

## Original Article Research

## The Effectiveness of Flipbook Learning in Sports Physiology Courses Improves Student Achievement In the course of the Pandemic

Ratno Susanto <sup>a\*</sup>, Achmad Afandi <sup>b</sup>, Farizha Irmawati <sup>c</sup>

<sup>a,b</sup> Physical education, health, and recreation, Faculty of Exact Science and Sports Education, Institute of Teacher Training and Education Budi Utomo, Malang, Indonesia

<sup>c</sup> Biological Science Education, Faculty of Exact Science and Sports Education, Institute of Teacher Training and Education Budi Utomo, Malang, Indonesia

\*email corresponding author: [ratnoexecellent@gmail.com](mailto:ratnoexecellent@gmail.com)

Received: 19/02/2022

Revised: 11/05/2022

Accepted: 08/06/2022

Copyright©2021 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

### Abstract

This study aims to provide an overview of the persuasiveness of flipbooks and education in the COVID 19 pandemic, an Omicron variant of the sports physiology course. The study is a descriptive quantitative study that evaluates educational flipbooks in a course of exercise physiology. The subjects of the study are the second semester of the 2020 class students who are taught in the exercise physiology course using virtual flipbooks. The study sample is the second semester of 2020 undergraduates whose location was selected using a simple random sampling technique, taking into account population uniformity. I will go to collect musical instruments in the flip book learning questionnaire. Engagement analysis used descriptive statistics. Consequence showed so students assessed that learning sports physiology apply flipbooks was effective (23.3%), rated it as productive (46.7%), along time placed average (20%). Handful students think about online education flipbooks failed (10%) and totally none (0%) who rate it very inefficient. Finally, to better the quality of flipbook learning in sports physiology in the course of the omicron variant of covid19 pandemic, schoolteacher must realize suggestions from respondents, namely: (1) studying is execute through video calls; (2) equipping of concise study materials; (3) minimizing dispatch material in the form of heavy videos to save quota with flipbook application; (4) the selection material flipbook on the criteria of language easy to understand; (5) continue lay out material before assignment; (6) display varied and contrasting questions for each student; (7) occupation include how it works; (8) assign occupation according course schedule; (9) prompt students an occupation given, with (10) reduce the task.

**Keywords:** flipbook, physiology of sports, motivation to learn

### How to cite:

Susanto, R., Afandi, A., & Irmawati, F. (2022). The Effectiveness of Flipbook Learning in Sports Physiology Courses Improves Student Achievement In the course of the Pandemic.

## 1. INTRODUCTION

Covid-19 pandemic global network to outline that means of existence, motive of study, and the character of humanity. If so far, individuals are pressured to stay situation, paintings non-stop, in conjunction with pursue monetary increase objectives in a aggressive machine. However, the unfold of Coronavirus (Covid-19) has come to be a huge disaster for modern, for a moment, own circle of relatives and social existence surroundings withinside the truest sense. Humans are pressured to 'quit' from their exercises to recognize what they may be seeking out from existence. Learning Challenges All affected nations have attempted to make the first-class regulations to keep training sustainability. Indonesia actual demanding situations that need to clear up immediately: (1) era disparities among colleges in massive towns and regions, (2) confined instructor competence withinside the use of studying applications, (3) confined assets for the usage of academic era which includes the net and quotas. (4) the instructor-student-discern courting in on line studying has now no longer been integrated. With the implementation of bodily distancing regulations, Information era studying has certainly been carried out in current years withinside the training machine in Indonesia. However, as a wonder from the Covid-19 pandemic, on line studying's As the spearhead at the bottom stage of an academic institution, better training leaders are required to make short selections in reaction to circulars from the Minister of Education and Culture requiring universities or institutes to put into effect studying from home. Educators had been amazed due to the fact they fast modified the machine, lesson plans, and studying technique. Students stutter due to the fact they get a pile of assignments even as reading from home. Meanwhile, mother and father of college students experience pressured while accompanying the studying technique through giving classes and having to reflect on consideration on their respective lives and jobs withinside the route of a disaster. Sports physiology studies the human body and its parts in the course of exercise. Sports physiology as an applied science is the basis of sports medicine. The definition of sports medicine, according to A. Venerando (1975), is "The application of medical science to sports and physical activity in general, to obtain the preventive and therapeutic benefits from exercise to maintain a healthy state and avoid any conditions associated with excess or lack of physical exercise." (Karhiwikarta, 1978). The biological level of the human body is composed of the smallest parts, namely cells to the largest part of the system. Searching for solutions to improve physical fitness or performance during exercise, the science of exercise physiology is the basis for the solution because in terms of physical fitness and performance, it will certainly relate to the physiology of the human body. Therefore, analysis from a physiological point of view can solve problems regarding physical fitness and performance during exercise. In the science of physiology, one unit of the biological processes of the human body occurs because of the cooperation between the systems as well as at the time of exercise there is a unified work system that can improve physical fitness and performance during exercise. A unit of physiological work during exercise has a basic component. Technological advances and the development of industrialization have turned out to be opening a new page for the development of Sports Physiology, from only previously being needed for the benefit of medical science. Sports Physiology in its implementation turns out to be more desirable for interests related to human welfare from a social and economic perspective. The understanding of the functions and workings of the organs of the body is no longer just a finger in a state of the body that is in

