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DEVELOPMENT OF ENVIRONMENT ON CLEAN AND HEALTHY LIVING LEARNING-BASED TEACHING MATERIAL

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PENGEMBANGAN BAHAN AJAR BERBASIS LINGKUNGAN MATERI HIDUP BERSIH DAN SEHAT

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ABSTRACT

Abstract: *This paper is developmental research, which aims to produce environmental-based teaching materials on valid clean and healthy living environment learning material. The developmental research uses the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation. The data collection instrument used was a validated validation sheet. The data were obtained by validating the validation from material, media, and learning experts on the modules developed by conducting limited validity trials. Data analysis was analyzed through the quantitative description. The validation results of the material expert indicate that the developed teaching materials were very valid with an average percentage of 96%. The media expert validation results show that the developed teaching materials were very valid with an average percentage of 100%. The validation results of learning experts imply that the developed teaching materials were very valid with an average percentage of 100%. Based on the experts' validation results, an environment of clean and healthy living material-based module product was obtained with a very valid category used in learning.*

Keywords: teaching material, environment, clean and healthy living material

Abstrak: Tulisan ini merupakan penelitian pengembangan, yang bertujuan untuk menghasilkan bahan ajar berbasis lingkungan pada materi pencemaran lingkungan yang valid. Penelitian pengembangan tersebut menggunakan model pengembangan ADDIE yang terdiri dari Analisis (*Analyzis*), Perancangan (*Design*), Pengembangan (*Development*), Penerapan (*Implementation*), dan Penilaian (*Evaluation*). Instrumen pengumpulan data yang digunakan adalah berupa lembar validasi yang sudah divalidasi. Data diperoleh dengan melakukan validasi kepada ahli materi, ahli media, dan ahli pembelajaran terhadap modul yang dikembangkan dengan melakukan uji coba kevalidan terbatas. Analisis data dilakukan secara deskripsi kuantitatif. Hasil validasi ahli materi menunjukkan bahwa bahan ajar yang dikembangkan sangat valid dengan persentase rata-rata 96%. Hasil validasi ahli media menunjukkan bahwa bahan ajar yang dikembangkan sangat valid dengan persentase rata-rata 100%. Hasil validasi ahli pembelajaran menunjukkan bahwa bahan ajar yang dikembangkan sangat valid dengan persentase rata-rata 100%. Berdasarkan hasil validasi dari para ahli, diperoleh produk modul berbasis lingkungan pada materi hidup bersih dan sehat dengan kategori sangat valid digunakan dalam pembelajaran.

Kata Kunci: ***bahan ajar, lingkungan, materi hidup bersih dan sehat***

CITATION

Ferazona, S., Suryanti., Cahaya, N., Kisti, M. O., & Maryani, L. (2023). Development Of Environment On Clean And Healthy Living Learning-Based Teaching Material. Primary: Jurnal Pendidikan Guru Sekolah Dasar, 11 (5), 157-170. DOI: http://dx.doi.org/10.33578/jpfkip.v12i1.9590.

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INTRODUCTION

Education is a process in order to influence the student to be able to adjust to his environment and thus will cause changes in himself that allow him to function adequately in the life of society. Teaching is in charge of teaching this process so that the goals of the change can be achieved as desired. Education is not only providing information and shaping skills, but includes efforts to realize individual wants, needs and abilities so as to achieve a pleasant personal and social lifestyle. Education is not solely for the present life but as a means of preparing for the life to come, so that it is proactively and even anticipatoryly able to answer the challenges of an era that is always changing. Environmental cleanliness is broadly an effort to maintain the sustainability and balance of nature because by maintaining the cleanliness of the living environment becomes healthier. In addition, environmental pollution can be minimized. Maintaining the cleanliness of the environment starting from oneself, family, school and the community at large. Education is a process that includes three dimensions, the individual, society or national community of the individual, and all the contents of reality, both material and spiritual which play a role in determining the nature, fate, form of humans and society (Nurkholis, 2013).

