



Development of Fun Science Activity Learning based on Phbs For Primary School Students

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Keywords Abstract

Fun Science Activity Learning, PHBS *The spread of Covid-19 is troubling to various circles, this is due to the ease with which this virus is transmitted. Some experts say that this virus can be overcome by implementing healthy and clean living behaviors. Cultivating clean and healthy living habits can be integrated into every lesson, including science learning. Psychomotor assessment media can be packaged with fun activities for students or Fun Science Activity Learning. This research includes research and development research. The purpose of this research is to develop Fun Science Activity Learning based on PHBS as prevention of COVID-19 for Elementary School Students. Furthermore, knowing the quality of Fun Science Activity Learning based on PHBS as prevention of COVID-19 for elementary school students with an average validation result from material experts 82.5%, linguists 81.6% and media experts 81.5% and assessment experts 80.5%.*

Introduction

The transmission of Covid 19 is disturbing several groups, activities are limited to reduce the impact of the spread of the virus (Ministry of Health, 2020). Some experts say that another effort that can reduce its spread is adopting a clean and healthy lifestyle (Friskarini, K., & Sundari, TR, 2020). However, implementing a clean and healthy lifestyle in elementary schools still requires special attention. Apart from that, children's knowledge about Covid-19 is still low (Parwanto, 2020). According to Moerad et al in Anhusadar 2020, there are 5 (five) orders of clean and healthy living behavior that can become a node to start the process of raising awareness about clean and healthy living behavior, namely: (1). Clean and healthy living behavior in the household, (2). Clean and healthy living behavior at school, (3). Clean and Healthy Living Behavior in the Workplace, (4). Clean and healthy living behavior in health facilities, (5). Clean and healthy living behavior in public places. Based on this, clean and healthy living behavior in schools can be achieved by integrating healthy lifestyle patterns with

learning, one of which is science learning. This can be done as in research by Rehusisma et al 2017 who developed a video booklet to strengthen clean and healthy living character. Based on an initial study of elementary school students in Tipar Village, Rawalo District, Banyumas Regency. There are 3 elementary schools in the village, namely SDN 1 Tipar, SDN 2 Tipar and SDN 3 Tipar. Knowledge about clean and healthy lifestyles to reduce the spread of the Covid 19 virus in each elementary school is 58%, 60% and 57%. The percentage of figures obtained by each elementary school is still relatively low and there is minimal education from social and education services regarding the importance of a clean and healthy lifestyle to reduce the spread of the Covid-19 virus.

The solution to the problem above is to integrate a clean and healthy lifestyle in science learning. Learning can be integrated through psychomotor assessment. Psychomotor assessments can be carried out in every learning activity, one of which is in science practicum activities (Munandar et al, 2020). The implementation of science practicum during the pandemic was relatively limited. Based on interviews with teachers at elementary schools in Tipar village, the majority of assignments and assessments during cognitive, psychomotor and affective learning were by giving assignments via WhatsApp group and then the results of these assignments were collected at school. Practical activities are forced to be carried out independently without any special practical instructions created or developed by the teacher. Practical activities in science learning are important activities to carry out and can support learning. Aspects of students' skills and mastery of the material obtained during learning activities can be seen through practicum activities. Therefore, carrying out practicum activities more often means evaluation activities are also carried out more often to assess students' learning outcomes in practicum activities (Basuki and Hariyanto, 2014).

According to Siti (2016), practicum activities are important to carry out because practicums can improve several aspects, one of which is developing motivation to learn science; second, developing basic skills through trying activities; Third, the practicum contains scientific approach learning tools; Fourth, practicum is a support for understanding the subject matter. Based on the description of the importance of practicum above, it is necessary to have practicum activities carried out by students.

Practical activities during the pandemic were carried out online, where the process was accompanied by parents and it was not possible to carry it out in its entirety. Limited facilities available at home combined with learning subjects and other learning content that require more attention makes science practicum activities less than optimal. So that this can be done optimally, we need a science practicum guide that is fun and with tools and facilities that are easy to do. Practical instructions are integrated with fun learning . Fun learning is a method used to create an effective learning environment by implementing the curriculum, delivering material and a fun learning process so that children's learning achievements increase. (Darmasyah, 2011, p. 45).