sleep, but also in a state of being moving, working and active as well as in its interaction with the environment. As a science, which is used to solve human problems while doing activities (work, sports), in its development, must cooperate with other sciences that also have something to do with humans at work, which have the same goal of optimizing the human factor as one of the vital elements in development. A multidisciplinary approach was initiated with the sacrifice of fanaticism of each science, not only with the sciences that are still in one family such as basic medical sciences, other medical sciences, psychology, all of which are still in the environment of basic biological sciences, but also with ilmu-science Technology, Sociology and others.

From the description above, the researchers got a breakthrough, namely the flipbook media that will be developed is a media in that it contains features in the form of pictures in real life that explain the motion of objects. In addition, the use of flipbook media is also expected to help increase student activity to assist the learning process in the era of the omicron variant of the covid-19 virus. Flipbook also has several advantages, including; can present teaching materials in the form of words, sentences, and pictures can be equipped with colors so that it is more attractive to students, easy to make and inexpensive, easy to carry everywhere, and can increase student learning activities (Rudi Susilana.Cepi Riyana.,2008): 88- 89). The use of sophisticated teaching materials based on the latest technology has become a trend in learning today, including in the tennis court subject in the HRPE study program. This is because students are more active in using applications with an internet connection. One application that can be used in learning is flipbook-based teaching materials. Over time, the flipbook has evolved into an extraordinary system and is in great demand by smartphone users because of its many advantages. According to Riyanto et al. (2020), the flipbook is an application designed to make it easier to use textbooks because flipbooks are very flexible and very relevant to pandemic conditions. This advantage can be used by educators to apply flipbook-based teaching materials in weighty classes so as to create a class that is more interesting and far from being monotonous. However, the weakness of the flipbook is that it can only be used individually or in small groups, which are only up to 4-5 people (Wahyuliyani et al., 2014). Another advantage of flipbooks is that they help increase students' mastery of abstract things or events that cannot be present in class (Andarini et al., 2013). Based on the observations above, the researcher considers it very suitable for flipbook learning in the Physical Physiology course and learning developing technology in the class of a pandemic.

## 2. METHOD

Effectiveness is flipbook learning in sports physiology courses. This population takes second-semester students of the class of 2020 in physical education, health, and recreation study programs. A research approach is the entire itinerary or activity of a researcher in conducting a study, from problem formulation to conclusion drawing (Purwanto, 2008: 45). This study uses a descriptive quantitative approach because data is collected using numbers, starting with data collection, data interpretation, and the appearance of the results (Rosady Ruslan, 2003: 81). The sample is part or representative of the population under study (Suharsimi Arikunto, 2010: 109). In the sample for research by Suharsimi Arikunto (2010: 112), if the number of subjects is less than 100, all should be obtained, and if the number of subjects exceeds 100, 1015% or 2025% or more can be obtained. .. Collect the number of samples according to the sampling method. The sampling method is a sampling method (Sugiyono, 2010: 56).

