BirLE-Journal
Budapest International Research and Critics in Linguistics and Education
p.ISSN: 2655-2647
e.ISSN: 2655-1470
Budapest Institute

The Development of a Multimedia-Based Student Activity Sheet on Physical Fitness Materials for Class Ten

Bakhtiar Rifai[1], Nanik Indahwati[2], Gigih Siantoro[3]
[1,2,3]*Magister of Sport Education, Universitas Negeri Surabaya, Surabaya, Indonesia*
13rifai@gmail.com

Abstract

This study aims to develop student worksheets (LKPD) for physical fitness material in grade tenth where the aspects developed include (1) developing student activity sheet models (2) content development. Using research development methods from Borg and Gall with quantitative and qualitative approaches. Qualitative data were analyzed descriptively qualitatively. 75 students as a small-scale test sample and 205 students as a large-scale test sample. The research was conducted at SMAN 3 Pasuruan. The feasibility of developing multimedia-based worksheets on tenth-grade physical fitness materials is based on the assessment of (a) Education Experts, getting an overall average score of 4.2 with a decent category. (b) Media experts got an overall average score of 3.8 with a very decent category, (c) the first trial / small scale got an overall average score of 4. with a decent category or LKPD model and content developed according to students, (d) The second trial/large scale got an overall score average of 3.9 with a decent category or model and LKPD content developed according to students. Based on these results, the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and measuring the components of physical fitness for a tenth grade in each aspect developed is feasible to use and according to students so that it is feasible to produce for learning.

Keywords
student activiy sheet; multimedia; physical fitness

I. Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and state (UU RI No. 20 of 2003). Education is key to the progress of a nation (Musdiani, 2019). The learning process in educational units is carried out interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for the initiative, creativity, and independence by the talents, interests, and physical and psychological development of students (PP RI No. 32 of 2013). LKPD is a tool to enable students to learn and as teaching materials that make it easier for students to understand the material. The current LKPD media is no longer relevant to technological sophistication. Currently, the LKPD format is still in print, examples of movements on the printed sheet are in the form of images. The image is in the form of a cartoon, the cartoon image does not show the image according to the human form in carrying out the movement. So there is a different understanding of the movement or position of the body when doing the movement. With the advancement of technology, it is hoped that there will be development in the LKPD media. LKPD that uses technology

such as a digital form that can display video with sound and is accessed using a smartphone is the hope desired by researchers. While the existing LKPD content is still at the stage of memorizing the existing material. At this time it is expected that students learn to analyze problems that arise following everyday life. "To support the learning activities contained in the LKPD based on cases or problems, problem-based learning-based analysis is needed". (Puspasari, & Puspasari, 2019:379-385).

To assist student activities using worksheets containing cases and problems, analysis based on problem-based learning is needed. In addition, PJOK learning, which is primarily motion learning, requires examples of moving images to show appropriate movements. “The availability of books in the learning process is support to improve the quality of the learning process. Many SMK and SMA schools do not use Student Worksheets (LKPD) (Aidin, 2019). This study develops student worksheets by the competencies and learning objectives but still uses interesting and fun teaching materials. The LKPD created will use e-books to make it easier for students to have worksheets that have easy access and without production costs so that all students can have them. The e-book created is expected to be able to be used in devices, such as smartphones and laptops, both those based on Android or iOS. In e-learning, learning requires media in the form of technology. “These perceptions may then influence decisions about technology use as they move forward in their education, resulting in highly variable impacts on learning. Thus, the opportunities for and benefits derived from learning via technology need to be equitably and explicitly offered to all students”. (Ge, Smyth, Serle, Krikpatrick, Evans, Elder, & Brown, 2021:74 – 94). Technology is used for advanced learning, technology has a great impact on learning. The use of e-books is also due to being able to provide hypertext which will make it easier for students to understand learning instructions to make students able understand the desired material following core competencies and basic competencies in learning. "student worksheets are a guide for students in understanding the skills and concepts of the material that is being studied" (Astuti & Setiawan, 2013: 91). Physical education that actually has more value than other education as the main vehicle that is truly capable of developing social, emotional and intellectual skills (Muthohir in Arsani, 2020) is still underestimated. The importance of this modern fitness material must be studied thoroughly so that no misunderstanding or implementation will endanger students. “Physical education must be observant in providing tools and opportunities to increase and maintain cardiorespiratory fitness levels (Peralta, Henriques-Neto, Gouveia, Sardinha, & Marques, 2020). This LKPD is one of the tools to maintain fitness according to the journal above. And examples are needed that make it easier for students to carry out activities. "The remarkable fact is that the vast majority of teenage students prefer the traditional class and the physical presence over m-learning", (Matzavela, 2020). The statement above shows that students prefer face-to-face and physical presence rather than online.

