Development of E-Student Worksheets in the form of Picture Stories Using Live Worksheets in Primary Schools

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ABSTRACT

The article aimed to determine the feasibility and effectiveness of the products developed, that was E-Student Worksheets in the form of Picture Stories Using Live Worksheets at Elementary Schools. The type of research used Research and Development (R&D). The research procedure used Rowntree development with three stages, namely planning, development and assessment. The product developed has been declared feasible to use according to the validation results from material experts, media experts, and design experts. In field trials, it was found that the use of e-student worksheets in the form of illustrated stories using live worksheets, made students happier to learn, interested in learning, and made it easier for students to understand the learning material. The E-Student Worksheets in the Form of Picture Stories using the developed live worksheet could be said to be feasible and effective to use. This research was useful as a reference for the use of technology for educators in providing variations of worksheets to students. This live worksheet was also useful in making it easier for educators to check the work of students and students are also given the convenience of collecting their worksheets without being limited by distance. This research was useful as a reference for the use of technology for educators in providing variations of worksheets to students.

Keywords: *E-Student Worksheets, Picture Stories, Development Worksheets*

INTRODUCTION

Technological progress at this time has grown very rapidly. Technology can improve the quality of education, effectiveness and efficiency of the teaching and learning process along with educational technology can make it easier to achieve educational goals (Andri, 2017). The use of technology-based learning materials in the process can improve student competencies, and students will become more creative in developing their ideas or ideas. In addition, following technological developments can make teachers more creative and productive (Umiyatun et al., 2020). Along with the development of technology in the field of information and communication and supported by advances in line technology, it also has an impact on the development

and renewal of learning resources. An example of renewal is using various digital-based applications that can make it easier for students to access material, such as the use of e-books, e-modules, e-student worksheets, and so on (Cholifah & Novita, 2022).

As technology develops, student worksheets can be made online, namely e-student worksheets or electronic student worksheets. E-student worksheets are teaching materials in the form of student worksheets that are packaged electronically. E-student worksheets are student work guidelines to make it easier for students to understand learning concepts that are completed efficiently (Putu et al., 2022). E-student worksheets are also a learning tool use by educators to increase the involvement of students (Khotimah et al., 2020).

Based on the preliminary study, it was found that the teaching and learning process of the school was limited, for the time being, to distance learning (PJJ). The school has an odd-even policy, 50% online and 50% offline. So that e-student worksheets becomes an alternative when students cannot carry out learning. Existing technology is made to simplify and make existing facilities more effective so technology in learning must be used immediately so that learning becomes easier and more effective. In school conditions where learning is not all students carry out learning at school, it means that teachers must immediately prepare products that can be used online so that students who do not carry out learning in class can get the same learning effectiveness as in class. Learning materials that are difficult to understand by students are also an important concern for teachers, so they must immediately look for alternative media that can make students understand the learning material better. Efforts to overcome the low quality of learning should also pay attention to the development of science and technology (Suartama, 2010).

E- student worksheets can be an alternative teaching material that can help students be more active in learning activities because one of the advantages of using an e-student worksheet can be directly sent to the teacher when students have done it and e- student worksheet can contain images, audio, and videos that the teacher can design (Wahyuni et al., 2021). E-student worksheets can also be accessed easily using smartphones, laptops, and others (Ismathulhuda et al., 2022).

Jamiludin & Darnawati (2021), revealed that teachers should design classes using several applications that are free, and easy to use. Live worksheets are a platform in the form of a website that provides services for educators to be able to use the available e-student worksheets and make their own e-student worksheets interactive online (Fauzi et al., 2021). The use of the live worksheets website is very beneficial because with live worksheets teachers can create their interactive E-student worksheets which are easy to use for students (Supriatna et al., 2022). Student worksheets using live worksheets have advantages in that students can work on student worksheets online and send answers to their teachers so that apart from motivating, they can also save time and paper (Ariyanti & Yunus, 2021) and if digital illustrated stories are added, it can make learning more interesting and meaningful for students and can increase the active role of students in teaching and learning activities (Amelia & Muzakki, 2021).

Research from Farman et al. (2021), shows that e-student worksheets based on live worksheets are valid, practical, and effective. Research from Fauzi et al. (2021), also shows that the learning process using interactive student worksheets on this live worksheets site will increase students' activeness to study at home independently and teachers are easier and more efficient in conducting assessments because student work results will appear on the teacher's account. From these two studies, the researcher

concludes that student worksheets based on live worksheets have many benefits for learning activities.

