Students' Local Wisdom-based E-Worksheets Assisted with Liveworksheets for Hybrid Learning

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Abstract. This study aims at developing electronic Students Worksheets (LKPD, *Lembar Kerja Peserta Didik*) based on local wisdom assisted by Liveworksheets.com in the thematic learning involving fifth graders of Madrasah Ibtidaiyah implemented using Hybrid Learning. This study employs R&D research in worksheet development using a 4D model. The instrument used was a list of interview questions and questionnaires. The number of students involved for the product trial was 58 students from four Madrasah Ibtidaiyah in Palangka Raya City, Indonesia. The results showed that the e-worksheet were developed using a number of stages. The first stage is analyzing needs and curriculum. The second stage is designing the worksheet contents and making a feasibility test instrument. The third stage is development of feasibility test and revision. The fourth stage is dissemination containing product testing, packaging and distribution to schools. Based on the results of the feasibility test, the e-worksheet was in the "Very Eligible" category. The results of the trial at four schools showed that the e-worksheet was in the "Very Good" category.

Keywords: E-worksheet, Local Wisdom, Liveworksheets, Hybrid Learni

1. Introduction

The use of learning technology in post-pandemic learning activities is still carried out in schools. Some schools use a hybrid learning system, which is a combination of online and face-to-face learning systems. (Lating et al., 2006) explained that implementing hybrid learning requires an approach that involves participation from various parties, VSAT internet connectivity, and the use of open-source software is also recommended. The implementation of this strategy will reduce the digital divide. (Kazu & Yalçın, 2022) found that the rapid development of technology and the speed of access to information in the 21st century has led to distance education activities being adopted rapidly around the world. In the post-pandemic period, the term hybrid education is known, which combines traditional education with distance education. Hybrid learning is an endpoint in distance education, where technology and educational applications meet. Hybrid learning has become increasingly prevalent in the discourse of academic institutions and educational systems (Eyal & Gil, 2022). This means that students will maximize the learning process both at school and at home.

In synchronous hybrid learning, students are in different places, some are in class and others are online, and they engage in learning in a shared learning space (Bülow, 2022). This shows that the role of information technology is accommodating in the distance learning process. Various materials can be accessed via WhatsApp, Google Classroom, Zoom, YouTube and other social media. The use of these applications allows teachers to distribute electronic teaching materials efficiently and can be accessed from various types of communication devices.

1.1. Problem Statement

Bülow (2022) explained that in a hybrid learning implementation, students can be in different locations, some in class and others online, engaged in learning in a shared learning space. There are a number of challenges that teachers have to face; one example of such challenge is how to design a hybrid learning space. In accordance, (Sulistyo et al., 2021) revealed that there are some advantages and disadvantages of using online learning platform based on Indonesian students' perceptions towards online learning. The advantages are that students gain positive experiences while using online learning platform and it becomes a very effective and effective choice because online learning provides opportunities for them to have flexible activities that can be done anytime and anywhere, students will have new experiences, and they become more independent. However, for students who are less tech-savvy and have unstable internet connection, online learning becomes ineffective. They feel lack of communication and interaction with teachers and friends and still have difficulty understanding the material provided online.

Based on research conducted on 220 elementary school teachers in 30 districts/cities from 16 provinces in Indonesia, including in Palangka Raya City, it can be concluded that one of the biggest obstacles in distance learning is related to teachers' low ICT skills, minimal experience, low interaction with students, lack of learning media, and problems with learning methods, attendance, and evaluation. One of the solutions offered is the provision of e-learning media provided by the school (Pramana et al., 2021).

Shifting face-to-face learning to online learning has the potential to cause stress among parents and children due to lack of learning readiness. This may result in the psychological state of students (Suyadi & Selvi, 2022). Students at the kindergarten and elementary school levels must be given extra guidance, such as learning preparation, assistance in the learning process, and reporting learning results to the teacher (Aziz et al., 2022). Therefore, teaching materials or worksheets are needed to help parents and teachers in hybrid learning and/or distance learning.

The use of digital-based teaching materials can affect students' basic digital skills. Students' basic digital skills are one of the important elements in learning. One of the advantages of digital-based teaching materials is that they can be accessed with a mobile device (Liu & Lai, 2023). The use of mobile technology can improve students' learning efficiency (Kaczorowski et al., 2018).

One example of the use of technology-based teaching materials is e-Workbook or e-Worksheet. The role of teachers is significant in technology integration, including the use of teaching materials such as e-Worksheet. These digital teaching materials can reduce learning barriers, can incorporate evidence-based teaching practices and have the potential to expand teachers' reach in teaching (Kaczorowski et al., 2018).

In some districts in Central Kalimantan Province, there is still a problem of insufficient electrical power that impacts internet connections. Many teachers who teach in these areas face difficulties using the internet connection during school hours (Karani, 2018). Some other obstacles that arise in online learning as part of Hybrid Learning are the lack of student motivation and experience. In addition, teachers who have not mastered the e-teaching environment and still have difficulties in evaluating learning outcomes, and curriculum which includes resources and teaching processes (Assareh & Hosseini Bidokht, 2011).