II. Research Methods

This research is development research with a purpose. “Professional development also needs to look long term, providing teachers with the means to design and provide meaningful and engaging learning experiences for students in online learning environments”. (Dolighan, Tim. & Owen, Michael, 2021: 95 – 116). The availability of facilities for teachers to develop professionally to be able to design and provide meaningful and interesting learning experiences for students is where the purpose of the

developing multimedia-based worksheets is. The type of research used is development research. This research approach uses qualitative and quantitative approaches. The qualitative approach is to find information about the product to be developed, while of the qualitative approach is to determine the level of feasibility of the product that has been made. This research uses the development research method from Borg and Gall. Here are 10 steps in development research;

1. Potential and problems. Research departs from potential and problems. Knowing the problems and potentials that exist makes R & D research produce models, patterns, or effective integrated handling systems that can overcome these problems. Following are the potentials and problems in this study, all students have a device to access e-books, but for internet connection, many do not have one. The availability of LKPD is not yet available for all students. And the existing LKPD has not shown that it is easy to use by students and the existing content still does not explain sports and health properly. The existing LKPD media are not following technological developments.
2. Gather information. Gathering information as material for planning certain products that are expected to overcome these problems. The collection of LKPD validity data was carried out in April 2021 at Senior high school 3 Pasuruan for tenth graders. By using a student needs analysis questionnaire and conducting a literature study so that the products produced are by the needs of the respondents and following the learning objectives contained in the Minister of Education and Culture No. 21 of 2016.
3. Product design. The result of this activity is a new product design, complete with specifications. The product will be designed according to the needs of tenth graders of SMAN 3 Pasuruan and from the results of literature studies. To realize products that are by the needs of students and the achievement of product manufacturing goals.
4. Design validation is an activity process to assess whether the product design, in terms of a new work system, will rationally be more effective than the old one or not. Expert validation is carried out by assessing experienced experts to assess the product so that they know the weaknesses and strengths of the product. The validator to determine the quality of the product made is carried out by three people, namely one informatics expert, and two PJOK learning experts.
5. Design improvements. After knowing the results of the validation by experts, both the advantages and disadvantages of the product. Then the next researcher reduces the weakness of the product by improving the design.
6. Test the product, after being validated. The initial trial was carried out by simulating the use of the system. After being simulated, it can be tested on a limited group. The product results from the validation of experts will be tested on tenth grade 3 student’s as many as 90 students at SMAN 3 Pasuruan with random selection. By using a questionnaire, researchers can find out the students' responses to the products made.
7. Product revision. The results of the limited sample product testing show the effectiveness and efficiency of the product is better than the old system. However, the results are still lacking, so the product design needs to be revised so that the value in using the product gets high results.
8. Trial usage. The new product, the new work system, can be applied in real conditions or a wider scope. In the operation of the work system, it is still necessary to assess the shortcomings or obstacles that arise for further improvement. After going through the improvement of the results of the trial using the first product, then

conducting a trial to a large group which will be carried out in 5 classes at SMAN 3 Pasuruan with a total of 175 students. At this stage is the last stage of research conducted.