Based on the results of the needs analysis and the results of the research above, researchers will develop e-student worksheets using Live Worksheets in Elementary Schools. Different from other research, researchers will use picture stories, so it is hoped that learning will be more interesting and increase students' desire to learn and become more active.

METHOD

This researcher is a Research and Development (R&D). The model used is Rowntree development. This model has three stages, namely the planning stage, the development stage, and the evaluation stage. The subjects in this study were fourth-grade students of SD Negeri 22 Rambutan. 8 students participated in this study. The object of this research is e-student worksheets in the form of illustrated stories using live worksheets for learning the pekerjaan di sekitarku sub-theme. 6 e-student worksheets will be developed under the pekerjaan di sekitarku sub-theme. This research was carried out in the odd semester of the 2021/2022 academic year. Rowntree's development model which consists of 3 stages can be described as follows.

Figure 1. Rowntree's development
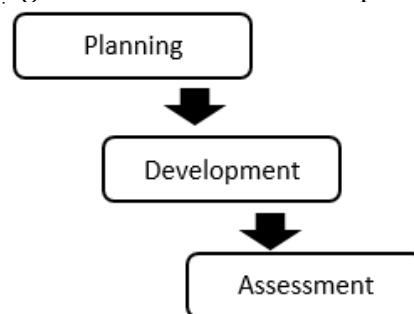
At the planning stage, the researcher analyzed learning needs. In needs analysis, researchers look for or collect what information students will learn and this information can also be used as material for product designers to be developed. Information collection includes data collection and identification of problems in the field using researchers conducting interviews and observations.

At the development stage, the researchers made material maps, drafted e-student worksheets, and produced e-student worksheets. At the assessment stage, the researchers conducted trials and improved e-student worksheets based on the input and suggestions that had been obtained. This design activity is to compile the student worksheets format in the form of a picture story and also to design the student worksheets. After designing the student worksheets, the researcher made the design of the student worksheets by taking into account the size of the page density, page numbering, and clarity. The purpose of designing these student worksheets is to be able to produce student worksheets according to the characteristics of the needs of students, both in terms of appearance, and content in a systematic format, and accordance with the development of the 2013 curriculum. has been made into a web live worksheet. Before entering the student worksheets that have been made into the live worksheet, the researcher registers a live worksheet account first to be able to access the live worksheet using email. After being registered in the live worksheet,

then you can create e-student worksheets that can be accessed by students and teachers online.

This assessment consists of four stages including self-evaluation, validator assesment, individual test (one-to-one), and limited trial. In the self-evaluation stage, the researcher assesses himself whether the development of the e-student worksheets that have been developed is good or not. Furthermore, in the expert review stage, the results of the design of the e-student worksheets are given to the experts for validation. The developed e-student worksheets are given to experts to be validated and evaluated by experts or validators. Learning products are concluded to be valid if they are developed with adequate theory, called content validity. All components of learning products, which are related to each other consistently, are called construct validity. The indicators used to conclude that the developed learning product is valid are content validity and construct validity (Haviz, 2016). The results of this validation will be used as improvement material for student worksheets using a live worksheet with picture stories. Then in the one-to-one test stage, the researcher conducted a trial with 4 students to find out the students' responses to the difficulties and attractiveness that existed in the developed e-student worksheets. After the trial on 4 students, the researcher tested the e-student worksheets in a limited trial by involving 8 students, where to find out the responses of students at this limited trial stage using a questionnaire. The assessment of the results of student questionnaires during limited product trials on student worksheets is as follows.

Table 2. Product Trial Score

Percentage (%)	Category
81 – 100	Very Good
61 – 80	Good
41 – 60	Fair
21 – 40	Poor

(Sugiyono, 2014)

RESULT AND DISCUSSION

Based on the writing procedure that has been described, the research carried out is guided by the Rowntree development model which consists of three stages, namely planning, development, and assessment.

Planning Stage

A needs analysis was carried out by conducting observations and interviews with fourth-grade teachers at SD Negeri 22 Rambutan. Based on the results of interviews and observations, it was found that in the school's teaching and learning process for a while, conducting distance learning (PJJ) was limited. Researchers received information that the PJJ conducted had a significant difference from face-to-face learning, when learning was conducted online, it was found that the students did not understand the material presented. During the learning process, the student worksheets used at SDN 22 Rambutan were in print, while during PJJ the teacher had to take photos of assignments and sent them to WhatsApp and students also came to school in turn to collect student work. So it requires student worksheets that can be directly used by students without having to be photographed by the teacher and students can collect them online. However, student worksheets that are usually given by teachers in schools can no longer be used for online learning (Supriatna et al., 2022).