Online learning can overcome the shortcomings of conventional learning because the model can be updated instantly and efficiently by users (Hoi et al., 2021). However, the application or media used in hybrid learning has some limitations. Some learning materials require materials to support the learning process in the online classroom. These materials can be in the form of images, videos, and audio needed to support students' learning (Febrianto et al., 2020).

Most educators have developed the main teaching materials, but still need complementary teaching materials. One type of teaching materials that can help teachers in online teaching is worksheets. (Töman et al., 2013) in their research found that the use of worksheets can make students more active and increase the students' success rate. Nevertheless, the teacher hopes that there will be worksheets that can help students learn independently to facilitate the learning process during the pandemic. The use of worksheets in elementary schools can help carrying out learning activities (Hamdu & Yulianto, 2018). The use of worksheets can increase the level of students' understanding of the material and their activeness (Douglas & Chiu, 2012).

Worksheets in general have a role in improving learning outcomes (Prasinta et al., 2021), learning experiences (Sri Utami et al., 2016) to students' collaboration abilities (Naila et al., 2020). However, in today's online distance learning, it takes more than the usual worksheets compared to those used in face-to-face meetings. Unfortunately, traditional paper worksheets lack multimedia and interactive presentations with physical objects, causing students to miss out on interaction with the physical context (Zhang et al., 2019). Students need practical worksheets that can be accessed from home. Therefore, in this study, researchers developed an electronic students worksheets (*LKPD, Lembar Kerja Peserta Didik*) (hereinafter refers to e-worksheet), which was practically used by students and parents and could be developed easily by teachers.

Based on interviews on October 11, 2021, conducted to fifth grade teachers at the four Madrasah Ibtidaiyah, schools were still conducting online learning by utilizing various learning support applications. The applications used are various included CBT, WhatsApp Groups, and Zoom. In some meetings, students were sometimes asked to come to school to take and submit materials for assignments. The learning process at school has never used any application-based e-worksheet. So far, teachers usually give questions to students, not in the form of worksheets with a complete structure starting from objectives, materials, activities and evaluations.

Based on the results of the needs analysis of the questionnaire, it was found that teachers in schools used the main material in the form of textbooks, only few teachers used modules and worksheets as well as videos. In addition, 72% of students stated that they needed worksheet that could be used online in distance learning in thematic learning. Among the four schools, 57% of students stated that teachers used worksheets in thematic learning. 87% of participants stated that they had used online teaching materials thus the researchers concluded that it was necessary to develop e-worksheet that could be accessed by students in learning. In addition, it was supported by 34% of students stated that the learning system they were doing was still online, and 38% of the learning system was in the form of Hybrid Learning.

Previous research conducted by (Celikler & Aksan, 2012) found that the learning process using worksheets had a higher success rate than teaching using conventional teaching methods. The existence of worksheets makes the methods and materials provided by the teacher more meaningful and makes them active in the teaching process. For hybrid learning teachers can use e-worksheets

student-worksheets need to be developed with various attractive features (Ladamay et al., 2021), since they offer various features that support online and face-to-face learning. Its innovations are emerging rapidly as a result of technological advances. The worksheet products can be used by teachers as an Android-based learning media to support interesting and interactive learning activities (Novitawati & Anggreani, 2023).

The worksheets in this study were developed using Liveworksheets.com. The worksheets developed consists of various features. Unlike other online interactive applications that only focus on certain question types such as multiple choice (Google Forms, Kahoot, Quizlet), the tasks provided by Liveworksheets are more varied. Teachers can create multiple choice, drag and drop, word search, crossword, sentence rearrangement, true-false, fill in the blank, matching and jigsaw puzzles. One of Liveworksheets' flagship features is its ability to

automatically check students' work. Teachers will not have the hassle of having to grade too many student worksheets (Ha Le & Prabjandee, 2023).

(Klubal et al., 2021) conducted a study to analyze what web applications are used by teachers to conduct distance learning. By analyzing the word frequency of all answers, it was found that out of the dozens of teachers sampled, Liveworksheets was among the top 10 preferred applications. Previous research on the effect of e-learning has been done, but research on online tools such as Liveworksheets is still rare (Ho et al., 2023), especially in hybrid learning in elementary school. There are still not many studies focusing on local wisdom-based science teaching materials, especially those related to the local wisdom of Central Kalimantan Province.

The e-worksheets development was made using Canva application for the design and Liveworksheets for content development, thus the worksheets can be used interactively. (Fitri et al., 2022) conducted research on the development of students worksheets based on Liveworksheets and found that they met the eligibility and practicality requirements to use in elementary schools in integrated thematic learning.