Education is the backbone of the formation of national character. The strategy for forming the nation's character through education can be done by learning. Through education, it is hoped that quality human beings will be produced and fully developed so that they can play an active role in nation building (Ariyani & Wangid, 2016).

Education is not merely providing information and forming skills, but includes efforts to realize individual desires, needs and abilities so as to achieve a pleasant personal and social lifestyle. Education is not solely for present life but as a means of preparing for life in the future, so that it is proactively even anticipatory capable of responding to the challenges of an ever-changing era. Cleanliness of the environment in a broad sense is an effort to preserve and balance nature because by keeping the environment clean, life becomes richer healthy. In addition, environmental pollution can be minimized. Maintain cleanliness environment starting from oneself, family, school and society in general.

Learning based on the environment will help students to adjust himself with his surroundings. Environmental-based science learning or learning by using environment-based teaching materials will motivate participants students who can ultimately improve student learning outcomes, will improve cooperation between teachers, students and the environment so that learning will become more pleasant. School is an educational institution as a form of conscious effort in creating a learning atmosphere and learning process for students (Wonda et al., 2022).

Cleanliness of the environment in general is an effort to preserve and balance nature because keeping the environment clean makes life healthier. In addition, environmental pollution can be minimized. Keeping the environment clean starts with oneself, family, school and society at large.

Learning based on the environment will help students to adapt to the circumstances of the surrounding environment. Environmental-based science learning or learning using environment-based teaching materials will motivate students which can ultimately improve student learning outcomes, will increase collaboration between teachers, students and the environment so that learning will become more enjoyable.

In the learning process there are several important problems that are often faced by teachers in learning activities related to

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teaching materials, namely teachers are less able to choose and determine appropriate learning materials or teaching materials in order to help students achieve competence. This is due to the fact that in the curriculum or syllabus, teaching materials are only written in outline in the form of "subject matter". The teacher's task is to describe the subject matter so that it becomes a complete teaching material. according to the characteristics of students. Most teachers use teaching materials that have been prepared by the national education department which are generally arranged for general use throughout Indonesia. The learning environment can affect the academic development and psychological abilities of every human being in his life, including children. Learning is an interaction students with educators then learning inseparable from education and learning resources taught in a learning environment (Sultan & Tirtayasa, 2022).

An understanding of cleanliness can be taught and exemplified to students by getting used to throwing garbage in places, before and after eating something by washing their hands first, looking after and caring for plants in the school environment, keeping the classrooms and school environment clean. This is done as an effort to get used to it, so students will get used to doing this wherever they are. By getting used to this the environment will feel comfortable and clean and far from air pollution so that it makes us healthier. This study aims to produce environment-based teaching materials on environmental pollution material to help students understand healthy and clean living material.

THEORETICAL SUPPORT

Permendikbud number 65 of 2013 concerning process standards says that the teaching and learning process in educational units is carried out interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for initiative, creativity, and independence according to their talents, interests, and the physical and psychological development of students. All of the above learning principles lead to student-centered learning by developing all the potential that exists in students or students (Salam et al., 2017).

Teacher creativity in determining and finding appropriate teaching materials for students is very necessary. Developing teaching materials is an activity to design innovative learning resources as new learning resources from pre-existing learning resources, existing teaching materials have differences both in terms of structure and content. The structure can be simpler and specific to a topic, the content can be more detailed and in-depth and has its own nuances (Kapitan, Harsianti & Basuki, 2019). One of the teaching materials used is the module. According to (Lasmiyati & Harta, 2014) the advantages of learning with modules are (a) modules can provide feedback so that students know their deficiencies and immediately make improvements, (b) in the module set clear learning objectives so that student learning performance is directed towards achieving learning goals, (c) modules that are designed to be attractive, easy to learn, and able to answer needs will certainly motivate students to learn, (d) modules are flexible because module material can be studied by students in different ways and at different speeds, (e) collaboration can be established because by competition modules can be minimized between students and students, and (f) remedial can be done because the module provides sufficient opportunities for students to be able to find their own weaknesses based on the evaluation given.