Development Stage

The stages made in the preparation of the design of the e-student worksheet are starting from the e-student worksheet cover, introduction, table of contents, learning objectives, work steps, and tasks or questions of e-student worksheets. According to the Ministry of National Education (L. Lestari et al., 2018), the letters used in printed teaching materials should not be too small and easy to read. In addition, the choice of background color contrasts with the letters so that the writing is easy to read. So that these parts become the attention of the researchers

Table 3. Snippets of Draft E-Student Worksheets
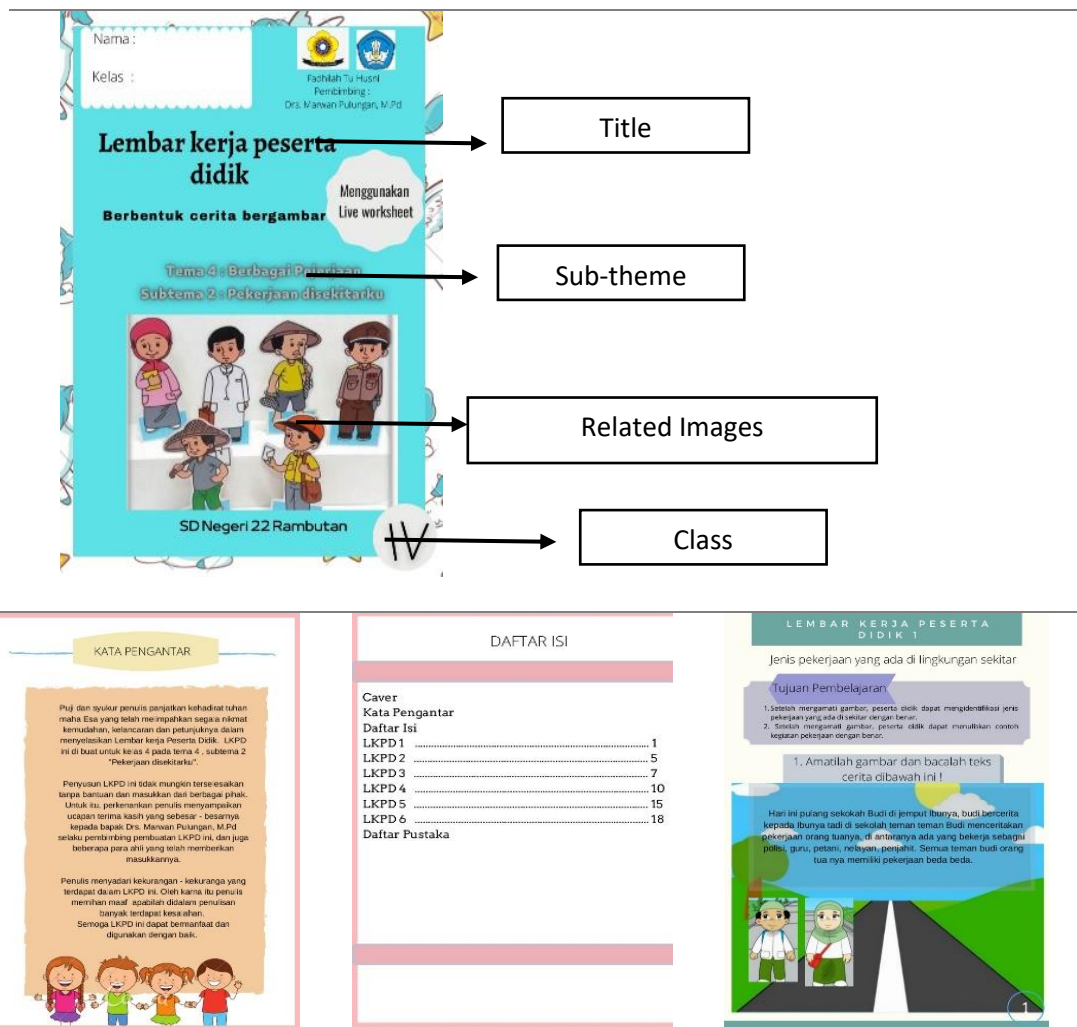
*e-student worksheet uses the Indonesia language because it is used in Indonesia