## 2.1 Participants

Determination of the sample is based on purposive sampling or random technique. This technique is a way of determining the sample with certain considerations. From the statement above, the following conditions must be met in sampling:

1. Sampling is based on the needs of the researcher and becomes the basic characteristic of the population in its success in researching.
2. The subjects taken are PJKR student subjects as samples, really the subjects that contain the most characteristics contained in the population in the study.
3. The characteristics that meet the characteristics of students to be studied are as follows: (1) active students who take part in sports physiology (2) various ages in the fourth semester (3) Basic techniques in the early stages of flipbook learning.
4. If the sample does not meet the requirements or criteria that have been determined, then the sample is declared dead or not as a sample, and must use a living sample in the population.
5. Based on the criteria above, the number of participants in this study was 40 participants in sports physiology for flipbook learning

## 2.2 Research Design

Research design refers to the overall strategy you choose to coherently and logically integrate the various components of the research, thereby, ensuring you will effectively address the research problem; it is a blueprint for data collection, measurement, and analysis. If the research design is complex or the stimulus requires a detailed description, additional subsections of subheadings to divide subsections may be needed to help the reader find specific information.

## 2.3 Instruments

According to Djaali and Pudji (2008) construct validity is a validity that concerns the extent to which test items are able to measure what is really being measured according to a specific concept or conceptual definition that has been set. Besides that, Groth-Marnat (2010) also suggested that a test has construct validity if it shows the relationship between test scores and predictions of theoretical properties. (Sefrianto et al., 2020)

A term that describes the ability of an instrument to measure what that you want to measure. Validity discusses the validity of a measuring instrument for collect data. Thus, the measuring device must meet the number of The following criteria. First, the research instrument is really in accordance with the objectives The second requirement that a good research instrument must have is: the ability to distinguish data sourced from the variables involved in research. A good research instrument should be able to obtain good data for different purposes. Research instruments must have instruments different for research purposes

Tools and equipment: flipbook applications, sports physiology materials, laptops or cellphones, the researchers explain in this tool how to use it properly and correctly and can be carried everywhere while studying.

## 2.4 Procedures

Data collection in the study was carried out during lectures. Sports physiology lectures are held once a week, on Wednesdays at 09.00-11.00. To get a sample, the author applied for a

research permit to the Chair of the PJKR Study Program with a total of 45 students. The data collection method in this study followed a quantitative descriptive research design. Observation, questionnaire and interview, implementation, evaluation. In collecting data, before getting treatment, participants must fill out a questionnaire first then be given an interview and in the end there will be an implementation and evaluation. Furthermore, the use of the flipbook application was held and the results could be seen from the student responses through a questionnaire.

## 2.5 Data Analysis

Data analysis technique is the activity of grouping data based on variables and types of respondents, describing the data, testing the analysis requirements. To describe the data for each variable, statistics are used. The use of statistics aims to find the highest, lowest score, mean, median, mode and standard deviation in SPSS for Windows.

Data collection techniques and data collection instruments are important factors for the success of the research. This relates to collecting data, who the source is, and what tools are used. The data collection method is a technique or method used to collect data. The method designates a way to demonstrate its use through questionnaires, interviews, observations, tests, documentation, and so on. In contrast, the data collection instrument is used to collect data. Because it is a tool, the instrument can be in the form of a checklist sheet, questionnaire (open/closed questionnaire), interview guidelines, and others.