Students like using Liveworksheets because the exercises designed are more interesting and interactive. In addition, Liveworksheets are full of colors and have sound, video, multiple choice exercises, drag and drop exercises, and arrow connections. Students are also motivated to complete tasks because they immediately get the assessment results (Ho et al., 2023). Worksheets developed with Liveworksheets can contribute to the mastery of knowledge and skills (Angelova & Nikolova, 2022).

e-worksheets developed in this study were developed based on local wisdom. The use of local wisdom-based student worksheets allows students to scientifically explain phenomena or cases found in the local wisdom of the local community. This worksheet is focused on presenting problems and cases. This is quite effective in influencing the growth of students' scientific reasoning. Based on the findings, it can be concluded that the application of local wisdom-based worksheets has a moderate influence in helping students' mastery of formal scientific reasoning skills (Shofiyah et al., 2019).

Local wisdom can be defined as something that has existed and applied as a tradition in society that can be scientifically tested. One of the ways that can be taken to instill local culture is through local wisdom integration in learning, which can be done through teaching materials. Integrating local wisdom in science learning can create meaningful learning. Thus, they can implement their knowledge and skills to solve various science phenomena in the real world (Hastuti et al., 2020). The application of local wisdom-based learning models is effective in improving students' learning outcomes, positive character and pride in local wisdom (Ramdiah et al., 2020), considering that Central Kalimantan Province has its own uniqueness.

1.2. Related Research

A number of studies on the development of teaching materials and students worksheets, based on local wisdom have been carried out in Indonesia, for example local wisdom of the South Sulawesi (Naqiyah et al., 2019) and Kebonsari village, district of Candi, Sidoarjo regency (Shofiyah et al., 2019). In addition, there is also the development of learning model and material integration based on local wisdom in Yogyakarta (Hastuti et al., 2020), South Kalimantan (Ramdiah et al., 2020). However, there has not been any studies that discusses the development of e-worksheets specifically at the primary levels level based on local wisdom in Central Kalimantan to be implemented in hybrid learning.

This research focused on discussing thematic subjects in fifth grade of elementary school. The selection of these participants was not merely to meet needs analysis, but also contains materials that are in accordance with the local wisdom. Topics of thematic materials that are related to local wisdom are ethnic and national diversity, variety of dances and local songs, natural appearances, various healthy foods, organ system functions in the diversity of animals

and plants, each of which can be narrowed down specifically to the Central Kalimantan region.

1.3. Research Objectives

This study aims at developing e-worksheets based on local wisdom assisted by Liveworksheet.com on thematic learning for fifth grade Madrasah Ibtidaiyah using Hybrid Learning.

2. Theoretical Framework

2.1. Worksheets

Worksheets have components such as title, basic competencies, task completion time, tools and materials needed for task completion, brief theory, work steps, tasks to be performed, and reports. According to Prastowo (2014), worksheets are one type of printed teaching material containing   types of activities that aim to enable students to achieve the targeted competencies. The contents can be in the form of material/theory regarding the concepts discussed, assignments and various work instructions both practical and theoretical and used together with other teaching materials (Ekantini & Wilujeng, 2018).

Teachers need to strive to implement appropriate learning to increase students' activities and direct them to build their own knowledge through investigation. Worksheets are generally used by students to do exercise questions. This can help teachers to direct students in the learning process (Zammiluni et al., 2018).

2.2. Liveworksheets

Liveworksheets benefits in improving learning effectiveness and helping students understand the learning material. Liveworksheets is a platform that is often used in online learning activities at schools (Hidayah & Asari, 2022). Serrano-Macias (2022) explained that Liveworksheets allows users to turn traditional worksheets in Docx, PDF, jpeg formats into interactive worksheets that can be checked automatically. Students can take part in online learning and submit their answers to the teacher through Liveworksheets, and can see the correct answers. These worksheets can incorporate audio and video and offer several types of question categories (Cervantes-Vergara, 2023). Liveworksheets is a platform that allows teachers to quickly include sound, video, drag and drop exercises, arrow joining, multiple choice and even speaking exercises (Barbul, 2021).

Rapid technological advances make a fairly basic difference between conventional student worksheets and the latest live worksheets. The difference is on how Liveworksheets provides opportunities for students to convert conventional printable worksheets (such as doc, pdf, jpg and so on) into interactive exercise or activity sheets, equipped with self-correction, which is commonly referred to as "interactive worksheets".

3. Method

3.1. Research Design

This research employs Research and Development (R&D) by using 4-D model. The 4-D development model has several main stages, namely: Defining, Designing, Development, and Dissemination (Thiagarajan et al., 1974). The steps for developing a 4-D model show the general research procedures that carried out by researchers. The details are as follows:

Defining Stage

This stage aimed to determine and define the needs in the process of gathering information related to Students Worksheets product developed by the research, which was divided into needs analysis and curriculum analysis.

Designing Stage

At this stage, the worksheet began to be designed and developed according to the results in form of storyboards, which was based on the result of previous stage. After designing storyboard, the features needed to be included in the e-worksheet were determined. This worksheet was designed using Canva application.