Development of learning is an effort to improve the quality of teaching materials, schemes and lesson content (Indah & Dafit, 2022). It is said to be complex because of the many values and human factors involved in it.

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It is said to be very important, because learning is an effort to form a good human being. Failure to learn can ruin a generation of people. Some understand that learning cannot be equated with education. Learning is more often understood in the sense of an activity involving the development of children regarding cognitive and psychomotor aspects solely, namely so that children have more knowledge, are more capable of critical, systematic and objective thinking, and are skilled at doing something, for example skilled at writing, swimming, repair electronics and so on (Zein, 2005).

Learning Materials are student external factors that are able to strengthen internal motivation to learn. One of the learning events that can influence learning activities is to include learning materials in these activities. Completely designed learning materials, in the sense that there are elements of media and adequate learning resources will affect the learning atmosphere so that the learning process that occurs in students becomes more optimal. With learning materials that are well designed and equipped with interesting content and illustrations, it will stimulate students to use learning materials as learning materials or as learning resources (Hernawan et al., 2008).

Ermanda & Ariandani (2020) said that environment-based learning would help students adapt to their surroundings. Learning by using environment-based teaching materials will motivate students which can ultimately improve student learning outcomes, improve collaboration between teachers, students and the environment so that the teaching and learning process becomes enjoyable. And can stimulate students to learn meaningfully, where students are encouraged to develop their competencies, solve problems around life and form students who care about the environment.

METHOD

This research was carried out in April-October for the 2018/2019 academic year at Riau Islamic University, Faculty of Teaching and Education, Biology Study Program. The research sample consisted of 41 students. This type of research is survey research with a qualitative descriptive approach. The data obtained was analyzed using quantitative data analysis techniques.

This research belongs to research and development or known as Research and Development (R&D). R&D is defined as a research method that is intentional, systematic, aimed/directed to formulate, improve, develop, produce, test the effectiveness of products, models, methods/ strategies/ ways, services, certain procedures that are superior, new, effective, efficient, productive and meaningful (Suparman, 2014). R&D aims to produce products in various aspects of learning and education, which are usually directed to meet certain needs. Meanwhile (Sanjaya, 2014: 129) says "Research and Development is the process of developing and validating educational products". Sugiyono, 2015) states that research and development is a scientific way to research, design, produce and test the validity of the products that have been produced. In the world of education according to (Sugiyono, 2015) this research and development strategy is widely used to develop models of design or learning planning, learning processes or implementation, learning evaluation and learning program models.

The following is a grid of validation sheets for material experts, media experts, and learning experts which can be seen in Table 1, Table 2, and Table 3 respectively.

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Table 1. Grid validation sheet for material experts

No.	Aspect	Indicator	Number of Statements	Statement Number
1.	Content Eligibility	Conformity with SK, KD	1	1
		Suitability to student needs	1	2
		Conformity with the needs of teaching materials	1	3
		Truth of material substance	1	4
		Benefits to increase knowledge insight	1	5

Source: (Musarofah, 2019)

Table 2. Grid validation sheet for media experts

No.	Aspect	Indicator	Number of Statements	Statements Number
1.	Graphic	Font usage (type and size)	1	1
		Display design	1	2
		Ilustrations, picture	1	3
		Layout	1	4

Source :(Musarofah, 2019)

Table 3. Grid validation sheet for learning experts

No.	Aspect	Indicator	Number of Questions	Statement Number
1.	Language	Legibility	1	1
		Compliance with the rules Indonesian language	1	2
		Use of language effectively and efficiently	1	3
2.	Present	Clarity of learning objectives	1	4
		Serving order	1	5
		Providing motivation	1	6
		Interactivity (stimulus and respond)	1	7

Source : (Musarofah, 2019)

Data analysis used the scale method with a modification of the Likert scale. The Likert scale is a psychometric scale used in questionnaires, revealing one's attitudes and opinions towards a phenomenon. Respondents' responses in the form of quantitative data, expressed in the form of a range of answers starting from 1 (strongly disagree) = if no descriptors appear, 2 (disagree) = if only one descriptor appears, 3 (neutral) = if only 2 appear descriptors, 4 (agree) = if only three descriptors appear. 5 (strongly agree = if all four descriptors appear). This scale is used to become 5 scale answers so that the respondent's responses are clearer in which position.

