

Increasing Elementary School Students' Knowledge and Motivation towards Health and Fitness through Activity-Based Pocketbook

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Abstract: Elementary school students' fitness is at a very poor level due to students' lack of knowledge and motivation towards health and fitness as well as a lack of teaching materials. Therefore, this research aims to increase knowledge and motivation towards health and fitness in elementary school students through the development of an activity-based pocketbook. This research used the Borg and Gall research and development method. The development of the pocketbook was carried out through several stages, namely planning, information analysis, small-scale trials, revisions, and large-scale trials, involving three experts as validators and 42 students as samples. After that, an evaluation was conducted to determine the final result of the product being developed. The results of developing an activity-based pocketbook were product feasibility and effectiveness in increasing students' knowledge and motivation towards health and fitness. Product feasibility was obtained from validator assessments covering all aspects, where the mean percentage score for material experts was 82%, media experts were 83%, and practitioners were 87%, in the very good category. Readability tests and student responses produced mean percentage scores of 85.28% and 84.45%, respectively. The effectiveness of the product was considered effective as evidenced by an increase in knowledge pretest-posttest results of 42.86 and an increase in motivation pretest-posttest results of 5.66, or a paired sample t-test with a significance value of both, as many as 0.000. Thus, the product of developing a pocketbook based on activity-based health and fitness material was feasible to disseminate in PJOK lessons, especially in phase B elementary schools, since it can increase students' knowledge and motivation.

Keywords: Pocketbook, Knowledge, Motivation, Health, Fitness

Abstrak: *Kebugaran siswa sekolah dasar berada pada tingkat kurang sekali hal ini disebabkan karena kurangnya pengetahuan dan motivasi siswa terhadap kesehatan dan kebugaran serta kurangnya bahan ajar olehnya itu penelitian ini bertujuan untuk meningkatkan pengetahuan dan motivasi terhadap kesehatan dan kebugaran pada siswa sekolah dasar melalui pengembangan buku saku berbasis aktivitas. Penelitian ini menggunakan metode penelitian pengembangan (research & development) Borg and Gall. Pengembangan buku saku dilakukan melalui beberapa tahapan yaitu perencanaan, analisis informasi, uji coba skala kecil, revisi, dan uji coba skala besar dengan melibatkan 3 orang ahli sebagai validator dan 42 siswa sebagai sampel. Setelah itu dilakukan evaluasi untuk menentukan hasil akhir produk yang dikembangkan. Hasil pengembangan buku saku berbasis aktivitas adalah kelayakan produk, dan efektivitas produk dalam meningkatkan pengetahuan dan motivasi siswa terhadap kesehatan dan kebugaran. Kelayakan produk didapatkan atas penilaian validator yang mencakup keseluruhan aspek diperoleh rata-rata hasil nilai persentase ahli materi 82%, ahli media 83% dan praktisi 87% dengan kategori sangat baik. Uji keterbacaan dan respon siswa dengan nilai rata-rata presentase masing-masing 85,28% dan 84,45%. Efektivitas produk dinilai efektif dibuktikan dengan peningkatan hasil pretest-posttest pengetahuan sebesar 42.86 serta peningkatan hasil pretest-posttest motivasi sebesar 5.66 atau uji paired sampel t-test dengan nilai signifikansi keduanya yaitu 0.000. Dengan demikian, produk pengembangan buku saku berbasis aktivitas materi kesehatan dan kebugaran layak untuk disebarluaskan pada pelajaran PJOK khususnya fase B sekolah*

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INTRODUCTION

Education has an essential role as a tool for developing individual character through the introduction of knowledge and mastery of skills taught by educators to students. It aims to achieve the goals set because the objectives of the PJOK subject are stated in the Minister of Education, Culture, Research and Technology Regulation Number 008 of 2022 concerning learning outcomes in the independent curriculum for the elementary school level. It turns out that students understand the importance of physical activity in achieving growth, development, physical fitness, and healthy living behavior throughout life. Part of a child's development at the age of 9-10 years includes motoric, perceptual-cognitive, speech and language, as well as personal-social development (Allen & Marortz, 2010). Therefore, PJOK learning has a crucial role in guiding students to actively maintain their fitness and health because children who actively exercise have better health indicators and tend to have higher levels of physical activity (Lemes et al., 2021).

