



## **Development of Electronic-Based Students' Worksheets (E-LKPD) with Wizer.Me Application In Informatics Subject**

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### **ABSTRACT**

The educational process must be improved in accordance with advances in science and technology. This should be a strong motivation for educators to continue to develop their skills, especially technological skills, so that classroom learning remains relevant to the needs of today's workforce. One of them is by developing Electronic Student Worksheets (E-LKPD). The purpose of this study was to develop E-LKPD with the Wizer.me application and test its feasibility level in Informatics subjects for class X at MA Sarji Ar-Rasyid. This type of research uses the Borg and Gall R&D (Research and Development) model. The results of the study showed that the developed E-LKPD was declared feasible based on media expert validation with an average score of 94% in the "Very Feasible" category, material expert validation with an average score of 90% in the "Very Feasible" category, and user (student) assessment with an average score of 89.16% in the "Very Feasible" category. So it can be concluded that E-LKPD assisted by Wizer.me is feasible to be used in Informatics learning for class X MA Sarji Ar-Rasyid.

**Keywords:** development; electronic worksheets; wizer.me

### **INTRODUCTION**

Education is an effort to mature a person who can explore human abilities and develop human mindsets through teaching and learning activities, which function in accordance with the 1945 Constitution Number 20 of 2003 Article 3 which states that "National Education functions to develop abilities and also form the character and civilization of a dignified nation in order to educate the life of the nation, aiming to develop the potential of students to become human beings who believe and fear God Almighty, have noble morals, are knowledgeable, healthy, capable, independent, creative, and become democratic and responsible citizens".

The education process must be improved with the advancement of science and technology that is increasingly developing along with the times. This must be a strong motivation for educators to continue to develop their skills, especially technological skills, so that classroom learning remains relevant to today's world. In addition, it can be a national strategy to realize the goals and ideals of national education if educators master technology and information. Educational technology is a practice that refers to all forms of teaching and learning that utilize technology, so that it can increase the effectiveness and efficiency of learning.

Based on the results of observations that have been carried out by researchers at MA Sarji Ar-Rasyid, it is known that during the learning process, teachers do not have and have never made Students' electronic worksheets. This shows that the design of Student Worksheets in schools is not optimal. The students' electronic worksheets used only relies on supporting books. Correcting the results of many students' work takes up a little of the teacher's time because the teacher has to correct the students' electronic worksheets one by one manually. When filling out the students' electronic worksheets, students tend to be passive and bored because the students' electronic worksheets presented is one-way, then the lack of use of technology in the learning process makes learning less interesting. This makes students have a sense of lack of interest in this Informatics learning.

In the observation and interview, the researcher concluded that it is necessary to innovate the students' electronic worksheets so that it can make it easier for teachers to correct and create questions, even though the school does not have electronic media, teachers can still integrate technology in the learning process with students' electronic worksheets based on the wizer.me website via computer, so that students can be more active and enthusiastic in following the learning process. Therefore, this study is expected to be able to inform the importance of this students' electronic worksheets product for students to increase interest and attraction in learning Informatics subjects because of its attractive appearance, there are forms of questions that sharpen students' thinking so as to increase students' enthusiasm and motivation in learning Informatics subjects and for teachers, this students' electronic worksheets is expected to be able to be a reference for teaching materials in Informatics subjects so as to arouse students' desires and can improve students' learning outcomes in Informatics subjects to be developed by MA Sarji Ar-Rasyid teachers.

The advantages and disadvantages of E-LKPD are that the use of students' electronic worksheets has been proven to have a positive impact on students with increased learning outcomes because learning is easier to apply and learning becomes more structured. The weaknesses of the students' electronic worksheets that were developed were found after validation by experts who tested the students' electronic worksheets product, testing by this expert aims to find weaknesses in students' electronic worksheets so that their quality can be improved.