According to other experts, fun learning is learning that is packaged in such a way that it provides an atmosphere full of joy, fun and does not cause boredom. Or in other words, teachers make the learning process more interesting and the patterns that are established with students during the learning process do not make students passive (Djamarah, 2010) . Because the situation is still a pandemic, the learning process is carried out by integrating it in the form of practical instructions or fun science activity learning based on a clean and healthy lifestyle.

Fun science practical instructions are a series of activity instructions carried out by students by applying existing science concepts to carry out activities/experiments that attract students' interest and curiosity. This guide is called Fun Science Activity Learning. The essence of this guide is that the essence of science in the form of scientific methods can be conveyed. The point is that students in learning science do not learn to memorize concepts but learn to discover them through the science process in an interesting and fun way. The use of PHBS-based Fun Science Activity Learning is expected to enable students to understand, experience, and find answers to the problems they encounter in everyday life (Kobala and Chiapetta, 2010).

Based on the problems above, the first is the lack of children's knowledge about clean and healthy lifestyles, the second is the lack of practical activities during the pandemic and teachers have not created practical instructions that are fun to do together with parents. So it is important to develop PhBS-based Fun Science Activity Learning for elementary school students.

Method

Development style

This research is designed as development research (*Research and Development*) or called R & D research. *Research and Development* is a process or steps to develop a new product or improve an existing product, which can be accounted for. The product referred to in this context is *Fun Science Activity Learning* based on PHBS . The research and development carried out aims to develop *Fun Science Activity Learning* practical instructions which contain easy learning materials and practical instructions for grade 5 elementary school students and are based on PHBS. The development of PHBS-based *Fun Science Activity Learning* in this research adapted the 4D model (*define, design, develop and disseminate*) from Thiagarajan, et.al (1974) which has been modified according to the level of needs in the research (Kurniawan, D., & Dewi, SV 2017)

Development Procedure

The procedures for developing PHBS-based *Fun Science Activity Learning* were carried out in three basic steps namely: Define, Design, Develop. Those are explained as follows:

1. Definition (define)

At this stage, problems were identified in the implementation of class V elementary school learning in Tipar village including SDN 1 Tipar, SDN 2 Tipar and SDN 3 Tipar. Identification of potential and problems in question are problems in science learning. This stage includes identifying school conditions, curriculum analysis and analysis of student characteristics.

School Conditions

At this stage, observations were carried out to collect data regarding the implementation of learning activities, especially science practicums at SDN 1 Tipar, SDN 2 Tipar, and SDN 3 Tipar which were carried out online.

Curriculum Analysis

Material analysis refers to core competencies, basic competencies, and the science subject syllabus theme 9 objects around us which consists of 4 subthemes. The subthemes developed are subtheme 1 single objects and mixed objects. The analysis aims to identify the main parts that will be developed and arranged systematically, as well as link one concept with other relevant concepts in the context of a fun practicum based on a clean and healthy lifestyle for elementary school students.

Analysis of Student Character

Student analysis is needed at the beginning of planning to determine student characteristics and abilities. These characteristics include abilities and background knowledge, attitudes, language used and students' cognitive development.

2. Design

Development planning is carried out based on the results of definitions regarding student analysis, school condition analysis and curriculum analysis. The results of the student analysis stated that science learning was carried out online and then the practicum implementation was adjusted to the students' conditions and circumstances at home, if possible, if not, adequate theory and knowledge were sought. Based on this, planning was carried out to select the format according to the criteria so as to produce an initial design for PHBS-based *Fun Science Activity Learning* that matched the indicators and learning objectives to be achieved. The initial PHBS-based *Fun Science Activity Learning* design or draft I was then validated.

3. Development (Develop)

Development was carried out after draft I was completed and then validated by validators, namely language expert validation, science material expert validation and validation from public health experts. After this validation process was carried out, revisions were made to the draft PHBS I-based *Fun Science Activity Learning*. The results of the revision of the draft module II were then tested on a small scale with students.

The trial was carried out on class V students at SD Negeri 2 Tipar. This trial aims to: 1) identify and eliminate the most glaring errors in PHBS I-based *Fun Science Activity Learning*, such as typos, letter errors, image layout errors, etc., 2) assess the clarity of the content, whether it is easy understandable, easy to understand, attractive appearance, and readability. The results of the small scale trials will be used as input or improvements in preparing a draft of *Fun Science Activity Learning* based on PHBS III which will be tried out on a wide scale. The large scale trials were carried out in 3 schools, namely SDN 1 Tipar, SDN 2 Tipar and SDN 3 Tipar.