Editing is re-checking the data that has been entered into which respondents are relevant. Data editing is the process of correcting and checking the questionnaires that have been answered by respondents whether they have been answered completely or not, if they have been answered whether they are correct. If there is a damaged questionnaire, then the questionnaire must be sorted and not processed further in the data processing stage. Coding is the provision of data, symbols or codes for each data that belongs to the same category. The point is that the edited questionnaire is given an identity so that it means that it can be processed at the stage of further data processing. Scoring is giving a number on the questionnaire answer sheet for each subject, the score of each item or question in the questionnaire is determined according to the choice device. The author looks at the questionnaire and calculates the total score of each question for each variable and sub-variable. The score achievement that has been added up is what is referred to as the questionnaire result data.

And this technique simple random sampling system by in view the comparability population, with 45 students. Instrument questionnaire seat interviews, semi-closed, closed, and open questions, give out using the google and Zoho forms. Data analysis using SPSS Windows 10. The basis of evaluation activities is related to the criteria that have been previously set. These criteria make it easier for the evaluator to considering the value and price of the components the program being assessed, this relates to the level of success of a program.

## 3. RESULTS

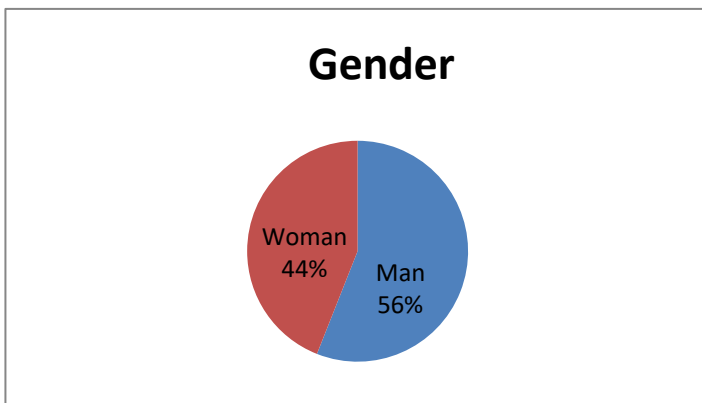
Based on the research results obtained, the level of effectiveness of student learning in sports physiology courses with flipbooks is very maximum. Data obtained were analyzed using SPSS for Windows, which made a table from work from home in the learning process.

### 3.1 Graphics

Graphics of work from home when learning flipbooks with sports physiology. A total of 45 students consisting of 56% male and 44% female can be seen in graph 1. Most of the correspondence came from the Malang area, 28%, 17% Mojokerto, and the eastern region includes East Sumba, Flores, Adonara, and West Semarang, respectively. - 11% each, and 6% owned by Pasuruan and Blitar can be seen in graph 2.