After the drafting of the e-student worksheets is complete, the researcher inserts the e-student worksheets into the web live worksheet so that e-student worksheets can be done online or can be done using mobile phones, which can be accessed by teachers and students. How to use it, the researcher first shares a link that already contains e-student worksheets. Then students click on the link. After that, wait a moment until the e-student worksheets appear, then students work on the e-student worksheets, if it's an essay, students immediately type their answers in the answer column that has been provided, if it's a matter of matching students, just drag the image to the image that will be displayed. seven. The join arrow question is a type of matching question by drawing a line and matching it according to the picture. Then the type of drop-down question is a type of question that chooses the correct answer among the choices of answers that have been provided. The type of drag and drop question is a type of matching question by dragging one of the images and placing it in place according to the image. The type of check box question is a type of question that chooses the answer by checking the correct image according to the question command (Khotimah et al., 2020).The use of the live worksheets website makes it easier for educators to give assignments by simply sharing links with students and the live worksheets website also makes it easier to make assessments, because the students' work will appear on the educator's account automatically (Ilham et al., 2022). The research results of Retno et al. (2021) show that students are very happy to use online student worksheets with the liveworksheet.com application because there are videos about the material, filling them out like playing games, there is drag and drop, short entries, working on the questions in stages and using the application can motivate students to work on student worksheet and receive an explanation from the teacher about the learning material. After finishing working on the questions, click finish and the name and class will appear, students make the name and class. In working on the e-student worksheets, the researcher gave 30 minutes.

Assessment Stage

At this stage, data collection was carried out through an evaluation consisting of a self-evaluation stage, validator assessment (material and design), individual test, and small group test. In self-assessment, the researcher assessed that the results were that the cover and the contents were appropriate and looked simple and attractive to students, and not too much on colors and pictures. Expert assessment is carried out by materials and design experts.

Table 4. Validator Suggestions

Validator	Suggestion
Theory	a. On page 2 the task command is not clear, give 1 example of matching the picture.
	b. On pages 3 and 4, number the boxes to be filled
	c. On page 7 there is the word typo
Design	a. Colour the page number to make it more visible and also the location must be consistent
	b. The writing should not exceed the frame

After the researchers made improvements and were approved by the experts, then the two experts gave their scores on the products developed.

Table 5. Validation Results

No	Aspect Assessment	Total Value	Score	Category
1	Theory	11	3,67	Very Valid
2	Design	10	3,33	Very Valid

Based on Table. 5 it is known that the material expert stated that the product developed could be categorized as "Very Valid" and the design expert also stated that the product developed could be categorized as "Very Valid". According to Nieven (Muhayat et al., 2017), validity can be seen from the products produced (media) and related products consistently with one another (theory).

The individual test was carried out by three students. researchers collect data by using interviews. From the results of the interviews, it was concluded that the writing, instructions, pictures of work steps, words, and sentences in e-student worksheets using Live worksheets with picture stories were clear so that students were happy and became interested in learning. In line with that, Hairani & Setiawan's (2022) research shows that students can understand and say that learning to use a student worksheet in the form of a picture story is very fun so the material presented in the student worksheet has been conveyed quite well and is easy to understand. After conducting an individual test, the researcher then conducted a small group test. The following are the results of the small group test.

Table 6. Small Group Test Results

No	Aspect Assessment	Total Value	Score	Category
1	Ease of Use	8	100	Very Good
2	Instruction	8	100	Very Good
3	Appearance	8	100	Very Good
4	Interest in Learning	8	100	Very Good
5	Theory	6	75	Good
		38	95%	Very Good

Based on table 6, it can be concluded that the assessment of the e-student worksheet using a live worksheet in the form of a picture story in learning can be categorized as "very good" with a score of 95%. Student worksheets provides a stimulus to students to carry out assessments or real activities on a particular object or problem, both individually and in groups (Cholifah & Novita, 2022). The worksheet is a guide for student that can be used in observation, experimentation, and

demonstration activities to facilitate the process of investigating or solving a problem (N. Lestari et al., 2018) and picture series made students more active, creative, independent, and more confident in expressing their ideas (Wulandari & Ashadi, 2021). Faizah (2010) revealed that the use of picture stories with value education content is more appropriate to apply than learning that only relies on textbooks as the only source of learning (conventional).

Referring to all stages of the research, it was found that the development of e-student worksheets using live worksheets with picture stories in elementary schools was declared valid by material and design experts. In the validation of material experts, the average value was 3.67 in the "very valid" category, while for design experts, the average value was 3.33, in the "very valid" category. The advantage of using these live worksheets is that teachers are easier and more efficient in conducting assessments, because the results of student work will appear on the teacher's account (Fauzi et al., 2021).

Research from Sari & Liana (2021), found that picture stories media or visual learning media were able to influence students' visual literacy skills, especially in history subjects so that students were able to interpret and create meaning from visual stimuli that were received appropriately during the learning process. The function of the picture is to attract students' attention to concentrate on the learning material and can stimulate students' attitudes and emotions (kristiawan & novita, 2017). This shows that picture stories can make students able to interpret and create meaning from the visual stimuli they receive appropriately.