PJOK teachers need to carry out intensive activities so that students' abilities related to health and fitness can increase. However, the facts on the ground demonstrated that students' physical fitness was at a worrying level, as can be seen from the results of the Sports Development Index. It was revealed that the fitness level of elementary school/equivalent students was at a very low level, as much as 58.7%. In other words, there were 14.56 million children whose fitness level was very poor when converted to real data, while only 1.7% were at a very good level (Mutohir et al., 2023). In fact, students need a good level of fitness to participate in learning activities at school and maintain their health so that they are always in good condition throughout life (Jakubowska et al., 2019).

Based on direct experience and interviews with PJOK teachers in Tellu Siattinge Sub-district specifically and teachers in Bone Regency in general regarding the process of learning health and fitness material, many students were found not to understand in depth the importance of health and fitness material in everyday life. There was a tendency to only reach the Minimum Mastery Criteria (KKM). Hence, there was less motivation to maintain their body condition outside of class hours. In fact, physical education, sports, and health subjects with a continuous process, application of appropriate learning methods, and use of appropriate techniques and strategies can improve student character (Pradana, 2021). Apart from that, PJOK teachers tend to use existing textbooks only, without the help of other learning resources. This is because there was a lack of teaching materials that could be provided and used as a reference to increase students' abilities and motivation to consistently maintain their health and fitness levels. Therefore, PJOK teachers need to create teaching materials on health and fitness in the form of activity-based pocketbooks for elementary school students to overcome this problem. Pudyastuti et al. (2024) and Taamu et al. (2020) stated that pocketbooks can increase elementary school students' knowledge.

In their journal, Wang and Chen (2020) asserted that students' self-motivation plays an important role in encouraging them to do physical activities outside of school. Motivation can be interpreted as a driving force that arises from outside or within a person to carry out an action to ensure the sustainability of the action, as well as influencing the determination of direction, orientation, and level of effort required to achieve the goals that have been set (Komaruddin, 2017). In addition, motivation plays a very crucial role in the learning process, sports performance, and academic or sports achievements. In this case, Mysidayu (2018), Premianti (2021), and Yanti and Himmah (2022) also stated that the use of pocketbooks can increase student motivation.

Furthermore, aspects that must be considered in designing a pocketbook are attractiveness, clarity, and inviting curiosity (Ghozalli, 2020). Thus, this research developed teaching materials in the form of an activity-based pocketbook on health and fitness material for elementary school students as a support for increasing students' knowledge and motivation regarding the importance of maintaining health and fitness and as a choice of teaching material for PJOK teachers. This pocketbook is very practical to use because it is small in size. Consequently, it is easy to carry anywhere and can be studied anywhere as needed, so it is useful as a learning resource for students. The contents of the pocketbook are practical materials presented interestingly. There are various writings and images presented so that students can be motivated to continue learning regarding the material contained within it. This activity-based pocketbook is consistent with the learning achievements in the independent curriculum phase B, and students at school carry out daily activity sheets and after school as well as monitoring sheets by parents; therefore, there is a collaboration between teachers, students, and parents in the learning process.

RESEARCH METHODS

This type of research is development (Research and Development). Development research aims to develop a new product or improve an existing product (Maksum, 2018). This research used the research and development model of Borg and Gall (1983). In the book (Maksum, 2018; Sutarti & Irawan, 2017), several steps are mentioned: information collecting, planning, developing a preliminary form of product, initial trial, revision of initial trial results, limited trial, revision of limited trial results, group trial major, revised final product, and final product.

