available online at http://journal.uny.ac.id/index.php/jolahraga

Jurnal Keolahragaan, 10 (2), 2022, 217-226

Feasibility of audio-visual teaching materials to support tennis learning

Septian Raibowo[1], Abi Fajar Fathoni[2]*, Sapto Adi[3]
[1]Department of Physical Education Universitas Bengkulu. Jl. WR. Supratmana, Kandang Limun Muara Bangka Hulu Bengkulu, 38371, Indonesia
[2]Department of Physical Education Universitas Negeri Malang, Jl. Semarang 5 Malang, 65145, Indonesia
[3]Department of Sports Science Universitas Negeri Malang, Jl. Semarang 5 Malang, 65145, Indonesia
* Coressponding Author. E-mail: fajarfathoniabi@um.ac.id

Received: 4 January 2022; Revised:9 July 2022; Accepted: 22 September 2022

Abstract: This study aims to produce court tennis audio-visual teaching materials and determine the effectiveness of audio-visual teaching materials to support court tennis learning. This research is development research with stages: needs analysis, data collection, product development, expert validation, product testing, product revision, and evaluation. The subjects of this study were taken using a random sampling method, amounting to 47 people. The instruments used to collect data were questionnaire sheets, expert validation sheets and further tests were analyzed using descriptive statistics. Seeing the effectiveness of the product using an experimental design with the format "one group pretest-posttest design", which does not use a comparison class but has used an initial test so that the magnitude of the effect due to the use of the product can be known with certainty. The results showed that the results of the validation of media experts, learning experts material experts were very valid and the validation of evaluation experts was quite valid. The quality of the product from the large-scale test is categorized as high. The results of the product effectiveness test show a significant and efficient increase in learning outcomes and have a fairly high attractiveness in supporting court tennis learning.
Keywords: audio-visual, effectiveness, teaching materials, tennis

How to Cite: Raibowo, S., Fathoni, A.B., & Adi, S. (2022). Feasibility of audio-visual teaching materials to support tennis learning. *Jurnal Keolahragaan, 10*(2), 217-226. doi:https://doi.org/10.21831/jk.v10i2.48830

INTRODUCTION

Sport is one of the efforts to improve the quality of Indonesian people, which is shown in the formation of morals, character, discipline, and sportsmanship as well as increasing achievements that can arouse a sense of national pride. Sport is also an inseparable part of nation building to improve the quality of human resources lee Among them are tennis court tennis is a sport that is played in a rectangular field separated by a net and uses a racket and ball (Arifianto et al., 2021; Jatra & Raibowo, 2021). Sports education is closely related to physical activity. One of the physical activities carried out by students is learning motion to master a skill. The functions of physical education and sports are biological, movement, psychological and social which are related to the concept of babalance personality development (Jeong & So, 2020). This statement makes clear that one of the functions of sports education is to learn student movement.

Learning motion requires stages to master the desired skill. conveyed that skills learning was carried out through three stages of sports education learning, namely: (1) cognitive stages, (2) associative stages, and (3) automation stages (Corbin, 2021). The cognitive stages of educators provide understanding to students about new movements, about what and how the movements are done (Adi & Fathoni, 2019, 2020a; Fathoni, 2018). The associative stage is carried out after students can answer cognitive problems and form an effective movement pattern organization tooion, by building control abilities and consistency in standing posture and self-confidence (Sunardi et al. 2021). Automation stage, after doing the exercise, students will enter the automation stage gradually, the motion has developed well and can, control the motin a short (Silva et al., 2019) .

The progess of science and progressogy that is very rapid and global in nature today "forces" higher education providers to continuously improve the quality of education and learning to produce quality graduates. Higher education is required to always be responsive to changes that occur in all aspects of life. As agents of change, Universities must always be ready to change, both in terms of management, organization, and the substance of the content of their academic programs. The quality of learning carried out in tertiary institutions greatly influences the quality of education produced. Lecturers who can facilitate the learning process, relevant curriculum, teaching materials that can provide a variety of stimuli, a fun and interesting, and ch,all interesting meaningful atmosphere are needed to achieve quality learning (Raibowo et al., 2020). The high quality of learning supports the achievement of the expected competencies.