According to Faizi et al. (2024), One way for students to be active during the learning process is by using LKPD. LKPD contains a set of basic activities that must be carried out by students in maximizing basic understanding in accordance with the indicators of learning achievement that must be achieved. In learning activities, educators can develop online student worksheets, hereinafter abbreviated as students' electronic worksheets. The development of students' electronic worksheets is very important as an effort to improve learning outcomes and high-level abilities (Sobri et al., 2023). Learning outcomes are changes in behavior and abilities obtained by students after learning, which are manifested in the form of cognitive, affective, and psychomotor abilities. Learning outcomes as a measurement of the assessment of learning activities or learning processes are expressed in symbols, letters, or sentences that describe the results that have been achieved by students in a certain period. Learning outcomes can be interpreted as the level of success of students in participating in learning learning materials at school which is expressed in the scores obtained from the test results to recognize a number of certain learning materials (Basrina et al., 2023).



**Figure 1. LKPD of Independent Curriculum**

Students' electronic worksheets are a tool used to encourage active participation of students in the learning process (Susanti et al., 2023). LKPD or referred to as worksheets that have been used by educators are usually found in printed textbooks or student workbooks. Printed LKPDs are not yet effective as a learning tool because there are still weaknesses in terms of appearance, content, and practicality. Efforts made to optimize both in terms of appearance, content, and quality are by transforming them into information and communication technology. This transformation can make printed LKPDs interactive so that the content of the lesson material is more lively, interesting, in-depth, and of course can increase the innovation and creativity of students. Students' interactive electronic worksheets consist of computer-based materials and practice questions. Students' electronic worksheets or worksheets are said to be interactive if there is feedback between the user and the media. Students' interactive electronic worksheets have different outputs from printed LKPDs. Interactive LKPDs can be equipped with images, videos, and other animations to strengthen students' understanding of the material presented (Hikmah et al., 2024).

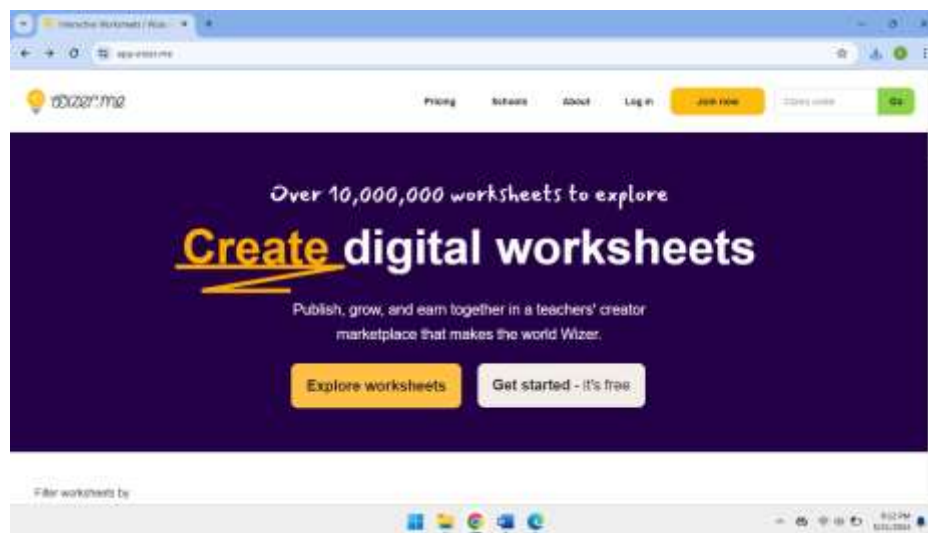
Students' Electronic Worksheets (E-LKPD) is an interactive digital form of LKPD, which is more effective and efficient in terms of how to access it. E-LKPD is a tool that can support students' independent learning activities at home and can be accessed via laptop or gadget, making it easier for users and adaptable to the current learning system. In the teaching and learning process, LKPD is packaged in an attractive form and can be used interactively so that students can understand the material being taught easily and quickly (Nildasari & Nur, 2024). Interactive worksheets are created so that there is still interaction between the teacher and students when working on the worksheets and to train students to think critically. Therefore, in order to achieve maximum learning outcomes, educators need to use interactive and innovative worksheets.

Characteristics of E-LKPD, namely: (1) The output of students' electronic worksheets that are created will be in the form of a link or HTML so that they can be used online on a laptop or smartphone, (2) Students' electronic worksheets not only contain contextual material but also contain visual material in the form of images or videos, (3) Students' electronic worksheets are equipped with learning objectives so that students find them easy to operate (Ayuditasni Dewi et al., 2023).