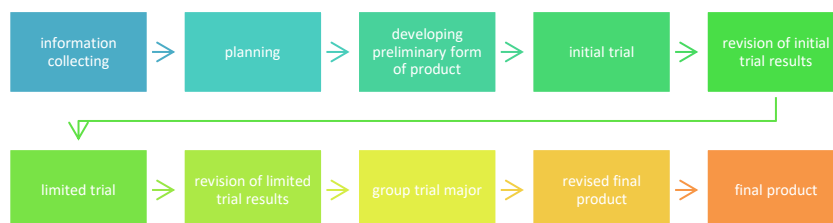


Figure 1. Research steps

The subjects of this research were fourth-grade students at SDN 58 Ulo, SDN 64 Lappae, and SDN 63 Ajjalireng. The instruments used were assessments on validation sheets, questionnaires, and student pre-and post-tests. There were two data, namely qualitative and quantitative data. Qualitative data were obtained from comments on questionnaires, needs analysis for teachers and students, and input and suggestions from validators regarding the products being developed. In comparison, quantitative data were gathered from the results of validator assessments and field trials. The expert validation sheet contained aspects of size, cover design, typography, layout, and placement of book elements and illustrations; the practitioner validation sheet contained aspects of completeness of the material, contextuality of examples, consistency of presentation, appropriateness of language, and attractiveness of appearance.

Data analysis in this research included analysis of questionnaire sheets and analysis of validator assessment results, where analyses were carried out on each criterion related to each

component. Meanwhile, data analysis (Arikunto, 2019) used a formula for the average value of the questionnaire, and the feasibility criteria used the average value analysis as follows:

$$P = \frac{\sum x}{\sum x_i} \times 100\%$$

The feasibility criteria for using average value analysis are as follows:

Table 1. Criteria for product feasibility level

Percentage %	Category
81-100	Very feasible
61-80	Quite feasible
41-60	Less feasible
21-40	Not feasible
0-20	Very feasible

At the initial trial stage, the pocketbook being developed was evaluated by lecturers and teachers at the PJOK subject. The results of this validation were used to improve the pocketbook contents. The validation process was carried out by submitting validation sheets to the lecturers and teachers involved. Using the validation results, the average of the evaluation results obtained was calculated, determining whether the pocketbook met the appropriate criteria. At the limited trial stage, the pocketbook product, which had been revised based on evaluations from experts, was tested on 12 students to see weaknesses in the components of the product being developed. The large group trial involved 42 fourth-grade elementary school students. This large group trial aimed to empirically test the quality of the product, identify potential problems, and ensure that the product can provide the expected benefits. The results of large group trials became the basis for accounting for product quality and effectiveness. Through these three stages of testing, it is expected that the pocketbook product being developed can be refined and meet the expected criteria of validity, practicality, and effectiveness.

RESULTS AND DISCUSSION

The product concept of this research was to produce an activity-based pocketbook to make it easier for students to get reading sources other than the main textbook. At the planning stage, relevant materials to learning outcomes were collected, and then the initial product was designed. Next, validation was carried out by filling in a research scale ranging from 1 – 5, which the researchers had created. The following is the validator assessment table:

Table 2. Validation of the feasibility of the pocketbook

No.	Validator	Percentage %	Category
1	Materials Expert	82	Very feasible

2	Media Expert	83	Very feasible
3	Practitioner	87	Very feasible

Based on this table, the percentage assessment results from validators were in the range of 81-100, indicating that the items in the category were very valid or very feasible. Hence, it can be concluded, based on these results, that the pocketbook material was very feasible to test on elementary school students. The next stage was a limited trial on 12 students, with the results shown in the following table:

Table 3. Readability test results

No.	Components to be assessed	Percentage results %	Category
1	Typographic clarity	85	Very feasible
2	Illustration suitability	88.33	Very feasible
3	Language suitability	82.50	Very feasible

The results of the readability test in a trial limited to health and fitness material revealed that the three components assessed were in the very appropriate category.

