JPPIPA 9(5) (2023)

Jurnal Penelitian Pendidikan IPA

Journal of Research in Science Education

http://jppipa.unram.ac.id/index.php/jppipa/index

The Development of STEM-based Worksheet in Elementary School

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Received: March 27, 2023
Revised: May 26, 2023
Accepted: May 29, 2023
Published: May 31, 2023

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DOI: 10.29303/jppipa.v9i5.3501

Abstract: To develop students' 21st century skills, it is necessary to develop STEM-based worksheet to provide learning that links knowledge and technology with contexts in everyday life so as to create learning that is able to prepare students to compete in the future. The main focus of this research is the development of a feasible STEM-based worksheet in science education in elementary school. This research is a Design and Development study with the ADDIE model which consists of the analysis, design, development, implementation and evaluation stages. Based on the analysis of the curriculum, needs, and the learning environment of students, STEM-based worksheet is developed. The worksheet was assessed for its feasibility by experts and teachers. In addition, user parents/guardians and students are given response assessments. The evaluation of experts and teacher practitioners shows that the teaching material is considered very suitable for use ($\bar{x} = 90.7\%$).

Keywords: Elementary School; Science; STEM; and Worksheet

Introduction

This 21st century is the beginning of the third millennium of mankind. In this century, many changes have occurred in human life. These changes cover various fields as a result of the rapid development of technology and information science that removes space and time boundaries for humans to explore information and communicate. The development of technology and information has brought people to a new era of global challenges and competition in all parts of the world, including Indonesia. Therefore, Indonesia needs quality human resources who are able to compete in dealing with these global challenges and competition.

Based on the "21st Center Partnership Learning Framework" Darmadi (2018) competencies that must be possessed by 21st century human are critical thinking and problem solving skills, communication and collaboration, creativity and innovation skills, information and communication technology literacy, contextual learning skills, and information and media literacy. This is in line with the opinion of Nichols (2019) which states 4 Essential Rules of 21st Century Learning, namely the learning approach must focus on students, education must be collaborative, learning must be contextual and schools must facilitate students to be involved in their community environment. Based on this, science learning in elementary schools as part of education plays an important role in preparing human resources who are able to overcome future competition because basic education is the foundation for the growth of a technological society which is the capital to follow the development of science or natural sciences (IPA) and technology (Windyariani, 2019).

The essence of science according to Susanto (2016) consists of three parts, namely natural science as a product, process, and attitude. Science is a science that studies nature and everything in it, as well as the phenomena that occur in it Sujana (2014), as the foundation for advances in science, science learning technology is indispensable in everyday life to meet human needs through solving problems that occur. can be identified (Hisbullah & Selvi, 2018) which are taught

How to Cite:
Agustina, N.S., & Yanthi, N. (2023). The Development of STEM-based Worksheet in Elementary School. *Jurnal Penelitian Pendidikan IPA*, *9*(5), 3839–3848. https://doi.org/10.29303/jppipa.v9i5.3501

from an early age (Noperman, 2020), for example at the elementary school level (Sujana, 2014).

The role of science as the basis for technological development implies that progress in mastery of technology is a necessity when students' mastery of science is still low. In the 2018 PISA (OECD, 2019) research, Indonesian students scored 396 for science. This score is lower than ASEAN countries such as Malaysia, Brunei Darussalam, and Thailand. In the TIMSS (TIMSS, 2015) research in 2015, Indonesia in the field of science was ranked 44th out of 47 countries with a score of 397, lower than other ASIA countries such as Singapore, Korea, Japan and China.

The causes of unsuccessful science learning include not involving students actively in learning and not providing concrete learning. Based on Utami et al., (2018) research, mastery of competence and mastery of material increased from 75% to 100% with the change in the learning pattern of teacher centered to student centered. Windyariani (2019) states that the problem of learning science is the assumption in students that this lesson is difficult to understand because of the emphasis on understanding the basic concepts and basic understanding of science that is not related to things related to context in everyday life. Thus, teaching materials that are relevant to the concept of contextual life of students are needed that integrate the development of science, technology, engineering and mathematics (STEM) knowledge and its application in solving problems.