Results and Discussion

The development of fun science activity learning based on PHBS is useful as a media to accompany children's learning during the pandemic. This media trains children's psychomotor skills during the pandemic. This media is presented in flipbook form which can be accessed by using a link or by scanning a barcode.



Figure 1 PHBS-based fun science activity learning barcode

The results obtained are fun science activity learning based on PHBS. The initial stage is carrying out analysis and gathering information. After that, planning, what materials will be used in authentic assessment media. In the planning stage it was determined that the science material to be developed was the theme of 9 objects around us which consists of 4 sub-themes. The subthemes developed are subtheme 1 single objects and mixed objects. This media places more emphasis on psychomotor aspects. The activities presented in this media can be applied with parents at home. Some of the content in this media is the identity of the owner because each child can fill in their own name. There is a summary of the learning objective material, instructions for use, let's do it, review it with parents and discuss it. The following are the results of the development of PHBS-based fun science activity learning

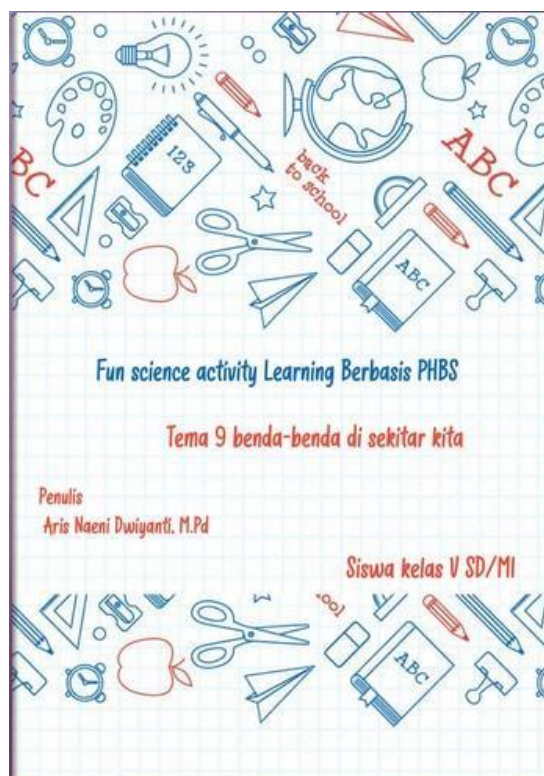


Figure 2 Cover of Fun Science Activity Learning

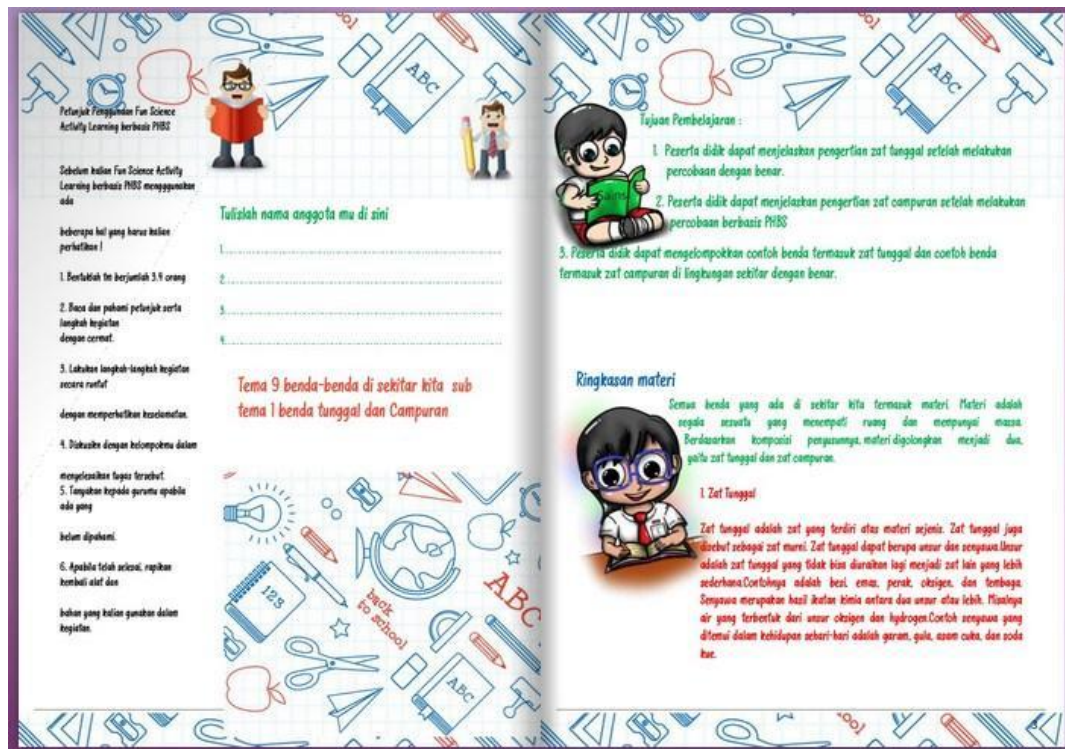


Figure 3 Instructions for use and owner's identity

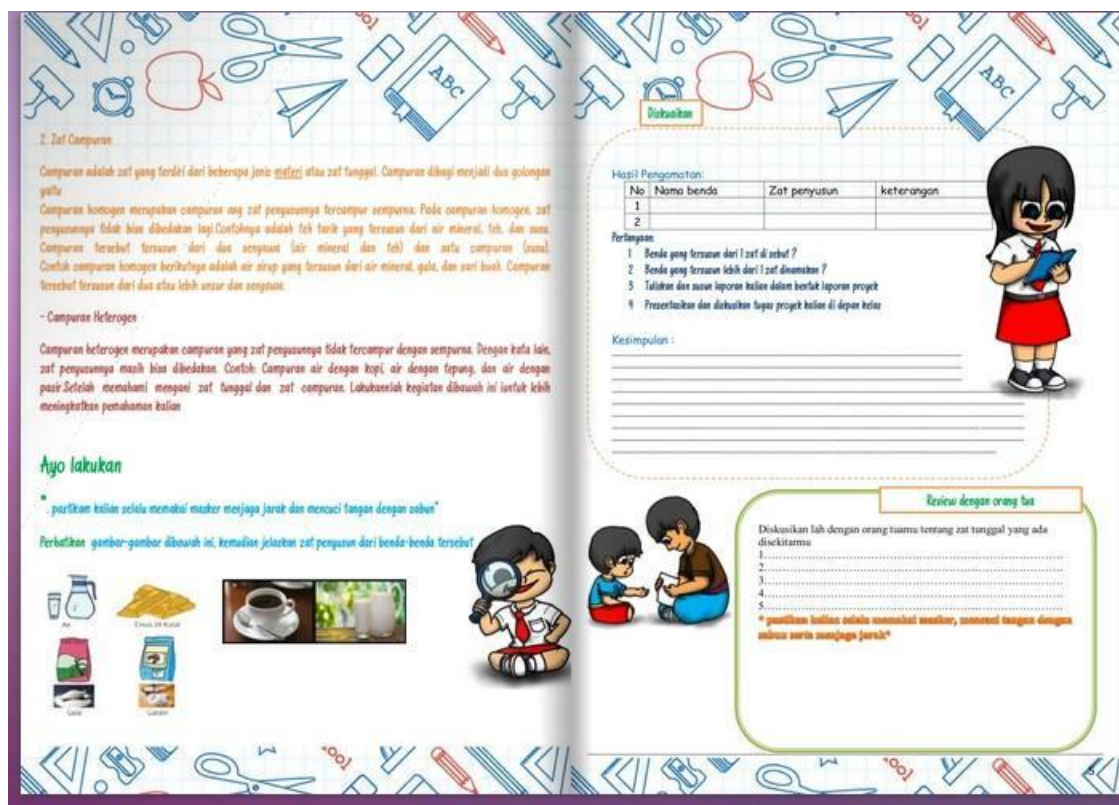


Figure 4 summary of fun Science materials and activities

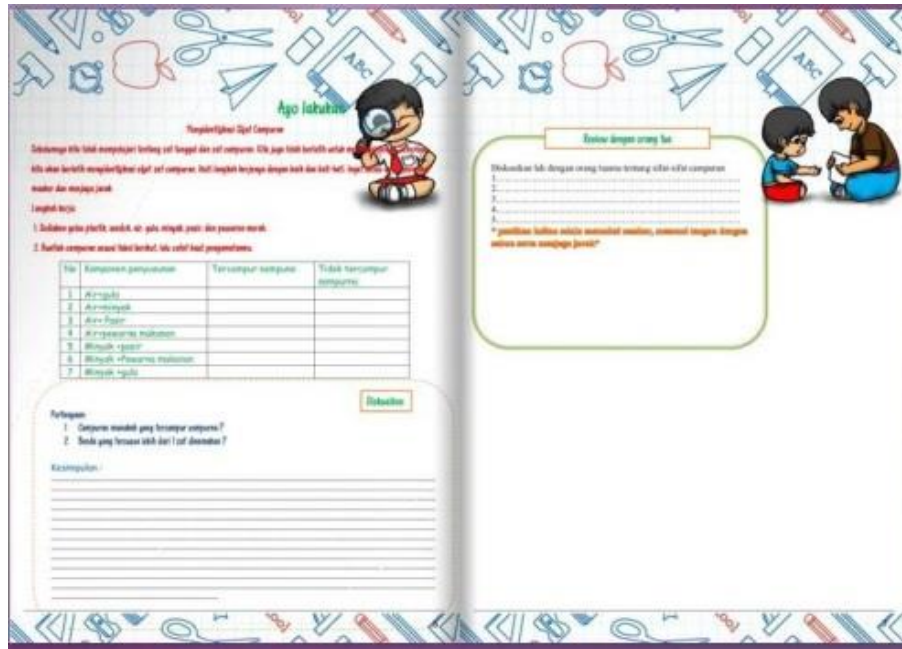


Figure 5 Fun science activities based on PHBS