Table 4. Results of student responses

No.	Components to be assessed	Aspect	Percentage %	Category
1	Design	Attractive appearance	90	Very feasible
		Clarity of writing	83.33	Very feasible
2	Contents	Material completeness	83.33	Very feasible
		Clarity of material	86.67	Very feasible
3	Language	Ease of understanding the language	81.67	Very feasible

The results of the student response questionnaire in the limited trial of health and fitness material in the pocketbook uncovered that the three components assessed were in the very feasible category.

Furthermore, after limited trials and revisions, a large-scale trial involving 42 students was carried out. The pre-test was conducted before learning, while the post-test was given at the end of learning after four meetings. Student motivation was measured using a questionnaire adapted from Rakha C. Pangestu (2021), while the knowledge test given was in the form of multiple choice questions that had gone through expert judgment. Trials were carried out to analyze the level of difficulty of the questions and analysis of different strengths, with the result that 13 question items were declared feasible.

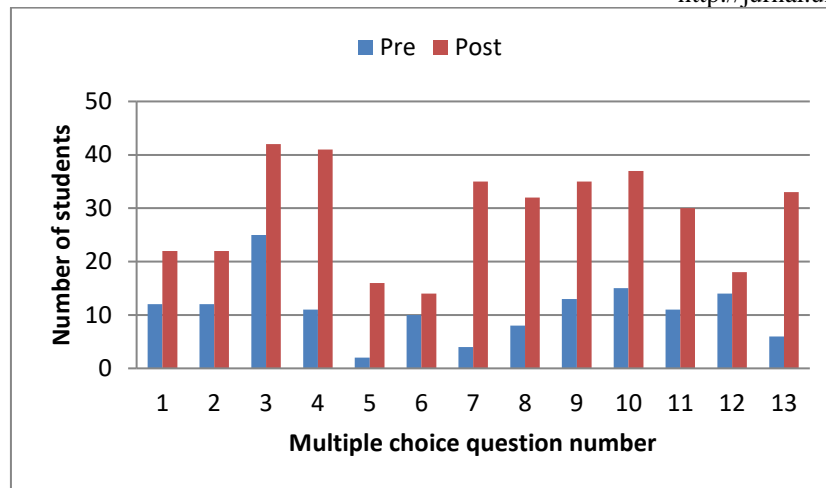


Figure 1. Pre and post-test results of knowledge

Based on this diagram, it can be seen that there was an increase in student's knowledge after learning to use pocketbooks as teaching materials.

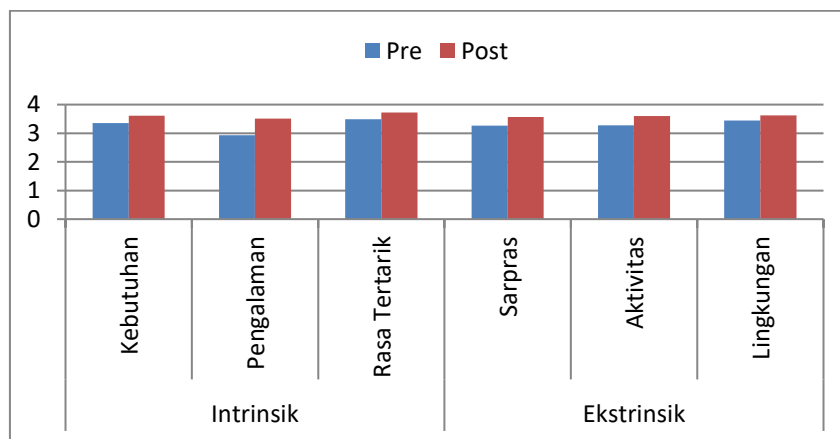


Figure 2. Pre and post-test results of motivation

The diagram illustrates an increase in student motivation after learning to use pocketbooks as teaching materials from both intrinsic and extrinsic factors.