If all four descriptors appear in the questionnaire, then the respondent's answer will be rated 5 and have appropriate criteria. And so on until the answer choices do not appear descriptors, then the respondent's answer will be rated 1 and has inappropriate criteria. After all the respondents' answers have been collected, the total score of the

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respondents is calculated by finding the expected score for each aspect of the assessment and all aspects. The components of the assessment aspects that are assessed include aspects of content feasibility, graphical aspects, linguistic aspects, presentation aspects. Then percentages are made so that a conclusion can be drawn about how appropriate the learning module can be used in the learning process.

As well as the data analysis technique used is descriptive analysis which describes the validity of the environment-based module for clean and healthy living materials developed with validation test results in the form of a value of 1-5. This data was then analyzed according to the following criteria:

BS = Very Good with a score of 5
B = Good with a weight of 4
C = Enough with a weight of 3
K = Less with a weight of 2
SK = Very Poor with a weight of 1

In this study, the percentage validity of the environment-based module will be calculated for four types of evaluators. The first is a material expert, the second is a media expert, the third is a learning expert (teacher), and the fourth is a student as a respondent. The validator's and respondents' responses in the form of quantitative data are expressed in the form of validity criteria in Table 4.

Table 4. Criteria for validity according to the validator's assessment

No	Validity Category	Validity Level
1	85,01% - 100%	Very valid, or can be used without any revision
2	70,01% - 85%	Valid enough, or can be used but needs minor revision
3	50,01% - 70%	Invalid, it is recommended not to use it because it needs major revisions
4	01,00 – 50%	Invalid, or may not be used

Source: (Akbar, 2016)

Calculation of the percentage level of validity of teaching materials uses the method exemplified by (Akbar, 2016). The formula for calculating the average score for each data (validation by media experts, material experts, learning experts (teachers), and student responses) that has been collected is as follows:

$$\bar{x} = \frac{\sum X}{n}$$

Description:
$\bar{x}$ = Average score
$\sum x$ = The number of assessor scores
n = Number of appraisers

In this study, the percentage of feasibility of learning media will be calculated based on the feasibility aspects of the content, graphical aspects, linguistic aspects, presentation aspects. Calculation of the percentage of the feasibility level of environment-based module teaching materials using namely:

$V_{me} = \frac{Tse}{Tsh} \times 100\%$ $V_{ma} = \frac{Tse}{Tsh} \times 100\%$

$V_{pm} = \frac{Tse}{Tsh} \times 100\%$ $V_{g} = \frac{Tse}{Tsh} \times 100\%$

$V_{p} = \frac{Tse}{Tsh} \times 100\%$

Source: (Akbar, 2016)

Description:
V_{me} = Media expert eligibility validation
V_{ma} = Material expert eligibility validation

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V*g* = Validation of the feasibility of learning experts
V*p* = Student validation
T*sh* = The maximum expected total score
T*se* = Empirical total score (due diligence results from the validator).

RESULTS

The results of validation by material experts have aspects of content eligibility, media validation has graphical aspects and learning validation has aspects of validity which can be seen in Table 5.

Table 5. Results of Validation by Material Experts

No.	Validation	Rated Aspect	Persentase	Validity Level
1.	Material Validation	Content Eligibility	96%	Very Valid
2.	Media Validation	Graphic	100%	Very Valid
3.	Learning Validation	Validity	100%	Very Valid
		Average	100%	Very Valid

Source: Researcher Data (2022)

The results of the material expert validation show that the developed teaching materials are very valid with an average percentage of 96% and the media expert validation shows that the developed teaching materials are very valid with an average percentage of 100%. The results of the validation of learning experts show that the teaching materials developed are very valid with an average percentage of 100%. So that the average of all validators is 98.7% with a very valid category.