Simarmata et al., (2020) state that STEM learning can make learning centered on students. The teacher provides freedom of thought and freedom of action to students in understanding knowledge and in solving problems. Learning using the STEM approach is interesting and provides space for thinking in solving real-world problems critically and creatively through project design based on problem-solving processes such as those used by engineers and scientists (Nuraeni, 2020; Sukmana, 2018; Williams, 2011). The four fields in STEM which are integrated in learning make learning meaningful (Khairiyah, 2019). According to Fatmawati et al. (2015) "*STEM has the objective of developing knowledge, conceptual understanding, critical thinking skills, inviting students to contribute to economic development, understanding themselves and the world* ...". The STEM learning approach invites students to learn constructively which involves students actively through learning that develops cognitive, affective and psychomotor abilities in accordance with the students' environment.

Engineering design process is an inseparable part of STEM. Engineering applies concepts from mathematics, science, and technology to solve complex problems systematically (Capraro et al., 2013). The stages of the Engineering Design Process consist of identify problem and constrains, research, ideate, analyze ideas, build, test and refine, and communicate and reflect.

Based on the figure, the EDP stage consists of identifying problems and constraints, research to formulate and analyze information, build ideas, compile products, test products, communicate and describe the product. Engineering design process helps students identify linkages of STEM components in project design activities. This is evidenced by research conducted by Estapa & Tank (2017) that the engineering design process as a context for the learning process has succeeded in helping students identify connections to STEM content that are implemented with learning. The engineering design process becomes a form of learning, as long as the learning process produces detailed answers on aspects of reflection and identification. In addition, et al., (2020) suggest that one way to improve STEM learning practices is to maintain the principles of science, technology, engineering, and mathematics in engineering activities, research activities and design according to the stages. engineering as the key point for implementing STEM learning.

Of course, in order for STEM learning to be effective, learning support facilities such as teaching materials must be designed as well as possible. According to the Depdiknas, (2008) teaching materials are a guideline for teachers and students who will mobilize all their activities in the learning process, as well as a competency substance that students must master. One of the components of teaching materials that are often used in science learning is the student worksheet Abdurrahman (2015) Learning by using worksheet provides many benefits, including being able to change the learning atmosphere from teacher centered to student centered (Astawan & Agustiana, 2020). The worksheet that is arranged must be able to develop the abilities of students (Kaligis & Darmodjo, 1992). Furthermore, Darmodjo and Kaligis explained that the worksheet serves as a guide for students to find out, has a variety of stimuli through various media and student activities, part of the learning experience is determined by the personal development goals of students.

The development of STEM-based worksheets plays an important role in development design (Irfana et al., 2019). STEM-based worksheet can improve students' creative thinking and critical thinking skills (Lestari et al., 2018), increase scientific literacy (Silvia & Simatupang, 2020) and student learning motivation which affects the learning activities of students who become more active (Adlim & Mursal, 2015). Merrill & Daugherty, (2009) states that STEM-based worksheets show integration, and content is not divided, but is in an important unit in learning. STEM-based worksheet helps students to be active in learning and helps connect science with everyday life.

The use of application worksheets from mathematics and science to various engineering concepts will help students to connect science concepts with technology, problem solving, design, and the application of classroom learning in real life (Rockland et al., 2010). Based on this description, especially at the elementary education level, the researchers assumed that there was a need for the development of STEM-based worksheet in class V science learning regarding heat transfer material to provide learning that linked knowledge with contexts in everyday life in an integrated manner between science, technology, engineering, and math. The use of STEM-based worksheet is expected to be able to increase the knowledge and skills of students in solving daily problems by integrating science, technology, engineering, and mathematics so that learning becomes meaningful.

Method

The research method used in this research is design and development research using the ADDIE model which includes the stages of analysis, design, development, implementation and evaluation activities.