After collecting references, the instruments eligibility was assessed by validators of media expert and material expert. This preparation was followed by the preparation of the instrument and the student response grid.

Development Stage

This stage was done by developing the contents of the worksheet according to the structure and features that had been previously designed, which was made based on the result of previous two stages.

A feasibility test was conducted to assess four aspects: content feasibility, language, presentation and graphics. The instrument was adapted from the National Education Standards Agency (*BSNP, Badan Nasional Sertifikasi Profesi*). The score obtained became the basis for determining product feasibility.

 In addition, there were also inputs and comments from validators that were useful for the Worksheets improvement. After all instruments produced data, then the researchers conducted data analysis.

Researchers also used the worksheet in four different schools (state and private schools). After that, the achievement of student learning outcomes were observed and compared.

Dissemination Stage

This stage consisted of the product trial stage, the final packaging of the e-worksheet and dissemination to the target users of the e-worksheet, which were teachers and students in MI Palangkaraya City.

The instruments used in data collection were needs analysis questionnaire and a list of interview questions, a feasibility test questionnaire for validators both media expert and material experts and a test questionnaire for students.

3.2. Respondent

In the large group trial phase, respondents from four schools in Palangka Raya City were used. Respondents were students from two public schools and two private schools. The total number of respondents for the product trial was 58 students.

3.3. Data Collection

The instruments used in data collection were a needs analysis questionnaire and a list of interview questions, a feasibility test questionnaire for validators both media expert and material experts and a test questionnaire for students.

3.4. Data Analysis

The data analysis was done by conducting an e-worksheet feasibility questionnaire analysis that includes aspects of the feasibility of content, language, presentation and graphics. The analysis was carried out using the number of percentages on each total score of each aspect. The assessment results from each validator were averaged and converted in the form of percentages to see and compare the results of the assessment of each aspect of the e-worksheets.

The equation used to calculate the percentage of each aspect in the e-worksheet feasibility criteria:

$$K = \frac{F}{N \times I \times R} \times 100\% \ldots\ldots\ldots\ldots (1)$$

Information:
K   = Percentage of Feasibility Criteria
F   = Total Number of Answers
N   = Highest Score in the Feasibility Test Sheet
I   = Number of Questions
R   = Number of Respondents

Table 1. Interpretation Criteria for Validation and Trial Results

No	Assessment	Interpretation Criteria (Questionnaire for Validators)	Interpretation Criteria (Questionnaire for Students)
1	0% - 25%	Very Infeasible	Very Bad
2	26% - 50%	Infeasible	Bad
3	51% - 75%	Feasible	Good
4	76% - 100%	Very Feasible	Very Good

3.5. Validity and Reliability

The instrument consists of a questionnaire for the feasibility test (validation) of the worksheet and a student response questionnaire. The feasibility test instrument was adapted from the assessment of the BSNP and has been validated by the instrument validator.

4. Findings

Define Stage

Based on interviews on October 11, 2021, conducted to fifth grade teachers at the four Madrasah Ibtidaiyah, schools were still conducting online learning by utilizing various learning support applications. They never used any application-based e-worksheets. So far, teachers usually gave questions to students, not in the form of worksheets that usually contained objectives, materials, activities and evaluations.
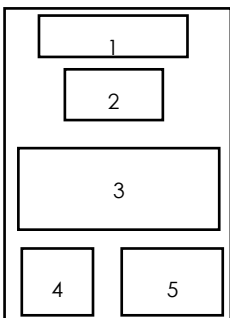
The results of needs analysis questionnaire showed that 32% of students stated that they still had difficulty in learning thematic learning materials, 43% of students stated that teachers had not used worksheets in thematic learning and most of the main teaching materials used in schools are textbooks.
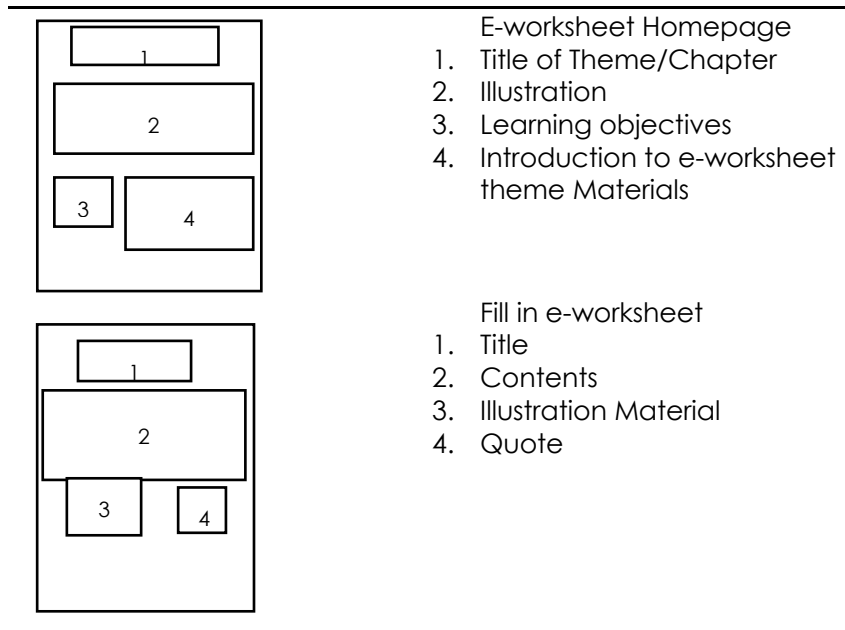
Designing Stage