DISCUSSION

The environment is part of the universe that can be used as a source of learning. An environment that has a carrying capacity becomes a learning resource that can motivate students to carry out learning activities (Istiani & Retnoningsih, 2015). This is in line with Hamid's opinion (2021) where environment-based learning can develop students' thinking skills. In addition, this learning approach can provide student motivation and improve student skills. This is very logical, because students already have basic knowledge of the material they are studying. Thus, teachers can easily guide and provide direct learning experiences through activities that are hands on and minds on. However, to achieve these conditions requires careful planning. This is closely related to the teaching materials used in class, so that student activities in class are very focused and really focused (Salam et al., 2017).

The development of environmental-based teaching materials for clean and healthy living materials is one of the efforts to direct the teaching and learning process in class, so that it fits the ultimate learning objectives. One way to motivate students to understand and care about the environment is to develop teaching materials such as modules. The purpose of using the module is to help students learn independently, making it easier for students to understand the material because it contains a complete description of the material accompanied by contextual examples (Marlina, Hardigaluh & Yokhbed, 2015). In the process of developing teaching materials, it must be feasible, in the sense that it meets valid criteria (according to its designation), practical (easy to implement), and effective (goals achieved). Thus sufficient time is needed in order to be able to process a teaching material so that it is truly feasible to use (Salam, 2016). education.

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The aspects that are validated in clean and healthy living environment-based teaching materials are content, graphics, legitimacy, and presentation aspects. The results of this validation test are then calculated for the eligibility value of the teaching materials.

Material validation has the objective of obtaining product quality data on the eligibility of the content which includes the content and objectives as well as the quality of learning. In this case it describes the accuracy of the learning materials for the media being developed. Material validation was carried out by one material expert, namely Biology Education Lecturer at Islamic University of Riau Dra. Suryanti, M.Si. The results of the validation of environmental-based teaching materials for clean and healthy living materials show an aspect of content feasibility of 96% at a very valid validity level. Thus the results of the validation show that the teaching materials that have been developed are suitable for use as teaching materials for clean and healthy living materials.

Furthermore, media validation was carried out by media experts, namely Mrs. Fitriyeni, S.Pd., M.Pd. The media expert validator's assessment of environment-based teaching materials on clean and healthy living material includes one aspect, namely the graphical aspect. The results of media validation on the graphical aspect obtained a percentage of 100% with a very valid validity level. This shows that teaching materials on graphical aspects are appropriate for use in the learning process. This requires educators to be able plays a role as a motivator and learning facilitator. One of the facilities that educators can give to participants students to support active activities learning is by making materials teach (Dewi & Meilina, 2022).

Furthermore, learning validation was carried out by learning experts, namely Ms. Dea Mustika, S.Pd., M.Pd. Learning expert validator's assessment of environment-based teaching materials on clean and healthy living material includes one aspect, namely the graphic aspect. Learning validation results obtain a percentage of 100% with a very valid validity level. This shows that the teaching materials are appropriate for use in the learning process. Teaching materials take many forms and variety. Therefore develop teaching materials are appropriate so that they continue improved by educators. If a teacher does not have competence in develop a variety of teaching materials, innovation, and creative then the teacher will be trapped in monotonous learning situations as well tends to bore students. Because that, as educators need to make or design the ideal learning, in order learning can be effective, fun, and achieve learning goals (Fatmawati et al., 2022) (Fatmawati et al., 2022).