9. Product revision is carried out if in real use conditions there are advantages and disadvantages. In a usage test, its best if the product manufacturer evaluates how the product performs.
10. The manufacture of this mass product is carried out when the product has been tested. The results of the product revision are based on existing input and the final product will be in the form of a multimedia-based student activity sheet in the form of an e-book on the tenth grade physical fitness material at SMAN 3 Pasuruan. The validity analysis was carried out in the following steps: The validity of the LKPD, RPP, and the media used in the LKPD was obtained based on the analysis of the expert assessment sheet data. Validity analysis is carried out with the following steps:

1) Tabulation of Score Data

Grouping the questions according to the observed aspects. Table 3.1 follows the scoring guidelines for the assessment results using a Likert scale 1 – 5.

Table 1. Likert Scale

Criteria Score	**Score**
Strongly Agree	5
Agree	4
Doubtful	3
Disagree	2
Strongly Disagree	1

2) Converting the Average Score of EachAspect

Qualitative Based on the scale rating criteria according to Eko Putro Widiyoko (2009:238) which is listed in table 3.2 as follows:

Table 2. Guidelines for Conversion of Five Scale Score

Interval Skor	**Kriteria**
$\bar{x} > \bar{M}_i + 1{,}8\ sb_i$	Very Good
$\bar{M}_i + 0{,}6\ sb_i < \bar{x} \leq \bar{M}_i + 1{,}8\ sb_i$	Good
$\bar{M}_i - 0{,}6\ sb_i < \bar{x} \leq \bar{M}_i + 0{,}6\ sb_i$	Fairly
$\bar{M}_i - 1{,}8\ sb_i < \bar{x} \leq \bar{M}_i + 0{,}6\ sb_i$	Poor
$\bar{x} \leq \bar{M}_i + 1{,}8\ sb_i$	Very poor

Information : $\bar{x}$: *average*

$$\bar{M}_i \ : ideal\ scor\ average = \frac{1}{2}(\max score + minimum\ score)$$

$$sb_i : ideal\ standart\ deviation = \frac{1}{6}(skor\ maksimal\ ideal - minimal\ ideal)$$

The ideal maximum score is 5 and the ideal minimum score is 1, then the LKPD assessment clarification is obtained in table 3.

Table 3. Criteria of Validityguidelines

Interval Score	Criteria
$\bar{x} > 4{,}2$	Highly Qualified
$3{,}4 < \bar{x} \leq 4{,}2$	Eligible
$2{,}6 < \bar{x} \leq 3{,}4$	Decent Enough
$1{,}8 < \bar{x} \leq 2{,}6$	Poor Eligible
$\bar{x} \leq 1{,}8$	Very Ineligible

III. Discussion

After carrying out the stages of development research such as design validation from experts, small-scale product design trials, and large-scale product trials. There are shortcomings and suggestions for improving the product for the better. The following will explain the improvements/revisions that have been made at each stage that have been carried out:

3.1 Product Design Revision on LKPD

The content on the LKPD that is created must pass a feasibility assessment from an education expert, namely an education lecturer. In addition to the assessment, experts also provide advice or input. Expert advice or input is used to improve and make the LKPD content better. The following will present expert input and improvements that have been made.

Table 4. Data Revision of LKPD Content

No	Expert Suggestions for	Improvement

1.	There is no identity of LKPD (school, class, and number of hours)	Additional school identities, subjects, classes, semesters, time allocation and number of students have been added. An overview of the improvements is in the attachment on page 56
2	There is no source for images and videos.	Image and video sources have been provided in the form of links. Under the image or video. An overview of the improvements is in the appendix on page 56
3	Use descriptive model	questions The correct and incorrect questions have been changed to descriptive questions.
4	Video is better to use the product itself.	Revamped using homemade videos
5	The study guide is still hard to understand.	The study guide has been made concisely to make it easier to understand.