Table 5. Pre and post-test data

Results	Knowledge		Motivation	
	Pre-test	Post-test	Pre-test	Post-test
Total	1100	2090	3091	3329
Average	26.19	69.05	73.60	79.26
Increase	42.86		5.66	

It is known that there was an increase in scores of 42.29 for knowledge and 5.66 for student motivation after using pocketbooks as teaching materials on health and fitness material. Then, in the final stage, a student response questionnaire was administered to assess the entire pocketbook

product in terms of appearance, content, and language by 42 students. A score of 86.71 was obtained in the very decent category.

Research conducted involving 42 students from elementary schools through four meetings using pocketbooks as teaching materials showed significant results in increasing students' knowledge about health and fitness material. This can be known after testing using a paired sample t-test by looking at the sig value of 0.00, below 0.05. This indicates a significant difference between the pre-test and post-test results. The increase in students' average score was 42.86 after using the pocketbook product.

The questions given to assess students' level of thinking in the cognitive or knowledge domain were made based on Bloom's Taxonomy from the levels of remembering (C1), understanding (C2), applying (C3), and analyzing (C4). The data denotes that for C1 category questions, the ability to answer was at 94%, C2 questions were at 85%, C3 questions were at 64%, and C4 category questions were at 44%. Students' abilities were high in the realm of understanding but still lacking at the level of analysis. The questions given at level C4 were in the form of story questions and diagrams, and then students determined the answers. According to Kumalasari and Putra (2021), most questions used by schools in Indonesia as cognitive assessment instruments tended to aim to test aspects of memory, while questions to train students' high-level thinking skills, such as analytical skills, were not available enough. This made it difficult for students to answer analytical questions, so teachers should design questions that can improve students' analytical skills.

The development of an activity-based pocketbook on health and fitness material aligns with research (Festiawan & Arovah, 2020) on the development of a smart nutrition pocketbook for junior high school students: alternative learning media to increase knowledge of sports nutrition. In their research, it was concluded that the pocketbook that had been developed was feasible for use as a medium for increasing knowledge of sports nutrition. Another study (Fembriani, 2021) also showed that there was an increase in student learning outcomes by using pocketbooks. The similarities in this research are that the use of pocketbooks as teaching materials has the advantage of increasing knowledge and motivation, and there are activity sheets for students to carry out outside PJOK class hours.

Additionally, it can be explained that this research demonstrated that pocketbooks could increase students' motivation to exercise. This can be known after testing using a paired sample t-test by looking at the sig value of 0.00 below 0.05. This means that there was a difference between the pre-test and post-test results at 73.60 versus 73.60. In this case, knowledge is a predisposing factor that influences changes in a person's behavior. The behavior shown by a person begins to be formed from the knowledge a person has and is an important element in the formation of action. Behavior based on knowledge will provide maximum results than behavior that is not based on knowledge (Izro et al., 2023). Thus, it can be said that a pocketbook has the advantage of increasing knowledge and motivation and having activity sheets for students to carry out outside PJOK class hours.

CONCLUSIONS AND RECOMMENDATIONS

The pocketbook as the final product of this research is teaching materials (pocketbooks) in the form of printed media with a selection of materials used in health and fitness activities, with the main target being elementary school students. The development process has gone through a series of steps, as per the established procedures, so it is very feasible to disseminate this knowledge in PJOK lessons, especially phase B in elementary schools because it can increase students' knowledge and motivation.

Suggestions that can be given to future researchers are to develop an activity-based pocketbook by integrating it into a smartphone application so that teachers and parents can see a recap of student activity results directly. Activity-based pocketbook products with health and fitness material can be developed again with slight adjustments regarding the material and different levels of education, and research can be developed by conducting trials on more samples and using different variables.

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