The next stage is to carry out a validation test of PHBS-based fun science activity learning, namely testing the validity of the construct, content and language of the media. Validity is the extent to which a meter or test instrument is precise and accurate in carrying out its measuring function. (Azwar, 2014) (Santrock, 2010) A measuring instrument is said to have high validity if the instrument provides precise and accurate measuring results according to the purpose of the measurement. In this case, what we will measure is the validity of PHBS-based fun science activity learning according to media, language, material and assessment experts. The following are the results of the assessments from each expert :

Table 1. Expert validation

NO	SUBJECT	VALIDITY CATEGORY	PERCENT SCORE
1	Valuation expert	Relevance, Completeness, Accuracy, Clarity	80.5%.
2	Media expert	Media size, cover design, content design, fonts,	81.5%
3	Linguist	Completeness, Readability, Clarity, Suitability, Accuracy,	81.6%
4	Material expert	Appropriateness of content, appropriateness of presentation	82.5%

Table 2. Input and suggestions

No	Feedback and suggestions	Repair
1	Use the same font size	Change the font size to the same
2	Improve instructions for using assessment media	Make improvements to the instructions for use according to suggestions

Considering the conditions during the pandemic, this research was carried out according to new normal procedures. The selection of subjects in limited trials and field trials was carried out by minimizing the number of subjects used in the research. The total subjects in small and medium scale trials are 1 teacher and 1 class of students. Small and medium scale trials are carried out using teacher response questionnaire sheets and student responses to PHBS-based fun science activity learning:



Figure 6 Field trials



Figure 7 Limited trials