3.2 Product Design Revision on LKPD

The media on the LKPD made must pass a feasibility assessment from media experts in this study validated by professional programmers. In addition to the assessment, the experts also provide advice or input. Suggestions or input from experts is used to improve and make the LKPD media better. The following will present input from media experts and the improvements that have been made.

Table 5. LKPD Product Design Revision Data

No	Expert Suggestions for	Improvement
1	Cover design can be more attractive	The cover design has been made more attractive. An overview of the fix is in the appendix on page 57

2	The file size could be further minimized.	File size less than 73 mb less than 100 mb.
3	Need to addanimations	sports movement. Sports motion videos have been provided.
4	Need to choose contrasting colors for writing and more varied fonts.	The background color of the font uses a contrasting and unobtrusive color. The font has done variations.

3.3 Revision of the LKPD Analysis

The analytical instrument on the LKPD made for the data collection on students must pass a feasibility assessment from an education expert in this study validated by a sports education lecturer. In addition to the assessment, the experts also provide advice or input. Suggestions or input from experts are used to improve and make the LKPD media better. In the following, inputs from education experts and improvements made by researchers will be presented.

Table 6. Data Revision of LKPD Analysis Instruments

No	Expert Suggestions for	Improvement
1	Questions need to be revised.	Question items have been fixed.
2	The instructions for filling out the questionnaire need to be revised.	The questionnaire instructions have been revised.
3	The language used needs to be made simpler.	Language has been improved using simple
4	The Language used is less effective.	The grammar has been streamlined to make it simpler.

5	Improvements to existing terms.	The term EYD has been replaced with PUEBI

3.4 Revision of the LKPD Analysis

The analytical instrument on the LKPD made for the data collection on students must pass a feasibility assessment from an education expert in this study validated by a sports education lecturer. In addition to the assessment, the experts also provide advice or input. Suggestions or input from experts are used to improve and make the LKPD media better. In the following, inputs from education experts and improvements made by researchers will be presented.

3.5 Product Revision of Small-Scale Trial Results

The results of small-scale trials using analytical instruments on the LKPD were made for the data collection on students. The results of interviews with students provide information on products that have been used, both the advantages and disadvantages of the product. Existing data is used to improve the product to make it better. The following will present a recap of the results of the interviews for the advantages and disadvantages as well as improvements from the data from interviews that have been carried out by researchers.

Table 7. Interview Data from Small-scale Trial Results

No	Product Advantages	Disadvantages Product	Improvements
1.	Can be read offline, does not issue a quota.	Applications are sometimes slow, especially videos.	The video file size on the LKPD has been reduced, so access is faster than before.
2.	Interesting because the new model has not used this model before.	82 mb file size is still too big and can be reduced again.	File reduced to 74 mb.

3	Model LKPD multimedia More effective and more interesting to use for learning.	Difficult to open google drive. Requires 3 steps to use LKPD.	Reduce to 2 steps in the use of LKPD.
4	LKPD is more convenient to use because it is in the form of multimedia.	The explanation in the LKPD is not easy to understand.	Correct the sentences in the LKPD, so that it is easy to understand.

3.6 Revision of the Final Product of Large-Scale Trial Results

The results of large-scale trials using analytical instruments on LKPD are made for the data collection on students. The results of interviews with students provide information on products that have been used, both the advantages and disadvantages of the product. Existing data is used to improve the product to make it better. The following will present a recap of the results of the interviews for the advantages and disadvantages as well as improvements from the data from interviews that have been carried out by researchers.

Table 8. Interview Data Results of Large-Scale

No	Trials Product Advantages	Disadvantages Product	Improvements
1.	Can explain the material in more detail.	Requires getting used to.	It takes time for students to get used to using multimedia worksheets.
2.	The new LKPD uses e-books.	Not used to the new LKPD.	It takes time for students to get used to using multimedia worksheets.

Research products and instruments are declared valid or suitable for use after making improvements so that research instruments or products developed can be used for data

collection data are taken from material experts and then media experts, small scale trials, and large scale trials. The data obtained from the distributed questionnaires were then calculated and analyzed to determine the results of the feasibility of the student worksheets (LKPD).