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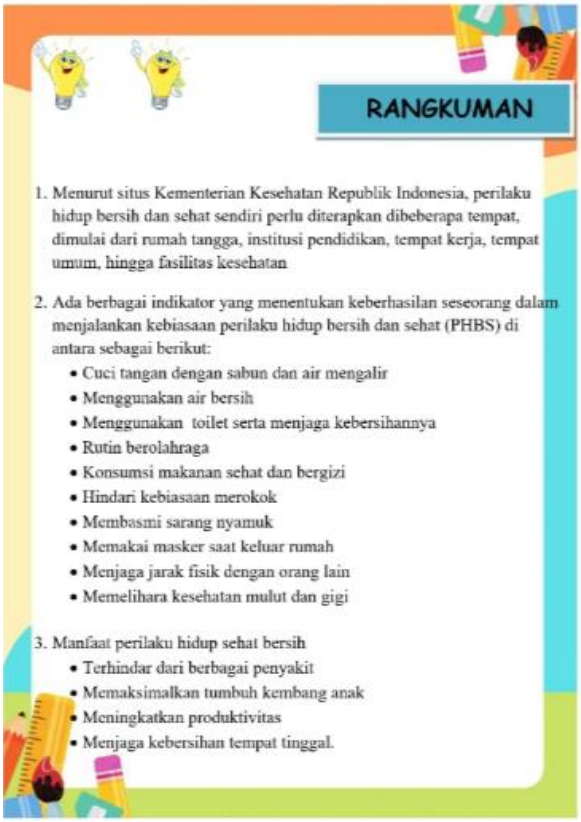

Figure 1. Cover, Instructions for Use, Summary and Evaluation of the Module

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In the current learning process there are still many teachers or educators who only teach their students only through thematic package books, while the discussion contained in the textbooks is still minimal in discussion while each lesson consists of several subjects combined in the thematic learning or the 2013 curriculum so that learning is still less innovative and creative so that learning materials based on lessons only rely on teacher books, student books and makeshift learning media, so that the learning process runs normally without any feedback or responses from students in learning that is more interesting and more serious in understanding and insight into students' thinking (Mubarak et al., 2021).

Based on these findings results development has a good influence on achieving student success in learning. In addition, student learning achievement is also supported by the suitability of module development intended for students. Thus, based on the final study, it was said that the developed mathematics learning module was appropriate for use in mathematics learning in schools related to increasing conceptual understanding and students' interest in learning mathematics (Lasmiyati & Harta, 2014)