Activities carried out in this stage were in the form of making storyboards of teaching materials, cover designs, content of materials and task activities.

a. Making storyboards as a guide for laying out features or components in e-worksheet as presented in Table 2 below.

Table 2. Storyboards of the e-worksheet Based on Local Wisdom

Story Board	Description
	E-module Cover Page 1. Title 2. Subtitles 3. Illustration 4. Writer 5. E-worksheet theme

E-worksheet Homepage
1. Title of Theme/Chapter
2. Illustration
3. Learning objectives
4. Introduction to e-worksheet theme Materials

Fill in e-worksheet
1. Title
2. Contents
3. Illustration Material
4. Quote

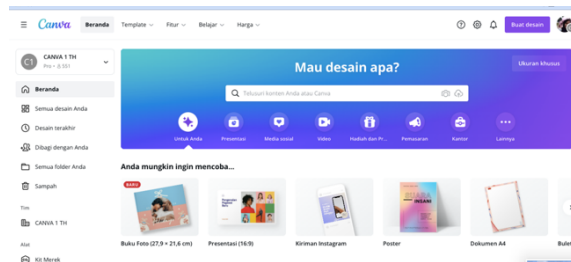b. Next designing cover and content of e-worksheet using Canva.com.

Figure 1. Canva Homepage

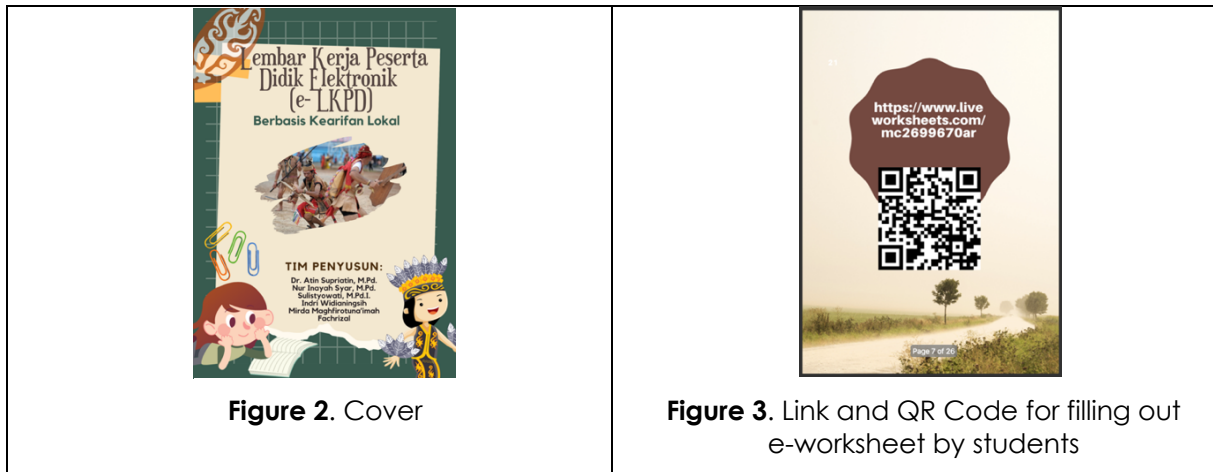The parts of the e-worksheet that were designed were divided into several parts.

Figure 2. Cover

Figure 3. Link and QR Code for filling out e-worksheet by students
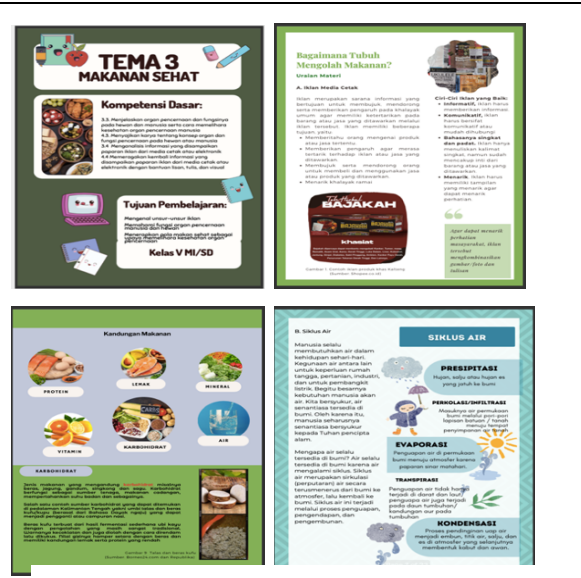
Figure 4. Worksheet Home Page

Figure 5. Contents of the e-worksheet Materials

Figure 6. E-worksheet Activity Sheet

Figure 7. Competency Test

c. Designing w-worksheet feasibility test questionnaire instrument based on local wisdom for design experts and material experts as well as a questionnaire response instrument for students.

