS < 90%	27	Strong
5.	90% ≤ NRS < 100%	21	Very strong
Number of Respondents		**60**	

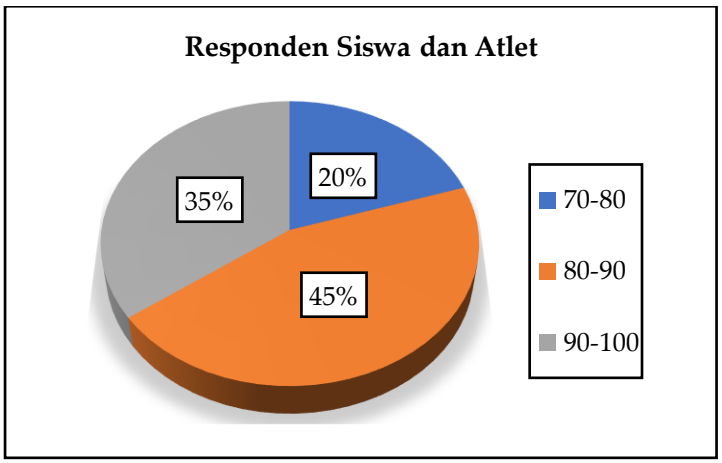
Total Score: 5,006.48

Many Respondents: 60

The table above shows student and athlete responses to the training model based on interval scores of 70% ≤ NRS < 80%. There were 12 respondents, a score of 80% ≤ NRS < 90% there were 27 respondents, and a score of 90% ≤ NRS < 100% there were 21 respondents. So, the number of respondents in this large class trial was 60, with a total score of 5,006.48.

If the data in the table is presented in the form of a pie chart, it will look like the following:

Figure 7. Diagram of Student Respondents and Large Class Trial Athletes



From the circle diagram above, the response of students and athletes to the training model gives varying scores; the response of students and athletes is 20%, meaning they give scores in the 70-80 interval, and the response of students and athletes is 45%, meaning they give scores in the interval 80-90, the response of students and athletes was 35%, meaning they gave scores in the 90-100 interval.

It can be concluded that the data was distributed evenly among each group of students and athletes who responded to the motion ball-based training aid model that the researcher provided. Positive responses can be seen from 83.44 > 80, with a higher frequency of positive responses than responses that do not meet the criteria. If the data in the table above is calculated as an average value, it will produce an average value of 83.44 and is included in the 'Strong' category.

Discussion

Developing the kickstart/service sepaktakraw training model using motion ball-based aids aims to familiarize someone practicing kickstart/service to get the right touch or momentum when doing kickstart/service. This was motivated by students who found it difficult to carry out kick-off/service football practice. They said that they experienced difficulties when hitting the ball when kicking. Sometimes, the ball is not kicked at the right moment, and the ball cannot cross the net when kicking/serving; when kicking/serving, the ball cannot be appropriately controlled. Sometimes, students kick late and do it too early, so these difficulties occur because extracurricular activities take place in a monotonous manner,

A good training model will significantly impact its users, primarily if implemented in kick-off/service training in sepaktakraw games. (Ali et al., 2003). Making this training model requires some basic materials and applications for editing the product. The basic materials used are pipes of various shapes and sizes. Applications that use Adobe Photoshop, Primer, and other video editing applications.

After the training model has been created according to the initial model development plan, validation is then carried out to assess how suitable this training model is to be applied to students. This validation involved game experts represented by the Indonesian Sepaktakraw Association (PSTI) Regency Management's chairman and media experts represented by Physical Education and Sports Health teachers at SMA Negeri 1 Maja Lebak-Banten.

The data from this research were obtained from validation tests by game experts, media experts, and respondents. The respondents used in this research were students of the extracurricular sepaktakraw at SMA Negeri 1 Maja Lebak-Banten and the PSTI sepaktakraw athletes from Lebak-Banten Regency. The advantage of the assistive device obtained in this research is that this assistive device can train agility when performing a kick-off/service, train the effect of a kick when performing a kick-off/service, and train reflexes or reactions when performing a kick-off/service. The number of respondents used for the small class trial was 30, and the large class trial was 60.

Based on the calculation results obtained from the game expert validation test of 86.363% > 81.25%, it can be concluded that the game section has a 'Very Good' score criteria. Based on the calculation results obtained from the media expert validation test of 88.636% > 81.25%, it can be concluded that the media section has a score of 'Very Good.' Based on the calculation results from small class trials, it was obtained that 86.75> 80, which means that the student's response to this training model is included in the 'Strong' category. Based on the results of calculations from large class trials, it was found that 83.44 > 80, meaning that the student's response to this training model was included in the 'Strong' category.

4. CONCLUSION

So, based on the results of the game expert validation test, media expert validation test, small class trial, and large class trial, it can be concluded that the development of a motion ball-based soccer training model is suitable for use as a training model in sepaktakraw learning. So, it is hoped that students will be able to master the kick start/service technique in the sepak takrawa game, which is done correctly and precisely.

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