Technology and education are two aspects that cannot be separated. Technology is part of education that can help solve problemsto and improve the problems and education. Technology has entered human life and society which makes it an important aspect of daily life, be it social, educational, professional, a or eligious life Learreligioushnology has the potential to provide several learning opportunities for students and expand cognitive function (Adi & Fathoni, 2020). Thus, increasingly following the times, technology is reeded to further advance the education in terms of science and technology

One element that has a lot of influence in making it easier to achieve learning objectives is through learning media. Learning media is defined as everything that can be used to stimulate thoughts, feelings, attention, and willingness so that it can encourage the learning process in students. In addition, the media is used as a means of channeling messages from the source to the recipient of the message, so that learning can achieve the desired goals optimally. The use of learning media will make learning activities run more interesting because it makes students curious about what material is presented in the media. Utilization of learning media in the learning process can generate desire, interest, and motivation and have a good influence on the psychology of students (Ilahi et al., 2021). Learning media includes all materials and substantial resources that educators can use to apply learning methods and facilitate the achievement of learning objectives (Dwiyogo & Rodriguez, 2020). This statement indicates that using media in the learning process can generate interest and motivation in participating in the learning process. The use of media in teaching can provide access to new ideas such as how to learn, how to access information that is difficult to find, clarify difficult terms or concepts and how to present information using different learning media.

In terms of the physical education learning process, the National Association of Sports and Physical Education (Baghurst et al., 2015) recommends (1) the application of technology in physical education to help students learn the stages of movement well, (2) the technological approach is a response to changes in the learning paradigm to make students the center learning and the teacher as a facilitator. Then according to (Gabibov et al., 2020) in his research, the use of computer technology in teaching physical education can increase students' interest and motivation in exercising compared to teaching physical education using traditional methods, while (Kioumourtzoglou et al., 2022) the use of multimedia systems provides convenience in understanding and getting the best results in learning techniques and tactics in improving physical education learning outcomes. By utilizing technological devices, the visualization of teaching materials will be more attractive because they contain multimedia content (text, graphics, images, animation, sound and video). Utilization of the use of multimedia in teaching materials is proven to further improve learning outcomes. Show that "flexibility in multimedia can replace traditional textual instructions which will allow a wider range of stimuli, both verbal and visual thereby increasing student engagement in the learning situation".

This tennis lesson has varying levels of difficulty. Therefore, learning patterns must vary according to the learning material. Learning is more practical and required to master skills (psychomotor), while aspects of knowledge (cognitive) and attitudes (affective) have a very small portion. Then there are no tennis teaching materials that are integrated with the use of technology, until now teaching materials are only in the form of printed teaching materials so tany students feel bored quickly and find it difficult to understand explanations from lecturers who only rely on books. The teaching materials used are passive because if difficulties arise, students must wait for the next meeting. Then on average, students do not have good initial knowledge regarding tennis, this is the first time students have played and tried tennis, so ty only being given 16 meetings or ± 4 months, they cannot achieve the objectives of the learning.

METHODS

This study was a research and development, using a model developed measurement technique used in data collection ising a Likert scale. The Likert scale is used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena. The expert evaluation was carried out by four experts, namely one media expert, one learning expert, one material expert in the field of tennis, and one evaluation expert. The expert evaluation here is used as a suggestion to improve the product being developed. The subject of this research was taken usia ng random sampling method. The random sample selection of course also considers the diversity of students and their characteristics of students (Lukosch & Comes, 2019).

The data collection instrument used in this research and development uses a questionnaire to obtain data from expert subjects, including media experts, learning experts, media experts, evaluation experts, and trial data. The form of the questionnaire for each expert is different to collect data about the evaluation in the form of input, comments, criticism, and suggestions from experts (Kaliyadan & Kulkarni, 2019). The formula for processing data in the form of descriptive quantitative analysis is as follows:

$$V = \frac{Tsev}{Smax} x\ 100\%$$

Description:
V : Validity
TSEV : Total validator empirical score
S-max : Maximum expected score
100% : Constant

Classification of percentages of data processing can be seen on Table 1.