Development Stage

The next stage was the development stage, which was performed by.

a. Developing the e-worksheet by combining storyboards with worksheet designs.

b. The material that had been selected based on concept analysis and curriculum analysis was then entered into worksheet using the Canva.com application.

c. To fill out the activity sheet, a pdf file from Canva was then inserted into Liveworksheets.com thus students could fill out their worksheets answers directly and send them to the teacher.

Figure 8. Inputting the Activity Sheet into Liveworksheets.com

d. After the students filled the worksheet, the teacher can checked it directly. For certain questions, the scores of filling out e-worksheets were listed on the worksheets automatically without having to be checked manually.

Figure 9. Student Scores from the Results of Working on the e-worksheet

e. The developed e-worksheet was forwarded to design experts and materials experts. Tables 3,4,5, and 6 show the results of the feasibility test for aspects of the feasibility of content, presentation, linguistic and graphics.

Table 3. Test Results for Content Feasibility Aspect

Component	Percentage (%)	Description
Worksheet coverage	100	Very Feasible
Material accuracy	97.22	Very Feasible
Recency	100	Very Feasible
Containing productivity insight	100	Very Feasible
Stimulating curiosity	91.6	Very Feasible
Developing life skills	100	Very Feasible
Local wisdom based	100	Very Feasible
Integration	100	Very Feasible
Average	98.61	Very Feasible

Table 4. Test Results for Linguistic Aspects

Component	Percentage (%)	Description
In accordance with students' development	100	Very Feasible
Communicative	87.5	Very Feasible
Dialogue and interactive	87.5	Very Feasible
Straightforward	100	Very Feasible

|		
Coherence and confusion and thinking flow	100	Very Feasible
Suitability with language grammar	100	Very Feasible
Usage of term and symbol/badge	100	Very Feasible
Average	96.43	Very Feasible

Table 5. Test Results for Presentation Aspect

Component	Percentage (%)	Description
Presentation technique	100	Very Feasible
Support of material presentation	100	Very Feasible
Presentation	100	Very Feasible
Average	100	Very Feasible

Table 6. Test Results for Graphic Aspects

Component	Percentage (%)	Description
Design of worksheet cover	96.87	Very Feasible
Consistent layout	91.67	Very Feasible
Component of harmonious layout	91.67	Very Feasible
Layout accelerating understanding	100	Very Feasible
Simple typography	100	Very Feasible
Typography easy to read	95	Very Feasible
Practicality	91.67	Very Feasible
Illustration	100	Very Feasible
Average	95.86	Very Feasible

The comparison graph of the feasibility for each aspect (feasibility of content, language, presentation of materials and graphics) is shown in Figure 10.
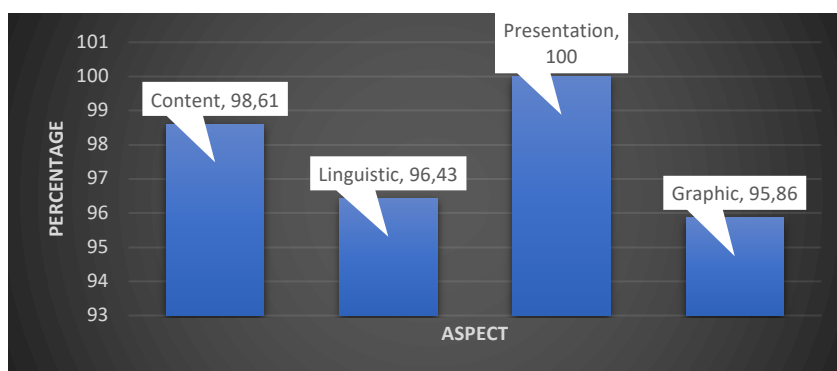
Figure 10. Comparison Graph of Feasibility Aspects of Local Wisdom-based e-worksheet

f. The e-worksheet that passed the feasibility test was revised based on comments and suggestions from design experts and materials experts

There were several revisions to the e-worksheet based on input from experts on feasibility test. The revision included changes to the table of observations, adding work steps, adding information to the table and improving sentence/language structures as well as typos.