The form of questionnaire used is an assessment score criteria with 4 scales that state the level of quality of each aspect being assessed. Scales 1 and 2 are not to disagree, meanwhile, scores 3 and 4 are in the agree and strongly category. Collecting teacher responses like this had previously been carried out by those (Rahman, p. 2015) who explained that a closed form questionnaire with a rating scale format with a description of the scores starting from strongly agree to disagree could be used to obtain the results of teacher and student responses. Analysis of teacher responses was 85% while student responses were 86%. Product dissemination is carried out by implementing applicable health protocols. Dissemination is aimed at teachers and students in the Banyumas district in the form of soft files in the form of barcodes or flipbook links that can be used by every teacher and student.

Conclusion

Development of Fun science activity learning developed on the theme 9 objects around me. The sub themes developed are single and mixed objects. Based on expert assessments, Fun science activity learning is valid and suitable for use. The teacher's response to this assessment media is that it is easy to use in learning. Students are interested in this assessment media because the illustrations presented and the discussion are appropriate to everyday life. The implications of the research conducted by researchers are as follows: (1) Fun science activity learning can be used to develop the psychomotor abilities of elementary school students, especially grade 5. (2) Can be used as a reference for teachers to develop Fun science activity learning other subjects.

Recommendations

1. Research on developing Fun Science Activity Learning can be carried out with material in other classes and integrated with different learning methods;
2. The effectiveness of developing PHBS-based Fun Science Activity Learning has not been carried out in other schools so that it can be applied in other schools to determine the effectiveness of PHBS-based Fun Science Activity Learning.

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