Table 1. Worksheet Assessment Sheet Instrument Grid

Assessors	Aspect
Content expert	Content eligibility
	Presentation
Media expert	Graphic
Linguist	language
Teacher	Content eligibility
	Presentation
	Graphic
	Language
students	Contents
	Presentation
	Graphic
	language
Parent	Contents
	Graphic
	language

This research is qualitative and quantitative (mixed methods research) using a non-test instrument in the form of a questionnaire (questionnaire). The questionnaire is used to determine the feasibility of the teaching materials compiled. The questionnaire used consisted of a validation questionnaire from experts, teachers and students. While the assessed aspect of the developed worksheet can be seen in table 1. The score obtained from the questionnaire are added and then converted into a percentage using the Formula 1.

$$percentage = \frac{total\ score}{maximum\ score} \times 100\% \quad (1)$$

The data obtained is processed and interpreted in narrative form with the criteria according Riduwan (2019) in Table 2.

Table 2. Likert Scale Score Interpretation Criteria

Achievement Level	Interpretation
81% - 100%	Very worthy
61% -80%	Worth it
41% - 60%	Decent enough
21% - 40%	Less feasible
0% - 20%	Very less feasible

Result and Discussion

Worksheet development is based on the ADDIE model which includes the analysis, design, development, implementation, and evaluation stages. First, an analysis of student needs is carried out by analyzing the curriculum, ageneeds, prerequisite abilities, and analysis of learning environment. Researchers developed STEM-based worksheet for elementary school vs primary school students on heat transfer material. Grade V students of SD Negeri Palipurna have an age range of 11-12 years who are at the formal operational level.

Based on the document study of worksheet which is commonly used by students in thematic textbooks for students, it has included the tools and materials needed as well as detailed activity instructions. This results in low involvement and independence of students in learning. Starting from this, it takes a lot of inquiry activities so that students can think creatively through problem solving activities so that learning outcomes are more meaningful. This can be realized through learning activities in the STEM approach. Therefore, the researcher developed STEM-based worksheet which was designed based on constructivist learning theory so that learning was student centered.

The teacher has a very important role in the learning process. The teacher has a role to design learning activities that will be carried out by students. However, with the current conditions, parents/ guardians are required to become teachers for students. Therefore, to help parents/guardians become teachers for students, a STEM-based worksheet companion book was developed. Based on the research of Chase et al., (2019), it shows that the instructional dialogue from the teacher produces a dialogue between the teacher and students, which shows a strong relationship between the instructional dialogue from the teacher and the ability of students to connect new knowledge with their understanding. This shows that the dialogue from the teacher plays a key role in bringing out the cognitive involvement of students. In addition, this study also suggests a guide for teachers which contains lots of instructions for students to build and generate new ideas

to improve student's abilities in adapting their knowledge to new information.

Second, the information obtained at the analysis stage is used as a basis for the design stage. At the design stage, a worksheet design is made that refers to selection of basic competencies and the arrages indicators and learning objectives that students must achieve. The basic competencies selected can be seen in table 3.

Table 3. Mapping of the Basic Competencies Selected at the Grade 5 Level

Subjects		Basic Competencies
Science	3.6	Apply the concept of the heat transfer in real life
	4.6	Reports the result of observation about heat transfer
Mathematics	3.8	Explain the presentation of data related to student and compare it with data from the surrounding environment in the form of list, tables, diagrams, pictures (pictograms), bar charts, or line charts.
	4.8	Organize and present data related to student and compare it with data from the surrounding environment in the form of list, tables, diagrams, pictures (pictograms), bar charts, or line charts.

The reasons for choosing there basic competencies are 1) there is a link between basic competencies in mathematics and science subjects so that they can be integrated into worksheet, 2) The scope of heat transfer material and data presentation contained in the basic competencies of Science and Mathematics can be integrated with technology and engineering elements related to the context of situations in everyday life, 3) Basic competencies include the development of abilities in the cognitive, affective, and psychomotor domains.