Table 1. Data Processing Percentage Classification

No.	Percentage	Category	Information
1.	75.01 – 100 %	Very Valid	Can be used without revision
2.	50.01 – 75.01%	Quite Valid	Usable with minor revisions
3.	25.01 – 50.00%	Invalid	Can't be used
4.	00.00 – 25.00%	Totally Invalid	Forbidden to use

To determine the effectiveness, efficiency, and attractiveness of the developed product, the data collection instruments are as follows. *First*, to see the effectiveness of the developed product, using a pre-experimental research design in the format of "one group pretest -posttest design", which does not use a comparison class but has used an initial test so that the magnitude of the effect or effect of using the product developed can be known with certainty. The results of the pre-test and post-test to obtain data on improving learning outcomes and effectiveness by providing cognitive questions related to teaching materials. The assessment of effectiveness in this study only came to an assessment of the cognitive aspects of individual learners based on increasing understanding of concepts through cognitive tests. Furthermore, the data were analyzed using the Liliefors test (normality) with a level of = 0.05. Then the data were analyzed by using a paired t-test. Paired t-test aims to examine hypothesis testing where the data used are not independent (in pairs). Even though using the same individual, researchers still get two kinds of sample data, namely data from the first treatment and data from the second treatment (Gerald, 2018). To examine the effectiveness of the developed product, it is indicated that there is an average difference before (X_1) and after (X_2) given the developed product. To test whether or not there is a difference between the two sample averages, the following formula is used.

$$t = \frac{D}{Sd/\sqrt{n}}$$

Description:
t : Value
Sd :Standard deviation difference between each pair ($X_1 - X_2$)
D : Average difference between each pair ($X_1 - X_2$)
N : Number of samples

Second, the efficiency of using the developed product is seen based on the length of time the learning is carried out to completion. Based on this test, the ratio of the time required (based on the time provided based on the lesson plan) will be obtained with the time used by the students. If the ratio of time used > 1, then learning is said to be high efficiency, and vice versa. If the time used is smaller than the time required then the ratio is more than 1, meaning that learning is successful faster (Herliani et al., 2021). The equations used in measuring efficiency are as follows:

$$Learning\ efficiency = \frac{\Sigma\ Time\ required}{\Sigma\ Time\ spend}$$

Third, the attractiveness indicator is taken from the distribution of large group trial questionnaires with attractiveness and convenience indicators. Assessment is then carried out from the total score obtained by each respondent divided by the total score and multiplied by the number of answer choices. The assessment score can be obtained by using the following equation:

$$Rating\ Score = \frac{\Sigma\ The\ score\ obtained\ by\ the\ respondent}{\Sigma\ Total\ score} x\ 4$$

The results of the average score of the assessment are then converted in the form of an assessment statement to determine the quality and level of usefulness of the resulting product based on the opinion of the respondents so that a conclusion can be drawn. If the highest score according to the answer choices is 4 and the lowest score is 1 and the number of answer choices is 4, then the interval value is obtained as follows:

$$Interval\ value = \frac{4-1}{4} = 0.75$$

The quality of attractiveness based on indicators with interval values through the conversion of scores into assessment statements can be seen in Table 2 (Prihandono, 2018).

Tabel 2. Rating Score Conversion

Rating Score	Average Score	Classification
4	3.26 – 4.00	Very Interesting
3	2.51 – 3.25	Interesting
2	1.76 – 2.50	Less Attractive
1	1.00 – 1.75	Not Attractive

RESULTS AND DISCUSSION

The results of the validation by media experts, learning experts, material experts, and evaluation experts are explained as follows. A summary of the data from the media expert's validation of the developed product is presented in Table 3.