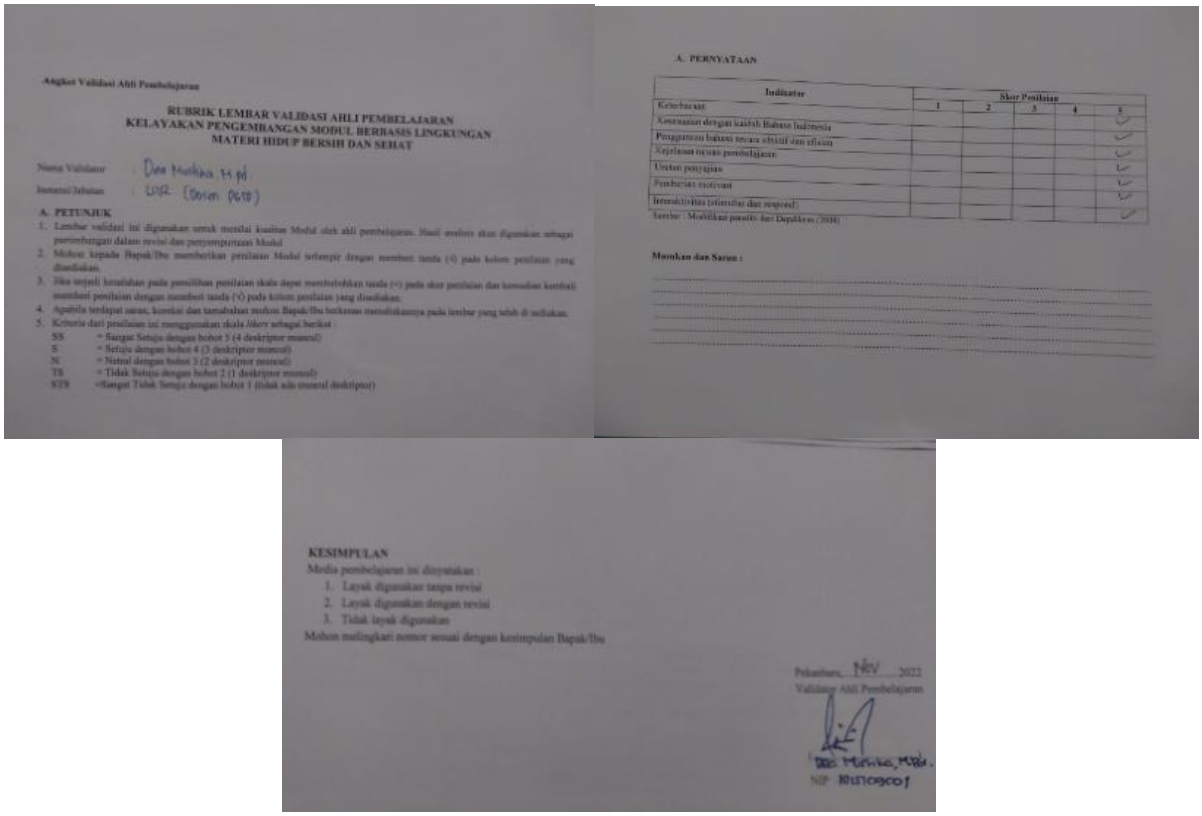

Figure 2. Learning Expert Validation Results

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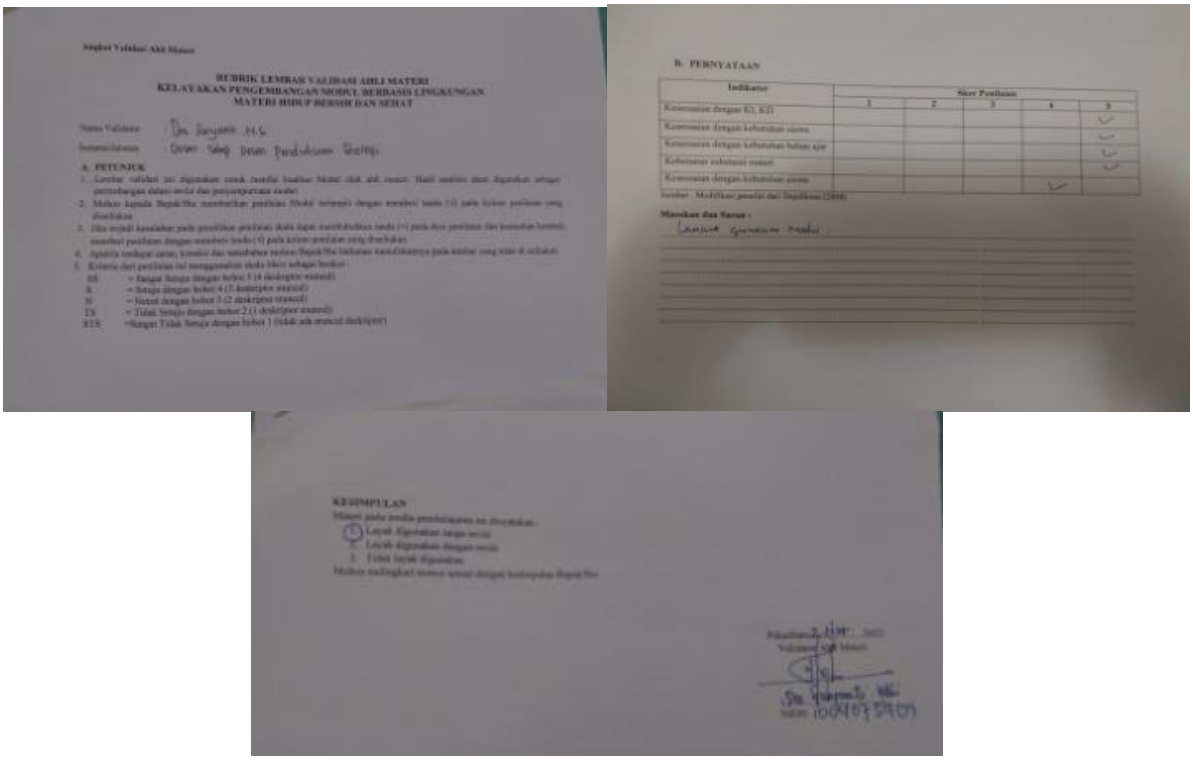