### Graphics 1.

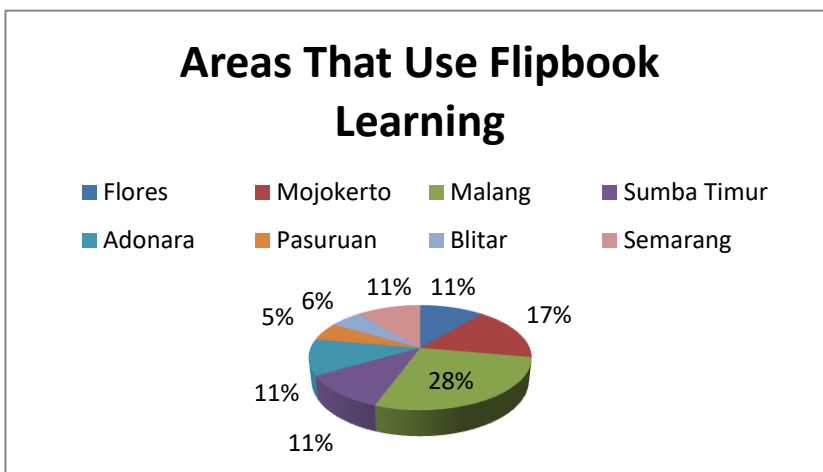
#### *Learning Outcomes by Gender*



Source: Primary Date

### Graphics 2.

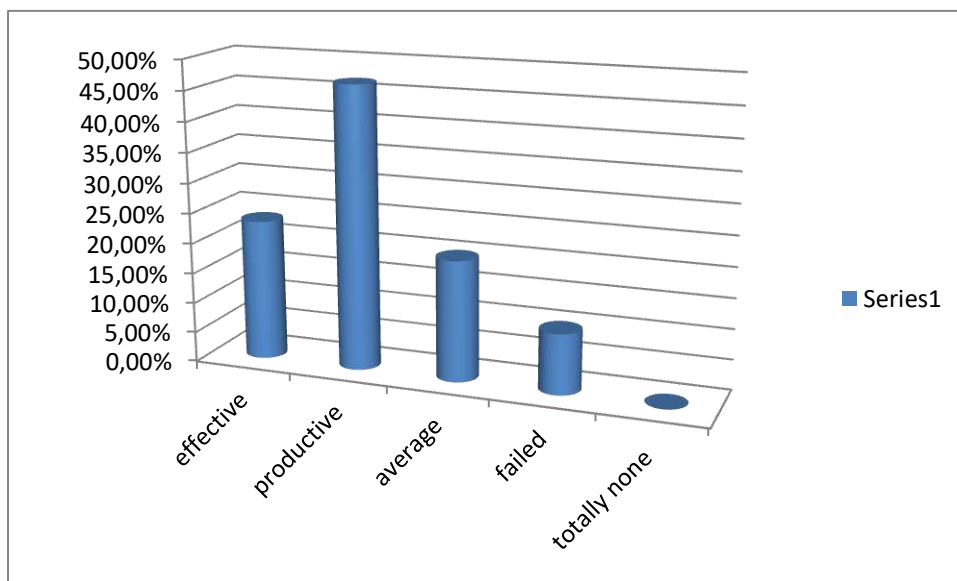
#### *Regional Learning Outcomes*



Source: Primary Data

At work from home, students spend a lot of daily activities with college assignments, including sports physiology assignments, by using flipbooks for daily study. Other activities often use mobile phones as entertainment if bored at home playing games and chatting with friends. And some after doing the task, sometimes cleaning the home environment in their respective areas.



**Graphich 3**

Constraints students face in online study, namely internet network, too many assignments, challenges to focus, quota pulses, complicated applications, and prefer face-to-face virtual. Online learning is very difficult for students, especially in the SM3T area.

#### 4. DISCUSSIONS

In this discussion, researchers always provide ideas and solutions for online learning. They provide varied education, with flipbook learning in sports physiology courses, flipbook itself. This software is not too big for MB, and students can upload it via the google play store. after uploading and then installing and entering the verification code and can be used manually. Because they don't have a flipbook application, they can't really be in sync with the material sent through the lecturer. Because in this pandemic era, we are required for IT in digital progress. With the flipbook, it will be easier to learn sports physiology. (Ratno Susanto, 2019)

Flipbook-based application users are very familiar. Use Children whose instincts like to play in the digital era have now switched to games related to Flipbook-based Smartphones, both for games and for communicating with peers using social media. To understand character and behavior and be able to activate students in learning, educators need to understand the development of the digital world today. In multimedia learning, the learner engages in three important cognitive processes. The first cognitive progress, selecting, is applied to incoming verbal information to yield a textbase and to incoming visual information to yield an image base. The second cognitive process, organizing, is applied to the word base to create a verbally-based model of the to-be-explained system and is applied to the image base to create a visually-based model of the to- be-explained system. Finally, the third process, integrating, occurs when the learner builds connections between related events (or states or parts) in the verbally and visually-based models. The model is explained more fully in Mayer (1997) and has generated a series of experiments yielding five major principles of using multimedia to help students understand a scientific explanation. Each multimedia design principle is subject to further research (Mayer, 2012). Learning using learning media makes learning more interesting and fun (Arifin et al., 2017; Yin, 2016). Flipbooks are very easy to use in learning; the existence of

learning flipbooks is very modern. Students need to know this software. Besides being equipped with an anchored instruction model, it can be used in the medium and long term.