Tabel 3. Validation Results by Media Experts

Indicator	Percentage %	Classification
Text	87.5%	Very Valid
Pictures/Photos	94.4%	Very Valid
Audio/Voice	80%	Very Valid
Video	91.67%	Very Valid
Design/Display	93.75%	Very Valid
Average	89.66%	Very Valid

The average percentage of the feasibility of the product developed is 89,66%, meaning that according to media validation, the product developed is very valid and can be used without revision. A summary of the data from the validation of learning experts on the developed product is presented in Table 4.

Tabel 4. Validation Results by Learning Experts

Indicator	Percentage %	Classification
Clarity	74.5%	Quite Valid
Accuracy	82%	Very Valid
Suitability	73%	Quite Valid
Conveience	93.75%	Very Valid
Attractiveness	94.4%	Very Valid
Average	83.53%	Very Valid

Based on the data in Table 4, it can be seen that the average percentage of the feasibility of the product developed is 83,53%, meaning that according to the learning validation, the product developed is very valid and can be used without revision. The summary of the data from the material expert validation for the developed product is presented in Table 5.

Tabel 5. Validation Results by Material Experts

Indicator	Percentage %	Classification
Clarity	74.5%	Quite Valid
Accuracy	75%	Quite Valid
Suitability	87.5%	Very Valid
Conveience	75%	Quite Valid
Average	78%	Very Valid

Based on the data in Table 5, it can be seen that the average percentage of the feasibility of the product developed is 78%, meaning that according to material validation, the product developed is very valid and can be used without revision. The summary of the data from the expert evaluation of the results of the evaluation of the product developed is presented in table 6.

Tabel 6. Validation Results by Evaluation Experts

Theory	Percentage %	Classification
1 (History of Tennis)	74.67%	Quite Valid
2 (Introduction to basic techniues)	72.3%	Quite Valid
3 (Tennis rules and refereeing)	73.8%	Quite Valid
Average	73.59%	Quite Valid

Based on the data in Table 6, it can be seen that the average percentage of the feasibility of the product developed is 73.59%, meaning that according to the evaluation validation, the product developed is quite valid and can be used with minor revisions. There are several suggestions and revisions from the evaluation experts as follows: (1) the proportion of C1 questions is too much, they should start with C3; (2) dominant cognitive questions 1 and 2 for students should be C3-C6, (3) the evaluation product is good and suitable for students.

A small group trial instrument in the form of a questionnaire given to 15 students who were taking tennis lectures by random sampling. A summary of the results of small group and large group trials is presented in Table 7.

Tabel 7. Percentage Results of Small Group Trials

Indicator	Percentage %	Classification
Clarity	75.62%	Very Valid
Accuracy	60%	Quite Valid
Suitability	90%	Very Valid
Conveience	72.25%	Quite Valid
Attractiveness	74.67%	Quite Valid
Average	74.51%	Quite Valid

A large group trial instrument in the form of a questionnaire given to 47 students who were taking tennis lectures by random sampling. A summary of the results of large group trials is presented in Table 8.

Tabel 8. Percentage Results of Large Group Trials

Indicator	Percentage %	Classification
Clarity	75.68%	Very Valid
Accuracy	74.5%	Quite Valid
Suitability	75.55%	Very Valid
Conveience	82%	Very Valid
Attractiveness	74.58%	Quite Valid
Average	76.46%	Very Valid

Based on Table 8, the large group trial above shows the results of 74.46% and is in the very valid category. All criteria have met product eligibility so that the product developed can be used as learning media and alternative learning resources for students.

The results of the analysis of the effectiveness, efficiency, and attractiveness of the developed product are described as follows. A summary of the data from the effectiveness analysis of the developed product is presented in Table 9.

Table 9. Normality Test Results

Description	L_{Count}	L_{Table}
Pre-test	0.043	0.1282
Post-Test	0.015	

From the results of the calculation of the normality test in Table 9, pre-test and post-test data are obtained with pre-test data for the price of L_{count} 0.043 ≤ L_{table} 0.1282, then the pre-test data comes from a normal distribution. Post-test data price L_{count} 0.015 ≤ L_{table} 0.1282, then the post-test data comes from a normal distribution with a significant level of $\alpha = 0.05$. Thus, the researcher can conclude that the pre-test and post-test data come from a normally distributed population. Then a different test was carried out using the paired t-test method on the developed product.