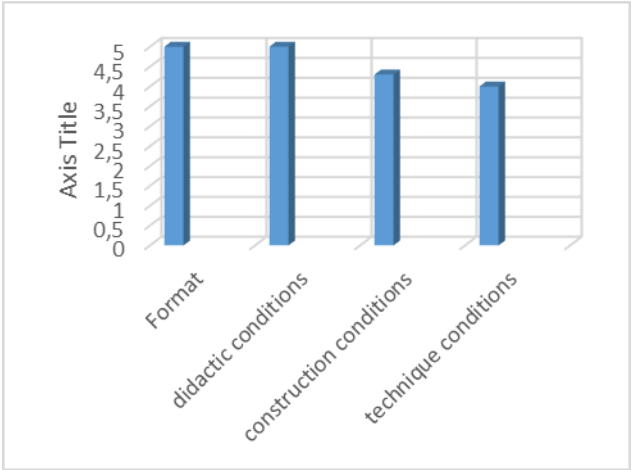

Figure 1. *Diagram of Material Expert Validation Results*

Based on the four aspects of assessment by material experts, namely aspects of format, educational requirements, construction requirements, and technical requirements, the overall average score is 4.5. Thus the multimedia-based physical fitness LKPD on competencies 3.4 and 4.4 concepts of exercise and the measurement of components of physical fitness related to overall health based on the validation of material experts get a very feasible category in the criteria.

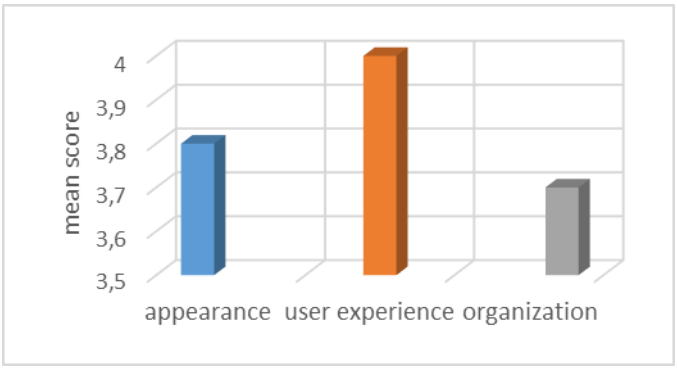

Figure 2. *Diagram of Media Expert Validation Results*

The results of media expert validation based on three aspects, namely appearance, use, and organization, obtained an average overall score of 3.8. With that, the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and measurement of components of physical fitness related to health is categorized as feasible.

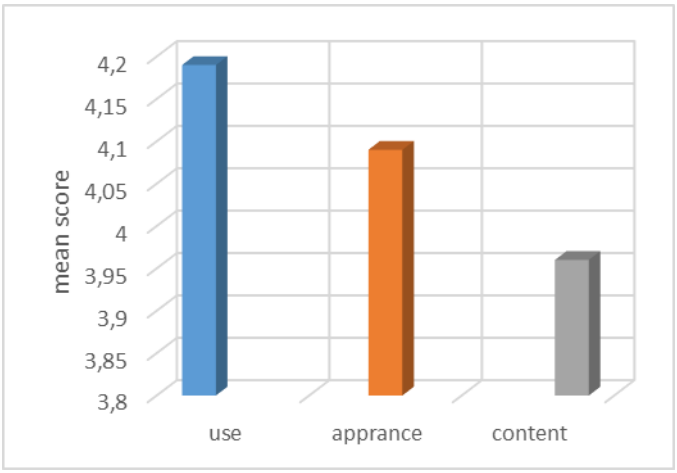

Figure 3. *First Trial Results Diagram*

Based on the first three aspects of the trial, namely aspects of use, appearance, and content, and the overall score was obtained, namely 4. So that the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and measuring the components of physical fitness related to health can be categorized as inappropriate criteria or in accordance with SMAN 3 Pasuruan students on the model and content. So that the existing product deserves to be tested in the second stage.