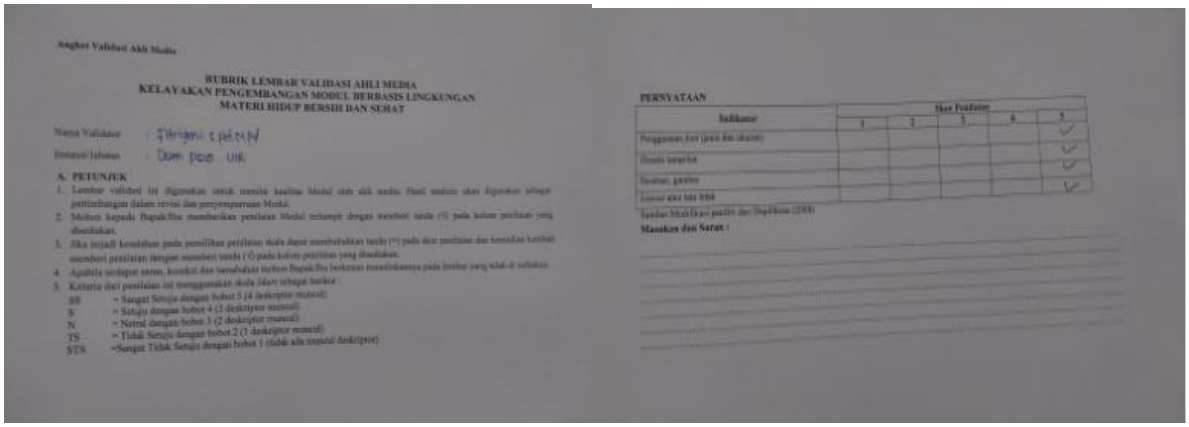
RUBRIK LEMBAR VALIDASI AHLI MATERI
KELAYAKAN PENGEMBANGAN MODUL BERBASIS LINGKUNGAN
MATERI HIDUP BERSIH DAN SEHAT

A. PETUNJUK

B. PERNYATAAN

KESIMPULAN

Figure 3. Material Expert Validation Results



RUBRIK LEMBAR VALIDASI AHLI MEDIA
KELAYAKAN PENGEMBANGAN MODUL BERBASIS LINGKUNGAN
MATERI HIDUP BERSIH DAN SEHAT

A. PETUNJUK

PERNYATAAN

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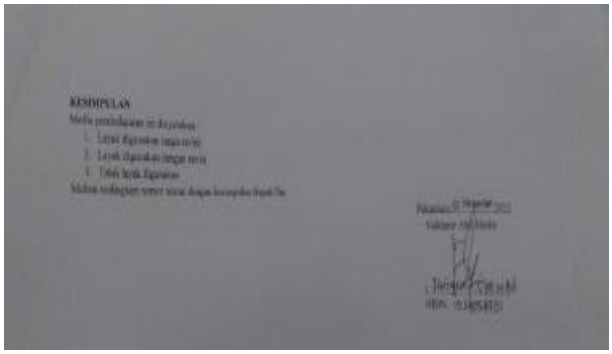

Figure 4. Media Expert Validation Results

CONCLUSIONS

Based on the results of the study it can be concluded that the development of environmental-based teaching materials for clean and healthy living materials in class II which was validated by 3 experts namely, 1 material expert, 1 media expert and 1 learning expert showed that the teaching materials used were very suitable for use in the learning process where on material validation consisting of one, namely the content feasibility aspect, obtaining a percentage of 96% with a very valid validity level, then on material validation consisting of one aspect, namely graphics, obtaining a percentage of 100% with a very valid validity level, and learning validation consisting of two aspects, namely validity and graphics, have an average percentage of 100% with a very valid validity level.

To motivate students, teachers should have ways to improve student learning outcomes, one of which is by developing teaching materials in the form of modules, worksheets and other learning tools. by doing this students are more motivated in learning because the development that is carried out is more interesting and according to needs.

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