Table 10. Different Test Results *(Paired T-test)*

Description	Average *(x)*	T_{Count}	T_{Table}
Pre-test	64	7.608	2.013
Post-Test	84.25		

From the results of the different test using paired t-test (see Table 10) the results between the pre-test and post-test were obtained T_{Count} = 7.608 ≥ T_{Table} = 2.013, then there is a significant difference between the pre-test and post-test data and H_0 is rejected . So it can be concluded that the average value before using the product the average value after using the developed product. Then from the calculation data, the average pre-test (X_1) = 64 the average post-test (X_2) = 84.25. Thus, it can be stated that the product developed is effective on learning outcomes because there is a change in the increase in scores before and after using the developed product.

Then the summary of the data from the efficiency analysis of the developed product is done by looking at the learning time to achieve the completeness of the learner in studying all the material. Determination of efficiency in the required time is 90 minutes. Determination of efficiency in the time used is obtained from the average completion time of working on the problem is 47 minutes.

$$Learning\ efficiency = \frac{\Sigma\ Time\ required}{\Sigma\ Time\ spend}$$

$$Learning\ efficiency = \frac{90}{47}$$

$$Learning\ efficiency = 1{,}91$$

Based on the average value of the ratio obtained is 1.91, it shows that the efficiency is high, because the ratio obtained is more than 1. Thus, it can be concluded that the use of developed products can increase efficiency in learning time. A summary of the data from the analysis of the attractiveness of the developed product is carried out by looking at the results of the assessment of the attractiveness and convenience indicators during large group trials of the developed product. The results of the analysis on these indicators obtained an average of 78%. Furthermore, the assessment is converted in the form of an assessment statement to determine the quality and level of usefulness of the resulting product based on the opinion of the respondents so that a conclusion can be drawn. The quality of attractiveness is based on indicators with a range of data through the conversion of scores into assessment statements, with the formula:

$$Rating\ Score = \frac{\Sigma\ The\ score\ obtained\ by\ the\ respondent}{\Sigma\ Total\ score} x\ 4$$

$$Rating\ Score = \frac{1611}{2160} x\ 4$$
$$Rating\ Score = 3.01$$

Furthermore, the average score of the assessment obtained is 3.01 and after being converted *(see table 2)* it is included in the interesting criteria, from these results it can be concluded that the product of audio-visual teaching materials to support tennis learning can attract students' interest in learning.

The product in this development research is in the form of audio-visual teaching materials to support tennis learning. This product is presented in the form of tennis materials which consist of (1) the history of court tennis; (2) facilities and infrastructure; (3) basic tennis techniques; (4) court tennis rules and arbitration; (4) video tutorial on how to fill out score sheets; (5) rule of tennis, which contains examples of cases or problems that occur in official matches and how to solve them in accordance with existing regulations. The advantage of this teaching material is that there are various types of media, such as audio-visual. Several types of existing media are the novelties of this research because the previous research only developed and studied teaching materials from one of the media developed in this study. The researcher agrees with the statement of (Sakat, 2012) that teaching materials are made to facilitate independent learning and the teaching materials are formed into a set of printed, audiovisual, or computer-based materials (or any combination thereof). Accuracy in presenting the material is very important (Kurniawan & Trimasukmana, 2020). Because teaching materials must be relevant to the main material to be delivered (Tauba & Bafirman, 2021). The same thing was also stated by (Coleman et al., 2018) to help explain the concept of ideas and help motivate active learning participants by involving multimedia (computers, laptops and tablets). The selection of appropriate procedures involving multimedia will attract the attention of students to learn (Nind et al., 2020)

Tennis learning has the same goals in physical education learning at school, namely the cognitive, affective, and psychomotor aspects. However, these three aspects cannot be separated considering that they only focus on one aspect. The results of learning tennis courts do lead to psychomotor that is more demanding to be skilled in the ability to move tennis courts. Therefore, to produce a good psychomotor, learning stages are needed starting from cognition, association, and automation (Kasilingam et al., 2014). Cognitive aspects become the basis for developing psychomotor and affective aspects will be created if the process of psychomotor aspects which are supported by cognitive aspects runs smoothly (Raibowo et al., 2020) So that the cognitive process can be developed optimally, one solution is to utilize technology into learning, namely in the form of interactive multimedia equipped with quizzes and practice questions. The interactive multimedia is intended to support cognitive aspects that are used to facilitate, increase knowledge, and independent learning for students.