As for the prerequisite concepts that students previously had to have was a source of the heat energy and data collection in science and mathematics learning in grade 4. Basic Competency determines learning indicators and learning objectives which contain operational verbs from Bloom's taxonomy.

Based on the indicators and learning objectives that have been developed, there are four project activities in the STEM-based worksheet that have been developed, namely melting butter with a spoon, air ventilation aid, solar oven, and a simple thermos. The collected information is used to determine product design. The product design is prepared by worksheet and the companion book for worksheet is made using the Microsoft Word 2010 application including a display that utilizes feature shapes.

At the beginning of the book there is a summary of the heat transfer material, how to read a thermometer, as well as data presentation material and at the end of the worksheet there is a crossword puzzle related to project activities that students do. Based on the STEM approach, project activities in worksheet refer to the EDP stage. The project activities in worksheet consist of orientation, making hypotheses, goals, designing tools and materials, designing products, testing products, collecting data, evaluating, and analyzing and conclusions. The mapping of activities in worksheet based on the EDP stage consists of identify problems and constrains, research, ideate, analyze ideas, build, test and refine, and comunicate and reflect. Identification of problems and constraints is done first by understanding the orientation presented and answering the hypotheses shown in Figure 1.

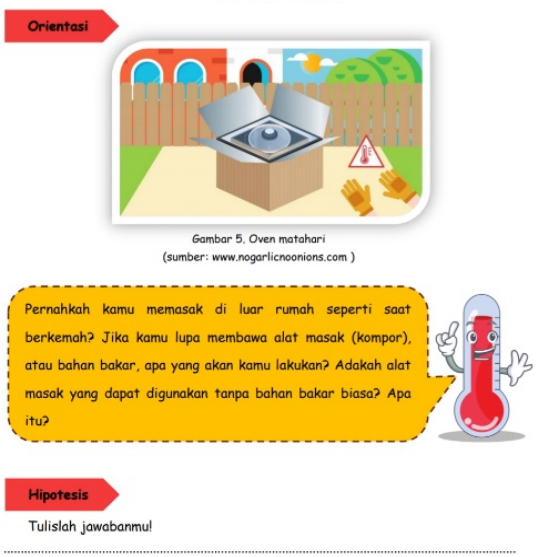

Figure 1. Identification of Problems and Constraints

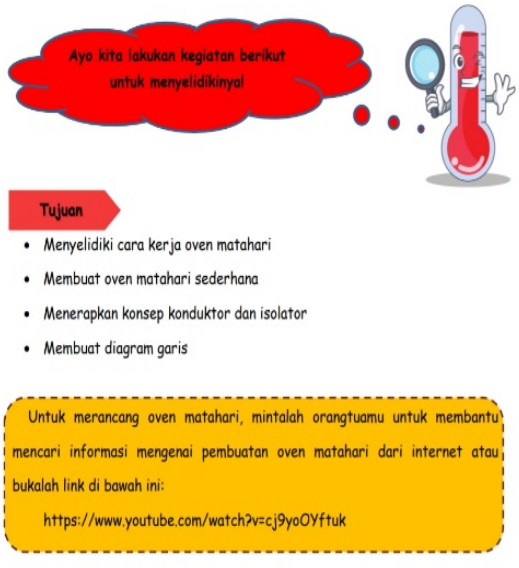

Figure 2. Research

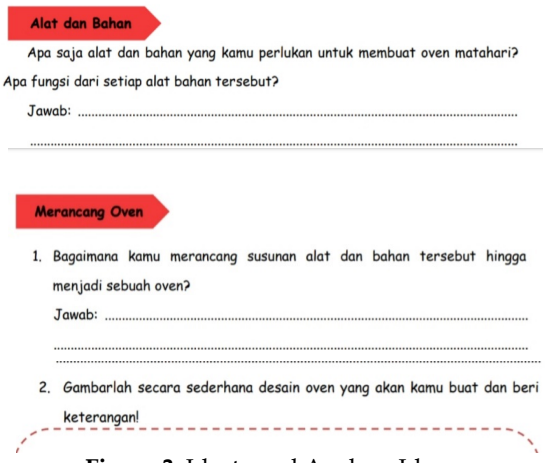

Figure 3. Ideate and Analyze Ideas

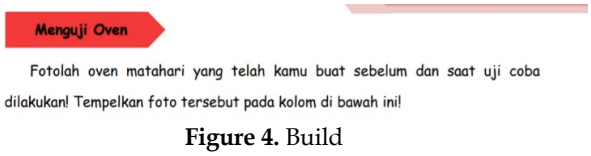

Figure 4. Build

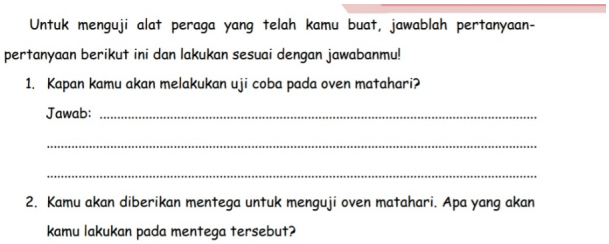

Figure 5. Test and Refine

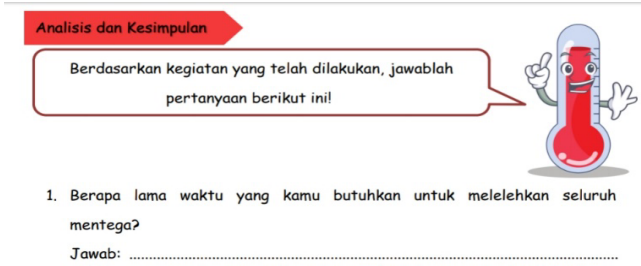

Figure 6. Communicate and Reflect

While the worksheet companion book contains guidance for parents to guide students to do learning with STEM-based worksheet. The contents of the manual for parents begin with a summary of the same material as the summary of the material in the student worksheet which is recommended to be studied first by parents before carrying out learning activities. The activities listed in the companion book begin with a preliminary activity containing guidance for parents in the form of instructions for parents to give apperception to students and questions that must be asked to students to explore students' initial knowledge and strengthen their solving skills. problems to the issues presented.