g. The e-worksheet was ready for dissemination stage

At this stage, there were three important parts:, testing, packaging and distributing the e-worksheet based on local wisdom to schools. The trial was carried out by actively involving students, where they were asked to read the e-worksheet thoroughly and to fully work on one theme of e-worksheet to display the final score on that theme. This trial was limited to half of

the total students in 4 schools, due to average schools had implemented Hybrid Learning and partial face-to-face learning, in which the students attendance were divided into two different schedules. The results of the trial conducted in four schools that became the research sample are shown in Figure 11.
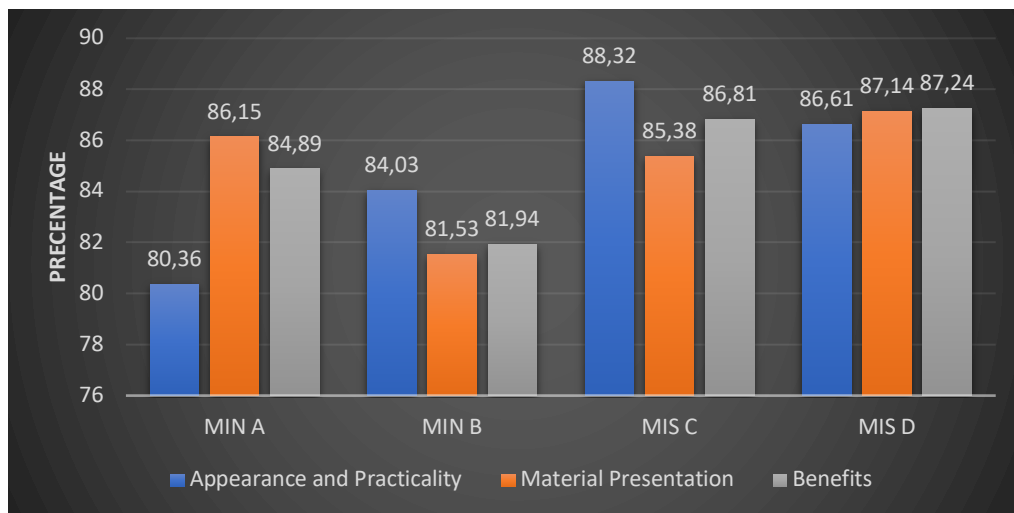

Figure 11. Comparison of Each Aspect for Each School

5. Discussion

Needs analysis was the first step done in the 4D type teaching material development model at the definition stage. Before developing the worksheet, the first thing that needs to be carried out is to trace the level of needs of students or prospective users (Syar & Sulistyowati, 2021). Based on the results of the needs analysis through interview, questionnaire and observation methods, it was found that teachers had never used e-worksheets in the learning process during the pandemic. In addition, the learning system at the four Islamic Madrasahs was divided into three, namely online, face-to-face and Hybrid Learning. The highest percentage was in Hybrid Learning.

To address the challenges caused by the COVID-19 pandemic, hybrid pedagogy consists of blended teaching methods that include blended learning, flipped classroom, outcome-based learning, and student-centered learning. Hybrid Learning, or commonly known as Blended Learning, has a number of characteristics in its learning (Li et al., 2021).

It can be concluded that in this learning, the learning process takes place using two models of four types of combinations: face-to-face instruction and online learning (Mumford & Dikilitaş, 2020). However, blended, flipped and hybrid have some differences. Hybrid learning models focus more on the use of technology meant to replace in-person learning time in the classroom, which can reduce pressure on physical classrooms and make it easier to schedule classes to be more flexible (Saichaie, 2020). In combined online and face-to-face learning, teachers and students are required to have technology mastery (Dakhi et al., 2020) because in the learning process students are not only limited to memorizing material. They also need motivation in order to understand the material being taught.

After the definition stage, the researchers carried out the designing stage. At this stage, instruments were designed for feasibility tests and storyboards. The purpose of making a storyboard is to create a storyline arrangement or an overview of what teaching material will be delivered. Storyboard visualization can provide an overview of the application to be produced (Yuliarni et al., 2019). Storyboards outline various elements such as scripts, images, video sequences and shots, titles, audio effects, and transitions to ensure the right information is used and to inspire new ideas (Reyna et al., 2017).

The overall of e-worksheets content design was designed by using the features on Canva.com. Online learning materials should be developed with the aim of enhancing students' learning experience (Patricia Aguilera-Hermida, 2020). Canva is an application that can help teachers create interesting teaching materials. According to (Lin et al., 2017), the production of teaching materials in digital learning should include more media images, sounds, or pictures than traditional learning in order to produce more interesting and lively teaching materials.

The next stage was the development stage. At this stage, the e-worksheet feasibility test was carried out through a questionnaire of material experts and media experts. The aspect with the highest feasibility test result was the presentation aspect, while the lowest percentage was the graphic aspect.

The creation and preparation of activity filling sheets in this local wisdom-based e-worksheet was developed by using Liveworksheets.com. Liveworksheets allows teachers to maximize learning media which can ultimately make students happy, satisfied and excited about learning (Ismail et al., 2022).