In addition, the role of technology can increase interest and motivation to learn. As revealed by (Yang, 2021) the use of computer technology in teaching physical education can increase students' interest and motivation in exercising compared to teaching physical education using traditional methods. The developed teaching material products are also in accordance with the character of today's students. Students prefer interactive visual teaching materials because they are categorized as digital natives, while teachers and parents are likened to "comers" in the world of digital technology (digital

immigrants). The two experts classify the indigenous people of the digital world as young people who were born and grew up in the mid-1980s-2000s. Furthermore, these two observers of the internet and technology from Harvard Law School stated that digital natives have become accustomed to expressing their expressions through various digital media, such as cell phones (via voice and short text messages), electronic mail (e-mail). , internet messages (internet messenger), blogs and also socialize with social networking sites in cyberspace, such as friendster, twitter, and facebook. The benefits of these teaching materials can help in the process of transferring information that occurs in learning in a sequential and systematic manner. This is in accordance with what was revealed (Valverde-Berrocoso et al., 2021) that teaching materials produced with the help of the use of technology (system) will appear more integrated and systematic, provide deeper and wider information for learning.

The interaction between teachers, learning resources and students can be more effective, one of which is the presence of teaching materials in learning. The same thing was also expressed by (Kızılaslan et al., 2012) to achieve curriculum targets determined by the existence of teaching materials that play an important role as the easiest source of information for students to practice what is in the material in learning. That the more choices of available learning resources will make the learning process better (Puspitarini & Hanif, 2019). Teaching materials that are integrated with technology, apart from being a learning medium, are also used as learning resources to stimulate the learning process that is abstract to concrete that can be observed directly, learners will find it easier to learn things that are concrete than abstract ones (Jaakkola & Veermans, 2015). That effectiveness refers to appropriate learning indicators (such as a certain level of achievement and fluency) to measure learning outcomes (Fauzan & Arifin, 2019). In this context, effectiveness is measured through student learning outcomes obtained before and after using the developed product.

CONCLUSIONS

The conclusion of this research is that the developed audio-visual teaching materials which have been validated by several experts in their field of expertise show the final results in a fairly good category with information that can be used with several minor revisions. Furthermore, the audio-visual teaching materials that have been developed are effective on learning outcomes because there is a change in the increase in scores before and after using the developed product. Then the developed audio-visual teaching materials can increase efficiency in learning time and can attract students' interest in learning. The results of this study can be used as the basis for implication of audio-visual teaching materials in tennis learning in all study programs in various universities. This research is only limited to learning tennis, further research can touch on learning related to other sports.

REFERENCES

Adi, S., & Fathoni, A. F. (2019). Development of learning model based on blended learning in sports school. *5th International Conference on Physical Education, Sport and Health (ACPES 2019)*, 8–12.

Adi, S., & Fathoni, A. F. (2020). Blended learning analysis for sports schools in Indonesia. *International Journal of Interactive Mobile Technologies*, *14*(12), 149–164. https://doi.org/10.3991/IJIM.V14I12.15595

Adi, S., & Fathoni, A. F. (2020). Mobile Learning sebagai Fasilitas Belajar Mandiri Pembelajaran Senam Lantai pada Mahasiswa Jurusan Ilmu Keolahragaan. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, *5*(8), 1158. https://doi.org/10.17977/jptpp.v5i8.13946

Alobaid, A. (2020). Smart multimedia learning of ICT: Role and impact on language learners' writing fluence-YouTube online English learning resources as an example. *Smart Learning Environments*, *7*(1), 24. https://doi.org/10.1186/s40561-020-00134-7