After the preliminary activities, the STEM-based workhseet companion book contains guidelines for parents in assisting students in carrying out learning. The order of presentation in the workhseet companion book is adjusted to the sequence of activities in the STEM-based workhseet. One project activity in the workhseet companion book consists of two points, namely the objective and activity steps. The objectives contain learning objectives that must be achieved by students while the activity steps contain guidance for parents and alternative answers to the directive questions listed in the student's workhseet.

In the activity steps section, tools, materials and experimental instructions are listed, as well as trial instructions as a reference for assistants. Details of the tools and materials required are accompanied by the function of the tools and materials. In addition, the experimental instructions are accompanied by pictures to clarify the instructions. After the softfile from the worksheet and the companion book have been compiled, the softfile is printed using A4 80 gr paper so that the pages printed back and forth are not wandering. The cover page used is ivory paper because this material is stronger and does not tear easily.

The worksheets prepared were then validated by three validators and assessed by 3 teachers. The validator consists of one material expert, namely UPI lecturers from the PGSD Study Program of Natural Sciences, STEM experts, one media expert from UPI lecturers for Multimedia Education study programs who are experts in design and one UPI language expert from PGSD study program in Indonesian. Meanwhile, the teacher's assessment was carried out by a grade V teacher consisting of two STEM expert teachers and one senior teacher. Furthermore, it was tested on five students from SD Negeri Palipurna accompanied by their parents. After conducting the trial, students and parents filled out a questionnaire on the developed worksheet. After expert validation, the teacher's assessment and testing obtained criticism and suggestions for improvement, then improvements are made based on the criticism and suggestions for improvement.