The advantages and disadvantages of E-LKPD are that the use of students' electronic worksheets has been proven to have a positive impact on students with increased learning outcomes because learning is easier to apply and learning becomes more structured. The weaknesses of the students' electronic worksheets that were developed were found after validation by experts who tested the students' electronic worksheets product, testing by this expert aims to find weaknesses in students' electronic worksheets so that their quality can be

improved.

Wizer.me is a free application for creating electronic worksheets with complete and adequate features, one of which is the automatic assessment feature, so in this case, teachers' creativity is needed in making it so that the students' electronic worksheets produced are more interactive (Elisa et al., 2023). Wizer.me is also a part of technology that is able to help educators in developing LKPD according to the needs of students (Khoirinisah et al., 2024). Wizer.me is an interactive, free, easy, and high-speed internet-based multimedia service platform. Educators can create their own interactive LKPD according to their creativity, such as adding images, audio and video, and viewing student responses directly. In addition, Wizer.me is easily accessible anywhere and anytime by educators and students via laptops, smartphones and so on. Wizer.me is an online student worksheet platform with automatic assessments (Tsabitah & Raharjo, 2023). With the automatic assessment on Wizer.me, it is very easy for educators to correct the work of students. The features available on Wizer.me are also very diverse, so they can help educators in creating questions for LKPD.



**Figure 2. Homepage of Wizer.me**

The characteristics of Wizer.me are in the student activity section, such as various features and the features can be supported by adding audio/video, can be used in distance learning and make the work of educators easier with the evaluation media feature, making it easier for educators to print according to the material that has been created (Ayuditasni Dewi et al., 2023). Examples of other activities that can be done include making LKPD, daily assessment evaluations, enrichment activities, and remedial and homework.

Wizer.me has advantages, namely : (1) It can be packaged attractively because it is supported by themes provided by wizer.me, (2) The question features provided are also varied and can be used according to the needs of educators, especially being able to create questions like the National Analysis exam type. (3) It can load images, audio, and videos that support student learning activities. (4) Students can access it via smartphone, tablet, or laptop. (5) All activities, from students working on assignments to the stage of collecting assignments can be done online, and educators can directly see the scores of the work results. The disadvantages of wizer.me are that not all educators have the ability and knowledge to develop, a stable internet network is required, technical problems financial, organizational, psychological and certain methodology.

## METHOD

Development or Research and Development (R&D) is a study that creates a product and tests how good the product is tested (Alwan Zainul Haq et al., 2023). After the product is made, the quality of the product is tested. States that the product is not always in the form of goods or hardware, such as books, modules, or learning aids in the laboratory or in class. It can also be software, such as computer programs for data processing, classroom learning, laboratories, libraries, or educational models, training, guidance, evaluation, management, etc.

The development model can be a procedural model, a conceptual model, and a theoretical model. The procedural model is a descriptive model, showing the steps that must be followed to produce a product. The conceptual model is an analytical model, which mentions the components of the product, analyzes the components in detail and shows the relationships between the components to be developed. The theoretical model is a model that develops a framework of thought based on relevant theories and supported by empirical data (Alwan Zainul Haq et al., 2023).

The development research model applied in this study is a procedural model. A procedural model is a descriptive model that describes the procedural steps that must be followed to produce a particular product. A procedural model is usually a sequence of steps that are followed in stages from the initial step to the final step.

In this students' electronic worksheets, development research assisted by Wizer.me, the development procedure applied is the Borg and Gall model (1983). The development procedure is an explanation of the development model that will be used by the researcher, namely Borg and Gall. The steps for developing Borg and Gall are include research information collecting, planning, developing preliminary from of product, preliminary field testing, operational field testing, operational product revision, main field testing, main product revision, final product revision, and dissemination and implementation (Assyauqi, n.d.).

This trial activity was carried out with the aim of obtaining data that can be used as a reference to obtain the level of feasibility of the product developed by the researcher. The product trial design used in this study was in the form of a student worksheet of electronic using the Wizer.me application by several validators, namely: media experts, material experts, and users (students). Class X students of MA Sarji Ar-Rasyid in this study as users of the product being developed. This activity was carried out in order to obtain assessments, criticisms and suggestions from the validator, so that the level of validity and feasibility of the product being developed is known, then this can be used as material in revising the product.