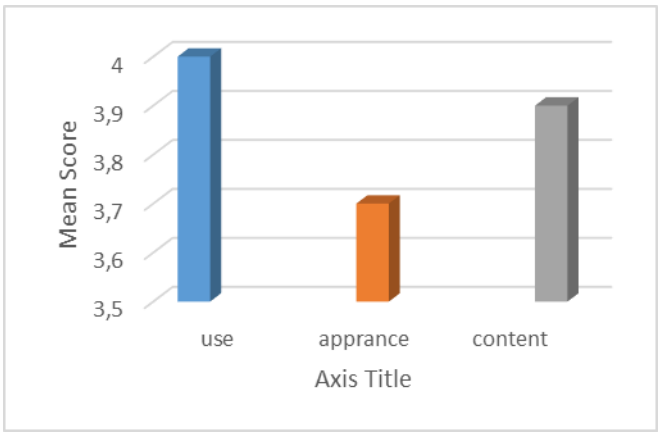

Figure 4. *Second Trial Results Diagram*

Based on three aspects of the second trial, namely aspects of use, appearance and content, an overall score of 3.9 was obtained. So that the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and the measurement of components of physical fitness related to health can be categorized in the appropriate criteria or have been following the students of SMAN 3 Pasuruan on the model and content.

Based on assessment data from material experts, media experts, the first trial with a small scale and the second trial with a large scale obtained the overall data on the results of the assessment of the development of multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and measurement of physical fitness related to health, the data are as follows:

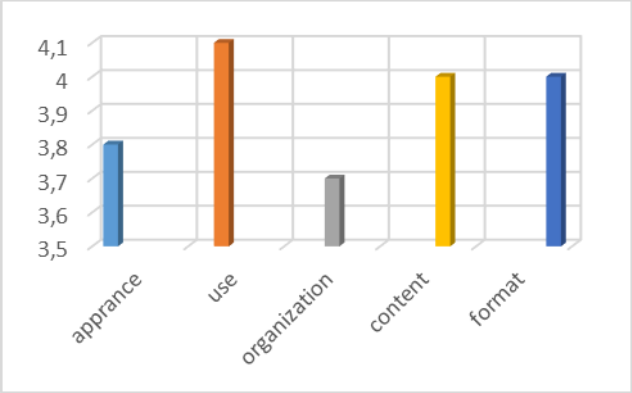

Figure 5. *Overall Diagram of LKPD Assessment*

Based on the tables and diagrams above, the results of the multimedia-based LKPD assessment are obtained on competencies 3.4 and 4.4 the concept of exercise and measurement of physical fitness related to health. The assessment of the LKPD display gets a score of 3.8 so that the developed LKPD display is feasible to use. The results of the assessment of the use of LKPD get a score of 4.1, thus the use of the developed LKPD is feasible to use. While the results in the LKPD organization get a score of 4, thus the organization in the LKPD developed is feasible to use.

Furthermore, the assessment of the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise, and measurement of physical fitness related to health by experts and trials obtained the following results. The assessment of LKPD content gets an average score of 4 so that the developed LKPD has content that is feasible to use. Next on the aspect of the LKPD format based on the assessment of experts and trials, a score of 4 was obtained which indicates that the format in the LKPD developed is feasible to use.

V. Conclusion

The development of multimedia-based worksheets on physical fitness material for class X at SMAN 3 Pasuruan refers to the development of Brog & Gall. Produce development in the form of an Android and iOS-based learning e-book that is opened through the application Moon+ Reader to get maximum facilities. This competency e-book that can be used online and offline contains 15 pages with a data size of 75 MB.