Table 4. Recapitulation of Assessments by Experts and Teachers

Assessors	Aspect	%	Interpretation
Content expert	Content eligibility	77.9	Worth it
	Presentation	82.5	Very worthy
Media expert	Graphic	91.3	Very worthy
Linguist	Language	91.1	Very worthy
Teacher	Content eligibility	96.8	Very worthy
	Presentation	92.3	Very worthy
	Graphic	95.6	Very worthy
	Language	97.8	Very worthy
	Total % on average		90.7%
	Interpretation		Very worthy

From the overall assessment carried out by material experts, media experts, linguists, and teachers, it is recapitulated into a complete assessment of the aspects of quality of content, presentation, graphics, and language.

Based on expert validation, the developed worksheet material contains material that meets the feasibility of content and presentation aspects. Based on the material expert's assessment, the material on the worksheet is in accordance with the basic competencies and learning indicators, and has accurate material including concepts, definitions, examples, cases, pictures, illustrations, terms and literature references. In addition, the worksheets developed are in accordance with the STEM approach, it is proven by material expert judgment that the worksheets developed are able to encourage students to get to know technology, search for literature, apply mathematical concepts, discuss with parents and provide opportunities for students to make products, testing products, and evaluating lack of ideas. There are indicators that get an assessment in the sufficient category on conformity with the STEM approach, namely points to provide opportunities for students to generate ideas and design products.

This is because the tools, materials, and manufacturing steps are listed in the companion book of the worksheet, it is feared that students will copy from the manual or parents who tell students directly. Apart from the feasibility of content, the worksheets developed also have a good presentation. Based on the expert judgment, the developed worksheet material has a high intensity of student involvement and also has consistent and coherent presentation of learning materials and activities so that learning is more interesting, easy to understand, and meaningful. The worksheets developed also provide practice questions, feedback, glossaries, bibliographies, and answer keys in the manual. From this description, the worksheet developed was declared feasible with a percentage of 80.2%.

Based on the media expert's assessment, the graphic aspect in the worksheet developed is very feasible with a percentage of 91.3%. According to media experts, the worksheet developed is in accordance with ISO standards, namely A4 size (210 mm x 297 mm). in addition, the developed worksheet has a cover design and content design that is in accordance with the graphic aspects. The cover design of the worksheet has elements of a consistent layout, has a good viewpoint, harmonious colors and clarifies functions, the font size in the book is more dominant and contrasts, does not have too many letter combinations, illustrations depict content, and illustrations that suit reality. . The content design has a consistent, harmonious, and complete layout. In addition, the content of the book does not use too many fonts, the use of font variations (bold, italic, all capital, small capital) is not excessive, the spacing between lines of text is normal, typography makes it easy to understand, illustrations reveal the meaning of objects and accurate illustration forms. and proportional according to reality.

Based on the linguist's assessment, the linguistic aspect of the STEM-based worksheets in science learning for grade V elementary schools on the heat transfer material was declared very feasible with a percentage of 91.1%. According to linguists, sentences used in worksheets are sentences that are effective and have the right structure, the terms used are standard and consistent, are able to convey information effectively and motivate students, are in accordance with the development of students, and have grammar and spelling that are right.

Based on the teacher's assessment, the worksheet developed was declared very feasible with a percentage of 95.6%. According to the teacher, the activities in the worksheet are in accordance with the STEM concept and can guide students to find and understand scientific concepts, technology concepts, simply and apply mathematical concepts appropriately. In addition, the images displayed can present concepts and increase/strengthen students' understanding. Therefore the teacher views that STEM-based worksheets in science learning for grade V elementary schools on this heat transfer material are very good, students feel happy and challenged in carrying out activities on the worksheet.

In addition, an assessment was carried out by parents and students to find out the responses from users to STEM-based worksheets in science learning for grade V elementary schools on heat transfer material. The ratings from parents are presented in table 5 and assessments of students are presented in table 6.