Flip books are sheets of paper that resemble albums or calendars and are approximately 21 x 28 cm. The learning materials can be presented in the form of a flip book with an impressive range of words, images and colours. One of the advantages of flipbooks is that they can be presented in electronic form to make learning more interactive and interesting. The results of research conducted by (Aprilia, 2021) showed that the critical thinking ability score of students using flipbooks was higher than the score of students using science textbooks.

In addition to flipbooks, videos are widely used in science learning to improve students' critical thinking skills during a pandemic. The advantage of instructional videos is that they are easy to watch and listen to repeatedly, stimulate students' senses and provide clear information (Pagarra and Idrus, 2018). The research results of Septianti et al. Using instructional videos showed that students' critical thinking skills improved by 70%. Previous studies have shown that videos and flipbooks are used effectively in learning activities. Unlike previous studies, this study was conducted to compare the effectiveness of the two media on science learning during a pandemic. With this in mind, this study was conducted to determine and compare the effectiveness of flipbooks and instructional videos in improving students' critical thinking skills in science learning during a pandemic. Suggestions for flipbook learning with sports physiology courses are to provide learning via WhatsApp video calls, brief assignments via google form or Zoho form, and make videos from flipbook software for material that does not burden the quota. Material selection must be simple and not difficult for students. Even though students like offline, in reality, being affected by the COVID-19 variant, the Omicron variant forces students to learn online. The longer they hold technology such as laptops and cellphones when doing student assignments, the students get bored and physically exhausted until the end. And his psychological condition is also experiencing pressure on online learning for lectures, so the lecturers also provide enthusiasm and motivation so that students don't get bored with online learning and wait for this epidemic to end over time.

## 5. CONCLUSIONS

The creativity carried out by the lecturers is to develop flipbook software with physiology courses and increase the effectiveness of learning for students of physical education, health, and recreation. With the flipbook, student learning increases. Consequence showed so students assessed that learning sports physiology apply flipbooks was effective (23.3%), rated it as productive (46.7%), along time placed average (20%). However, handful students think about online education flipbooks failed (10%) and totally none (0%) who rate it very inefficient. Finally, to better the quality of flipbook learning in sports physiology in the course of the omicron variant of covid19 pandemic, schoolteacher must realize suggestions from respondents, namely: (1) studying is execute through video calls; (2) equipping of concise study materials; (3) minimizing dispatch material in the form of heavy videos to save quota with flipbook application; (4) the selection material flipbook on the criteria of language easy to understand; (5) continue lay out material before assignment; (6) display varied and contrasting questions for each student; (7) occupation include how it works; (8) assign occupation according course schedule; (9) prompt students an occupation given, with (10) reduce the task.



## Acknowledgment

I thank the research team a lot, as well as friends who always motivate me, father and mother always pray for their son's success.