Arifianto, I., Raibowo, S., & Jatra, R. (2021). Groundstroke training games dalam bentuk video untuk atlet junior tenis lapangan. *Jurnal Menssana*, *6*(1), 12–22. https://doi.org/10.24036/MensSana.06012021.18

Coleman, P., Franck, A., Francombe, J., Liu, Q., de Campos, T., Hughes, R. J., Menzies, D., Galvez, M. F. S., Tang, Y., Woodcock, J., Jackson, P. J. B., Melchior, F., Pike, C., Fazi, F. M., Cox, T. J.,

& Hilton, A. (2018). An Audio-Visual System for Object-Based Audio: From Recording to Listening. *IEEE Transactions on Multimedia*, *20*(8), 1919–1931. https://doi.org/10.1109/TMM.2018.2794780

Dwiyogo, W. D., & Rodriguez, E. I. S. (2020). Blended Development Learning of Soccer Courses for Education in Physical Health and Recreation Students: *Proceedings of the 1st International Scientific Meeting on Public Health and Sports (ISMOPHS 2019)*. The 1st International Scientific Meeting on Public Health and Sports (ISMOPHS 2019), Malang City, East Java, Indonesia. https://doi.org/10.2991/ahsr.k.201203.002

Fathoni, A. F. (2018). *The Role of Blended Learning on Cognitive Step in Education of Sport Teaching by Adjusting the Learning Style of the Students*. https://doi.org/10.2991/isphe-18.2018.49

Fauzan, F., & Arifin, F. (2019). The Effectiveness of Google Classroom Media on the Students' Learning Outcomes of Madrasah Ibtidaiyah Teacher Education Department. *Al Ibtida: Jurnal Pendidikan Guru MI*, *6*(2), 271. https://doi.org/10.24235/al.ibtida.snj.v6i2.5149

Gabibov, A. B., Polomoshov, A. F., & Ryzhkin, N. V. (2020). Physical Education and Sport in the Era of Information Technology: *Proceedings of the International Conference "Health and Wellbeing in Modern Society" (ICHW 2020)*. The International Conference "Health and wellbeing in modern society" (ICHW 2020), Tomsk, Russia. https://doi.org/10.2991/ahsr.k.201001.027

Gerald, B. (2018). A Brief Review of Independent, Dependent and One Sample t-test. *International Journal of Applied Mathematics and Theoretical Physics*, *4*(2), 50. https://doi.org/10.11648/j.ijamtp.20180402.13

Herliani, Boleng, D. T., & Maasawet, E. T. (2021). *Teori Belajar dan Pembelajaran* (1st ed.). Lakeisha. www.penerbitlakeisha.com

Ilahi, B. R., Raibowo, S., Sugihartono, T., & Hiasa, F. (2021). Nike Training Club Applications To Improve Football Learning In The Independent Era Of Learning On Students Of Penjas FKIP UNIB. *Kinestetik : Jurnal Ilmiah Pendidikan Jasmani*, *5*(4), 827–835. https://doi.org/10.33369/jk.v5i4.19708

Jaakkola, T., & Veermans, K. (2015). Effects of abstract and concrete simulation elements on science learning. *Journal of Computer Assisted Learning*, *31*(4), 300–313. https://doi.org/10.1111/jcal.12089

Jatra, R., & Raibowo, S. (2021). Anxiety and Concentration of Tennis Athlete. *Kinestetik: Jurnal Ilmiah Pendidikan Jasmani*, *5*(3), 580–589. https://doi.org/10.33369/jk.v5i3.17500

Jeong, H. C., & So, W. Y. (2020). Difficulties of Online Physical Education Classes in Middle and High School and an Efficient Operation plan to Address Them. *International Journal of Environmental Research and Public Health*, *17*(19), 1–13. https://doi.org/10.3390/ijerph17197279

Kaliyadan, F., & Kulkarni, V. (2019). Types of variables, descriptive statistics, and sample size. *Indian Dermatology Online Journal*, *10*(1), 82. https://doi.org/10.4103/idoj.IDOJ_468_18

Kasilingam, G., Ramalingam, M., & Chinnavan, E. (2014). Assessment of learning domains to improve student's learning in higher education. *Journal of Young Pharmacists*, *6*(4).