Table 5. Parental response

Aspect	Score	%	Interpretation
Content eligibility	283	94.3	Very worthy
Presentation	48	96.0	Very worthy
Graphic	122	97.6	Very worthy
Language	22	88.0	Very worthy
Total % on average			93.9%
Interpretation			Very worthy

Table 6. Response of Students

Aspect	Score	%	Interpretation
Content eligibility	117	93.6	Very worthy
Graphic	118	94.4	Very worthy
Language	24	96.0	Very worthy
Total % on average			94.7%
Interpretation			Very worthy

Assessment of material aspects is based on parents' views of the material presented in the worksheet and companion worksheets. Based on the parental assessment, the material can be understood easily by

students and parents, encourages curiosity, and trains students to make products based on science, technology, and mathematics. In addition, worksheets are also able to encourage students to apply the concept of heat transfer, apply the concept of data presentation, get to know simple technology, make products and provide opportunities for students to solve problems, generate ideas in product design, design products, test products, evaluate deficiencies. and planning improvements. Based on the parents' assessment, the material aspect obtained a percentage of 94.3% which, if interpreted, is in the very feasible category.

Based on the parents' assessment, worksheets are effective in helping students to learn and worksheets are effective in helping parents guide students in using worksheets in carrying out learning. Based on the parents' assessment, the presentation aspect obtained a percentage of 96% which, if interpreted, is in the very feasible category.

In addition, from the graphic aspect, parents view that the use of visuals such as images on worksheets and worksheet companion books helps students and parents understand the material, cover design and content of worksheets and worksheet companion books are interesting, as well as the letters used in worksheets and books. The companion worksheet is easy to read. Based on the parents' assessment, the graphic aspect gets a percentage of 97.6% which, if interpreted, is in the very feasible category.

Meanwhile, from the linguistic aspect, parents assess that the language used is easy to understand both on the worksheets used by students and in the accompanying worksheets used by parents. Based on the parental assessment, the linguistic aspect gets a percentage of 88% which when interpreted is in the very proper category. The accumulated assessment made by parents regarding the material, presentation, graphics, and language on the developed worksheets and worksheets is 93.9%, which when interpreted is in the very feasible category.

Based on the assessment from the students' point of view on the material aspect, the worksheets developed have material that is easy to understand, the activities presented in the worksheets foster curiosity, the activities in the worksheets train them to make products based on science, technology, engineering and mathematics, activities that are contained in interesting worksheets that they have never done before, and questions they can understand and work on. Based on the assessment of students according to what they experienced, the score for the assessment of the material aspects obtained a percentage of 93.6% which, if interpreted, is in the very feasible category.

The assessment of students on the graphic aspects of the worksheets developed is an image worksheet that is presented in an attractive and clear worksheet and makes it easy for students to understand the material or information presented, the cover design and contents of the worksheet are attractive, and the letters used are easy to read. Based on the students' assessment objectively, the graphic aspect obtained a percentage of 94.4% which, if interpreted, is in the very feasible category. Whereas in the linguistic aspect, students assess that the language used is understood. Based on students' assessment according to what they experienced, the linguistic aspect obtained a percentage of 96% which when interpreted was in the very feasible category. The accumulated assessments made by the participants on the material, graphics, and language on the worksheets developed were 94.7%, which if interpreted were in the very feasible category.

After expert validation, the teacher's assessment and testing obtained criticism and suggestions for improvement, then improvements are made based on the criticism and suggestions for improvement. Suggestions and improvements from experts and users are presented in Table 7.

Table 7. Criticism of Suggestions from Experts and Users

Assessors	Suggestion	Feedback
Media expert	There is no book description, preface and list of pictures	Add a book description, preface and a list of images
	The back cover is too plain	Adding a campus identity statement on the cover back.
Content expert	Project activities with the EDP stage the instructions for use should be presented in the form diagram or chart	Project activities with the EDP stage in the user manual are presented in chart form
	Give observations that the hot air is at the top.	Adding guiding questions to analysis activities and Conclusion

In addition to the above criticisms and suggestions, material experts also provide input to add heat transfer simulation videos to stimulate the initial understanding of students. This is to further maximize the engineering design process stages in learning which will be carried out especially for the stages of problem identification, research, building ideas, and analyzing ideas.