## REFERENCES

- Altura, G. J., & Curwood, J. S. (2015). Hitting restart: Learning and gaming in an Australian classroom. *Journal of Adolescent and Adult Literacy*, 59(1), 25–27. <https://doi.org/10.1002/jaal.438>
- Arifin, S., Ardiyansah, B., Budi, I., Malang, U., Citandui, J., & Malang, K. (2017). Penerapan Media Karikatur Berbasis Sparkol Video Scribe untuk Meningkatkan Hasil Belajar Kognitif pada Matakuliah Genetika Mahamahasiswa, 2(2), 18–25
- Arikunto, Suharsimi. 2010. *Prosedur Penelitian Suatu pendekatan Praktek*. Jakarta: Rineka Cipta
- Baharin, N., Kamarudin, N., & Manaf, U. K. A. (2018). Integrating STEM education approach in enhancing higher order thinking skills. *International Journal of Academic Research in Business and Social Sciences*, 8(7), 810–821. <https://doi.org/10.6007/ijarbss/v8-i7/4421>
- Einum, E. (2020). Involvement with response technology as student-centring of language teaching: Upper-secondary student and teacher experiences. *Nordic Journal of Digital Literacy*, 14(1–2), 6–22. <https://doi.org/10.18261/ISSN.1891-943X-2019-01-02-02>
- E R Wardani, Mardiyana, D R S Saputro. "Online Mathematics Learning during the Covid-19 Pandemic", *Journal of Physics: Conference Series*, 2021, DOI: [10.1088/1742-6596/1808/1/012044](https://doi.org/10.1088/1742-6596/1808/1/012044)
- Karhiwikarta, W. 1978. *Ilmu Faal Olahraga*. Bandung : Lab Ilmu Faal Fakultas Kedokteran Umum Universitas Padjajaran
- Mayer, R. E. (2005). *The Cambridge handbook of multimedia learning*. Cambridge university press. Retrieved from <https://books.google.co.id/books?hl=id&lr=&id=SSLdo1MLIywC&oi=fnd&pg=PR9&dq=%5B4%5D+Mish+Sanjaya,+and+R.C.+Sha%5B5%5D%09RE.+Mayer.+The+Cambridge+handbook+of+multimedia+learning+Cambridge+university+press,+2005.rma.+Interactive+multimedia+in+education>
- M. Noer, *Hypnoteaching for Success Learning*. Yogyakarta: PustakaInsani, 2010
- Nurseto, T. 2011. Membuat Media Pembelajaran yang Menarik. *Jurnal Ekonomidan Pendidikan*. Vol. 8(1):19-35
- P. D. Ansari and P. D. Malik, "Image of an Effective Teacher in 21 st Century Classroom," *J. Educ. Instr. Stud.*, pp. 61–64, 2013
- Priatmoko, S., Saptorini, dan Diniy, H. H. 2012. Penggunaan Media Sirkuit Cerdik Berbasis Chemo Edutainment dalam Pembelajaran Larutan Asam Basa. *Jurnal Pendidikan IPA Indonesia*. Vol 1(1): 37-42
- Purwanto. (2008). *Evaluasi Hasil Belajar*. Bandung: Pustaka Pelajar
- Ratno Susanto and Riyanto. 2019. Students' Critical Thinking Ability in Tennis Mathematics of

Physical Health Education and Recreation. International Journal of Scientific and Research Publications. Volume 9, Issue 9, September. ISSN 2250-3153. DOI: 10.29322/IJSRP.9.09.2019.p9371, <http://dx.doi.org/10.29322/IJSRP.9.09.2019.p9371>

Ratno Susanto and Endang Sri Lestrai. 2020. THE EFFECT OF FLIPBOOK-BASED FIELD TEACHING MATERIALS WITH ANCHORED INSTRUCTION MODEL TO IMPROVE STUDENTS' CRITICAL THINKING SKILLS. European Journal of Education Studies. Volume 7 | Issue 12 | 2020. ISSN 2501- 1111. DOI: 10.46827/ejes.v7i12.3475. Available on-line at: [www.oapub.org/edu](http://www.oapub.org/edu)

Riyanto, R., Amin, M., Suwono, H., & Lestari, U. (2020). The New Face of Digital Books in Genetic Learning: A Preliminary Development Study for Students' Critical Thinking. International Journal of Emerging Technologies in Learning (IJET), 15(10), 175. <https://doi.org/10.3991/ijet.v15i10.14321>

Ruslan, Rosady. 2003. Metode Penelitian PR dan Komunikasi. Jakarta : PT. Raja Grafindo Persada

Rudi Susilana. Cepi Riyana, 2008. Media Pembelajaran. Bandung : CV Wacana Prima

Susanto, R., & Riyanto, R. (2020). Development of Teaching Material of Sony Vegas Media Based with Anchored Instruction Models for Tennis Course in IKIP Budi Utomo Malang. In Proceeding International Conference on Science and Engineering (Vol. 3, pp. 623–627)

Sugiyono. 2010. Metode Penelitian Pendidikan Pendekatan Kuantitatif, kualitatif, dan R&D. Bandung: Alfabeta