At the individual trial stage and small field trial, it was also found that the assessment of the e-student worksheet using a live worksheet in the form of a picture story in learning can be categorized as "very good" with a score of 95%. The results of this study are in line with the research of Wati et al. (2021) show that the illustrated story-based student worksheets that have been developed in the one-to-one stage can be said to be practical with a total score of 29 and a percentage of 97%, while in the small group stage the student worksheets that have been developed are included in the very practical category with a total score of 60 and percentage of 100%. Research results from Fitriani et al. (2022), also show the development of social studies student worksheets (LKPD) through a picture story-based discovery learning approach, which is 80% with an effective category. In line with that, the results of research from Anita et al., (2019) also show that inquiry-based student worksheets are effectively used because there is an increase in student learning outcomes. The use of student worksheets provides many positive things in learning activities and student learning outcomes.

The main finding in this study is that the product developed has been declared feasible to use according to the validation results from material experts, media experts, and design experts. In field trials, it was found that the use of e-student worksheets in the form of picture stories using live worksheets, made students happier to learn, interested in learning, and made it easier for students to understand the learning material. a teacher who uses technology media in explaining a material, students will more easily understand and the intention to learn is very large (Mulyani & Haliza, 2021)

The research from Wahyuni et al., (2021) showed that after using the e-student worksheets showed N-gain the value of 0.70 with high criteria and the student's response to the e-student LKS shows a value of 77.3% with good criteria so the E-student worksheets could improve students' critical thinking skills. The research of

Lailiah et al. (2021), shows that guided inquiry learning assisted by e-student worksheets affects students' cognitive learning outcomes because e-student worksheets can make it easier for teachers to control students' cognitive development. Octaviana et al., (2022) research results also show that e-student worksheets are quite effective in improving students' collaboration skills. From these studies, it is known that worksheets provide many benefits for students, especially in improving critical thinking, students' cognitive learning outcomes, improving students' collaboration skills. Research from Suharman et al., (2021) showed that illustrated story media resulted in students being able to more easily internalize the knowledge and positive values contained in it. Zahroh & Yuliani's (2021) research shows that there is a significant increase in student achievement by using picture story teaching materials. Based on the results of previous research, it is known that learning using picture stories has many benefits, especially increasing knowledge, values in learning, and student learning outcomes. It can be seen from the studies above that e-student worksheets and picture stories have many benefits for various activity objectives learning so that when combined, the expected results are also better than the results of this study, namely the use of illustrated story-based student worksheets that can make students happy, interested in learning and better understand the material, such as research of Zahroh & Yuliani (2021), which which combined e-student worksheets and scientific literacy where the results obtained were that after learning using e-student worksheets based on scientific literacy, students experienced an increase in communicating the information obtained in learning.

This research is useful as a reference for the use of technology for educators in providing variations of worksheets to students. This live worksheet is also useful in making it easier for educators to check the work of students and students are also given the convenience of collecting their worksheets without being limited by distance. The development of innovative e-student worksheets is very important to meet the demands of 21st-century learning as teaching materials, practicums, reasons for boredom, technological developments, and the impact of the pandemic (Suryaningsih & Nurlita, 2021).

This research has implications for educators, students, and researchers that technology can be used in the learning process, especially for student worksheets which can be more easily accessed by students and teachers without being hindered by distance and unexpected conditions. Another implication in this study is that the use of picture stories is used as an option so that students' worksheets are more interesting and easier to understand. Based on the results of this study, it is concluded that student worksheets using live worksheets facilitate and make students active in learning. Student worksheets in the form of picture stories make students interested and understand the learning material better.

CONCLUSION

In the validation of material experts, the average value was 3.67 in the "very valid" category, while for design experts, the average value was 3.33, in the "very valid" category. Furthermore, at the individual trial stage, writing, instructions, pictures of work steps, words and sentences in the e-student worksheet using live worksheets with picture stories are clear so that students are happy and interested in learning. Then in the limited trial stage, students assessed using a questionnaire on the e-student worksheet, the percentage was 95% categorized as "very good", so it was

concluded that the development of the e-student worksheet using live worksheet in the form of a picture story could be declared feasible and effective to use.

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AUTHOR CONTRIBUTION STATEMENT

MP (Marwan Pulungan) is the lead author of this study. MLS is the author's correspondent. SDM, ERKW, VAS, and FTH are the research team in this article.

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