One way to prepare human resources who are able to overcome future competition is to carry out learning with the STEM approach. STEM is an instructional approach, which integrates the teaching of science and mathematics disciplines through the infusion of the practices of scientific inquiry, technological and engineering design, mathematical analysis, and 21st century interdisciplinary themes and skills (Creswell, 2016). STEM teaching and learning focuses on authentic

content and problems, using hands-on, technological tools, equipment, and procedures in innovative ways to help solve human wants and needs (Merrill & Daugherty, 2009). In learning with the STEM approach, students are invited to explore through real life-based projects. Project development carried out on the STEM approach effectively develops the attitudes, skills and knowledge of students so that they can improve critical thinking, creative thinking, problem solving, innovative and sustainability-conscious skills (Pontevedra & Afonso, 2019).

STEM learning is designed with process engineering design. The design process involves learning content knowledge needed for design, and adapting such knowledge to fit real-world design needs throughout the iterative evaluation and modification processes (Vongkulluksn et al., 2018) in order for STEM learning to be effective, design activities are made easier with worksheets (Wahyuni, 2019), learning support facilities such as teaching materials must be designed as well as possible because worksheets act as additional material to make it easier for students to understand what to learn (Yaumi, 2018). Worksheets are arranged following the engineering design process stages. On the worksheet students can record important information, objectives, and timeline for project work, product design, test data to reflection results (Nuraeni, 2020). Active question guides that contain instructions are needed to encourage students to build new ideas, explanations, and reasoning that facilitate STEM learning activities that aim to improve students' ability to adapt to understanding new knowledge (Chase et al., 2019).

To support STEM-based learning to make it more effective, appropriate teaching materials are needed. The appropriate teaching material is a worksheet. Worksheets are very suitable for use in heuristic and expository frameworks, which are very good for guided discovery activities and for providing development exercises (Pangabean & Danis, 2020).Worksheets make learning centered on students so that learning is more meaningful. Worksheets allow students to learn independently and make students more active in learning because they have to follow the activities in the worksheets according to existing provisions, the situation is more democratic so that it can lead to learning motivation (Septantiningsih et al., 2020). In preparing the worksheet there are several things that must be considered, namely 1) having a goal, 2) containing the processes and capabilities to be developed 3) a layout that shows activities logically and systematically, 4) the sentence structure is easy to understand, concise, concise, and clear, 5) pictures and illustrations help students, 6) have an attractive appearance (Pangabean & Danis, 2020).

Conclusion

Based on the results of research and assessment of the developed worksheets, it was concluded that STEM-based worksheets in class V elementary school science learning on heat transfer material very suitable for use ($\bar{x}$ = 90.7%).

Acknowledgments
With the completion of this research, we thank you to all parties who have provided participation, motivation, assistance, and direction in this research.

Author Contributions
Conceptualization, Nurul Saadah Agustina. And Novi Yanthi.; methodology, Design and Development Research; software, Microsoft Excel.; validation Dede Trie Kurniawan, Feri Hidayatullah Firmansyah and Yunus Abidin.; formal analysis. Skala Likert.; investigation Nurul Saadah Agustina.; resources, 5th grade students of SDN Palipurna.; data curation, Nurul Saadah Agustina.; writing—original draft preparation, Nurul Saadah Agustina.; writing—review and editing, Novi Yanthi; visualization, Nurul Saadah Agustina.; supervision, Novi Yanthi; project administration, Nurul Saadah Agustina.; funding acquisition, Nurul Saadah Agustina & Novi Yanthi. All authors have read and agreed to the published version of the manuscript.

Funding
This research no external funding

Conflicts of Interest
The authors declare no conflict of interest.

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