The feasibility of developing multimedia-based LKPD on physical fitness material for class X at SMAN 3 Pasuruan is based on the assessment of (a) Education Experts, getting an overall average score of 4.2 with a decent category. (b) Media experts got an overall average score of 3.8 with a very decent category, (c) the first trial / small scale got an overall average score of 4. with a decent category or model and content of LKPD developed according to students, (d) Test the second try / large scale get an overall score average of 3.9 with a decent category or model and LKPD content developed according to students. Based on this, the multimedia-based LKPD on competencies 3.4 and 4.4 the concept of exercise and measuring the components of physical fitness for class X at SMAN 3 Pasuruan in each aspect developed is feasible to use and suitable for students so that it is feasible to be produced for learning.

References

Aidin, Luthfi. (2019) Pengembangan Aplikasi Lembar Kerja Peserta Didik (Lkpd) Pjok Berbasis Android Pada Sekolah Menengah Kejuruan. Jurnal Mitra Pendidikan. 3 (2),

226-240.
Arsani, et.al. (2020). Differences in Motivational Orientation in Physical Education in terms of Gender Differences. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal Vol 3 (3): 1428-1434.
Astuti, Y & Setiawan, B. (2013). Pengembangan lembar kerja siswa (LKS) berbasis pendekatan inkuiri terbimbing dalam pembelajaran kooperatif pada materi kalor. Jurnal Pendidikan IPA Indonesia, 2 (1), 91. Diunduh dari https://journal.unnes.ac.id/nju/index.php/jpii/index
Biddle, S. J. H., Ciaccioni, S., Thomas, G., & Vergeer, I. (2018). Physical activity and mental health in children and adolescents: An updated review of reviews and an analysis of causality. Psychology of Sport and Exercise. Https://doi.org/10.1016/j. psychsport.2018.08.011.
Dolighan, Tim. & Owen, Michael. (2021) Teacher Efficacy for Online Teaching during the COVID-19 Pandemic. A Journal of Educational Research and Practice Volume 30 (1). Online publication. DOI: HTTPS://DOI.ORG/10.26522/BROCKED.V30I1.851
Ge, Jenny. Smyth, Rachael E. Serlea, Michelle. Krikpatrick, Lori. Evans, Rebbeca. Elder, Alexa. & Brown, Heather. (2021) Prespectivs from Student: How to Tame the Chaos and Harness the Power of Technology for Learning. A Journal of Educational Research and Practice Volume 30 (1). Online publication. DOI: HTTPS://DOI.ORG/10.26522/BROCKED.V30I1.850
Matzavela, Vasiliki. (2021). M- Learning in the COVID -19 era: physical vs digital class. Education and Information Technologies. Online publication. DOI:https://doi.org/10.1007/s10639-021-10572-6
Musdiani, Mardhatillah, and Khausar. (2019). Analysis the Role of Headmaster in Applying Quality of Education in Primary School Districts, Aceh Barat. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal Vol 2 (3): 27-35.
Peralta M, Henriques-Neto D, Gouveia E´R, Sardinha LB, Marques A (2020) Promoting healthrelated cardiorespiratory fitness in physical education: A systematic review. PLoS ONE 15(8): e0237019. https://doi.org/10.1371/journal. pone.0237019
Puspasari, D. & Puspasari, D. (2019).Development of student worksheet based on problem based learning in office management subject. International Journal of Educational Research Review, 4(3), 379-385.
Wandik, Yos. Qomarullah, Rif'iy. Sawir, Lestari Wulandari. Muhlisin, Sugiharto. (2020). the Urgency of Sport Health Law Tools in the New Normal: Journal Physical Education, Sport, Health and Recreations. 9 (3) 149 – 156. https://doi.org/10.15294/active.v9i3.39575
Wiliyanto, Septian. Kusmaedi, Nurlan. Sumardiyanto. Nugroho, Wildan Alfia. (2021). Relationship Between, Sex, Age, Body Mase Index, and, Physical Fitnees with Elderly Participation: Journal Physical Education, Sport, Health and Recreations. 10 (1) 5- 10 https://doi.org/10.15294/active.v10il.44689