Liveworksheets is suitable for elementary school age students in Flipped Classroom. This application is a web-based platform that can be an alternative for delivering material through e-worksheet, which is easily accessible and can be filled out online. It also has attractive display with a variety of activities and does not need to be printed because it can be carried out online. This application is interactive thus it will reduce the portion of the teachers' lecture in front of the class. In addition, there is a self-correction feature where the system can automatically assess the results of student work without having to be checked manually by the teacher (Hwang et al., 2022).

Liveworksheets-based worksheets can be an alternative to the use of learning media because it has a number of advantages over conventional worksheets, as it is more efficient because educators and students no longer need paper and there are various types of exercise options such as drag and drop, join with arrows, multiple choice, essays, and learning videos. With so many choices of activities/exercises, it makes students not bored in the learning process (Angelova & Nikolova, 2022; Barbul, 2021).

E-worksheet feasibility test was carried out through a questionnaire of material and media experts. The instrument was developed by the researcher based on the standards mentioned above. According to BSNP Report, the benefit of the assessment instrument is to get a tool to be able to assess standardized textbooks/teaching materials and can also be used to assess the feasibility of content, language, presentation, and graphics. Therefore, students can achieve the learning targeted objectives or competencies.

The aspect with the highest feasibility test result is the presentation aspect, while the lowest percentage is the graphic aspect. The presentation aspect is the scope of the material expert's assessment. The results of the feasibility test indicated that the developed e-worksheet had systematic consistency, sequential presentation from general to specific, coherent concept, had a balance of substance between chapters/themes. In addition, it also had advantages in presenting illustrations, tables, graphs, numbering accuracy, introductory material and being able to actively involve students to stimulate the depth of their thinking through the e-worksheet features.

There are several things that must be on worksheets so they have a considerable influence on the teaching and learning process, namely didactic, construction and technical requirements (Rahmi et al., 2018; Sari & Wiksuana, 2018; Widodo & Hazimah, 2022). The aspect of presenting material which was the advantage of e-worksheet contained several of these requirements, such as the ability to stimulate the depth of thinking of students (didactic) and the presentation of text, illustration images (construction). The balance of substance between chapters/activities in the worksheet and the coherence of concepts were also things that can determine e-worksheet quality.

The presentation of the e-worksheet based on local wisdom developed by researcher was considered to be an innovative step in development of teaching materials, during the online learning. Worksheets are made to facilitate learning activities. Therefore, the design of a good thematic learning tool is needed so that the learning process is carried out which allows students to play an active role (Suhandi et al., 2020).

The graphic aspect that needed to be considered because it obtained a fairly low rating, namely the distance between text and illustrations, the e-worksheet links and spacing between lines of normal text composition. The graphic aspect includes layout and display design that refers to the general appearance of the book (Çer & Sahin, 2016; Puspita & Ahda, 2020) and includes typography and the suitability of worksheets for the implied readership. This is a supporting factor for the e-worksheet that needs to be considered because if there is an out of sync, it will affect the teaching and learning process when the e-worksheet teaching materials have been applied.

In the problem of the e-worksheet link, initially there was a learning video on access to filling out the Students Worksheets in the Liveworksheets which could not be connected to Theme 9. However, the link had been updated so that it could be easily accessed by teachers and students. In addition, setting the issue of spacing between texts on Canva.com required accuracy because changing the color/theme/design could change the font size and type as well as the spacing. The four aspects of the feasibility assessment on this e-worksheets were in the "Very Good" category. In accordance with the rules from the Curriculum and Books Center, four things are aspects of the assessment in this e-worksheet as criteria that must be met thus a teaching material is said to be good, namely content, presentation, language and graphic components (Hartik et al., 2021; Marsudi & Sunarso, 2019; Putra & Aman, 2020).

The last stage is dissemination stage. The dissemination stage aims to publish the products that have been developed so that they can be utilized by users more widely (Elmunsyah et al., 2019). The dissemination stage is carried out with the aim of transmitting and distributing the products that have been developed to the target audience. By doing this stage, researchers or developers can find out the acceptability of the products they develop and open up space for criticism and suggestions for evaluating product improvements in the future.

Recommendations for further research are to expand the material in making worksheets and try to apply other types of local wisdom. In addition, this research also still requires further research in the form of applying worksheets in the learning process to see the improvement of student learning outcomes.

6. Conclusion

The development of e-worksheet based on local wisdom was developed using a 4D design which included the defining stage (needs analysis and curriculum analysis), the designing stage (storyboard, students worksheets design, instrument making), the development stage (feasibility test and revision), the dissemination stage (students worksheets testing, packaging and distribution to schools). Based on the results of the feasibility test, the e-worksheet was in the "Very Eligible" category with the percentage of aspects of material presentation aspect that was 100%, followed by the feasibility aspect of content was 98.61%, graphic aspect was 95.86% and the last linguistic aspect was 96.43%.

Limitation

This research is limited to the use of elementary school thematic subjects and local wisdom of the Central Kalimantan Province, Indonesia.

Acknowledgments

Conflict of Interest

The authors declare that there is no conflict of interest.

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