Kioumourtzoglou, I., Zetou, E., & Antoniou, P. (2022). Multimedia As a New Approach for Learning in Physical Education. *Arab Journal of Nutrition and Exercise (AJNE)*. https://doi.org/10.18502/ajne.v6i1.10065

Kurniawan, E., & Trimasukmana, D. J. (2020). Korean Drama as Geography's Audio-Visual Learning Media of Disaster Mitigation. *Universal Journal of Educational Research*, *8*(5), 2184–2190. https://doi.org/10.13189/ujer.2020.080558

Lukosch, H., & Comes, T. (2019). Gaming as a research method in humanitarian logistics. *Journal of Humanitarian Logistics and Supply Chain Management*, *9*(3), 352–370.

https://doi.org/10.1108/JHLSCM-06-2018-0046

Nind, M., Holmes, M., Insenga, M., Lewthwaite, S., & Sutton, C. (2020). Student Perspectives on Learning Research Methods in the Social Sciences. *Teaching in Higher Education*, *25*(7), 797–811. https://doi.org/10.1080/13562517.2019.1592150

Prihandono, E. (2018). LKM Berbasis Inkuiri Terbimbing untuk Meningkatkan Keterampilan Proses Sains. *Jurnal Pendidikan Fisika Universitas Muhammadiyah Metro*, *6*(2), 14. https://doi.org/10.24127/jpf.v6i2.1554

Puspitarini, Y. D., & Hanif, M. (2019). Using Learning Media to Increase Learning Motivation in Elementary School. *Anatolian Journal of Education*, *4*(2), 53–60. https://doi.org/10.29333/aje.2019.426a

Raibowo, S., Adi, S., & Hariadi, I. (2020). Efektivitas dan Uji Kelayakan Bahan Ajar Tenis Lapangan Berbasis Multimedia Interaktif. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, *5*(7), 944. https://doi.org/10.17977/jptpp.v5i7.13726

Raibowo, S., Ilahi, B. R., Prabowo, A., Nopiyanto, Y. E., & Defliyanto. (2021). Penguasaan Keterampilan Dasar Futsal UKM FORKIP Universitas Bengkulu. *Jurnal Pendidikan Kesehatan Rekreasi*, *7*(2), 333–341. https://doi.org/10.5281/zenodo.4897656

Ramesh, K. (2016). Role of Information Technology in Enhancing Sports Performance. *International Journal of Physical Education, Sports, and Health*, *3*(5), 277–279.

Silva, R. C. A., e Silva, V. L. de F. F., & Silva, A. P. (2019). Distance learning for teaching in physical education. *Motriz. Revista de Educacao Fisica*, *25*(1). https://doi.org/10.1590/s1980-6574201900010002

Sunardi, Jaka, Soh Kim Geok, Komarudin Komarudin, Hari Yuliarto, and Ranintya Meikahani. 2021. "Effect of Blended Learning, Motivation, Study Hour on Student Learning Achievement." *Jurnal Keolahragaan 9* (2): 168–77. doi:10.21831/jk.v9i2.40508.

Tauba, R. F., & Bafirman, H. (2021). Pengembangan instrumen tes dribblingpada permainan futsal menggunakan teknologi mikrokontroler arduino. *Jurnal Keolahragaan*, *9*(2), 256–267. https://doi.org/10.21831/jk.v9i2.41845

Valverde-Berrocoso, J., Fernández-Sánchez, M. R., Revuelta Dominguez, F. I., & Sosa-Díaz, M. J. (2021). The educational integration of digital technologies preCovid-19: Lessons for teacher education. *PLOS ONE*, *16*(8), e0256283. https://doi.org/10.1371/journal.pone.0256283

Yang, C. (2021). Integration of Information Technology and PE Teaching Process. *Journal of Physics: Conference Series*, *1881*(2), 022100. https://doi.org/10.1088/1742-6596/1881/2/022100