Data analysis techniques with non-test instruments in this study used quantitative and qualitative analysis techniques with a Likert scale. At the qualitative data collection stage, input from several validators was obtained in the form of input from material experts and media experts on the products being developed. While the acquisition of quantitative data was in the form of research on student response sheets in the development of students' electronic worksheets products using the Wizer.me application. The Likert scale was also used in collecting this quantitative data to measure students' opinions and attitudes towards the product. In this study, a scale of 1 to 5 was used with the provision that a score of 1 was the lowest score and 5 was the highest score. The data used used statistical trials.

The assessment sheets that will be filled in by the experts are loaded into a product feasibility table as a reference for product revision. The assessment sheets that have been filled in by the validators are then analyzed as basic materials to determine the quality of the products that have been made by researchers.

The data generated with the data collection instrument are then analyzed using a percentage according to the formula. The percentage of each question from all respondents is calculated using the following formula :

$$P = \frac{f}{N} \times 100\%$$

Description :

P = Percentage number of questionnaire data.

f = Total raw scores obtained.

N = Maximum score.

The last step in calculating the score is to conclude the category of learning media assessment results in the form of students' electronic worksheets using the Wizer.me application based on several aspects by referring to the table below (Ridho Kamila, 2022).

**Table 1. Percentage Range and Interpretation Criteria**

Assessment	Interpretation Criteria
$81\% < x \leq 100\%$	Very Feasible
$61\% < x \leq 80\%$	Feasible
$41\% < x \leq 60\%$	Quite Feasible
$21\% < x \leq 40\%$	Not Feasible
$0\% \leq x \leq 20\%$	Very Not Feasible

Description :

$x$  = Interpretation criteria

To know the individual student responses, it is obtained by calculating the positive answers of each student and then converting them into a percentage, while to calculate the overall student response by calculating the average positive answers of all students and then matching them in the assessment guideline criteria that have been made.

## RESULT AND DISCUSSION

Validation conducted on students' electronic worksheets aims to obtain a value in terms of feasibility, as well as suggestions and input from experts so that the developed students' electronic worksheets is considered feasible to use. Researchers validate the material to Informatics subject teachers who are experts in their fields. The assessment by material experts includes the feasibility of content, feasibility of presentation, and feasibility of language. The assessment of material experts was carried out by Mr. Zainol Hakim, S.Pd as an Informatics subject teacher at MA Sarji Ar-Rasyid. The following is a table of the percentage of the results of the students' electronic worksheets assessment by material experts :

**Table 2. Result Data of Material Expert Validation**

Component	Item number	$V_1$	$V_t$
Content Eligibility	1	4	5
	2	5	5
	3	4	5
	4	4	5
Presentation Eligibility	5	5	5
	6	5	5
	7	5	5

Language	8	4	5
Eligibility	9	4	5
	10	5	5
Amount		45	50

$$P = \frac{\text{Total Value Obtained}}{\text{Total Maximum Value}} \times 100\%$$

$$P = \frac{45}{50} \times 100\% = 90\%$$

Based on the calculations above, the percentage value obtained from the material expert is 90%.

The assessment was carried out by media experts to determine the validity of students' electronic worksheets assisted by Wizer.me. In developing this students' electronic worksheets, a good design is needed to display an attractive students' electronic worksheets that can arouse students' enthusiasm to study it. The assessment was carried out by a TU teacher at MA Sarji Ar-Rasyid who has graduated from a computer science degree so that she is worthy as a media expert, namely Mrs. Romlatul Hasanah S.Kom. The following is a table of validation scores obtained by media experts :

**Table 3. Result Data of Media Expert Validation**

Component	Item number	V <sub>1</sub>	V <sub>t</sub>
Content Eligibility	1	5	5
	2	5	5
	3	4	5
	4	4	5
Presentation Eligibility	5	5	5
	6	5	5
	7	5	5
Language Eligibility	8	4	5
	9	5	5
	10	5	5
Amount		47	50

$$P = \frac{\text{Total Value Obtained}}{\text{Total Maximum Value}} \times 100\%$$

$$P = \frac{47}{50} \times 100\% = 94\%$$

Based on the calculations above, the percentage value obtained from the material expert is 94%.

This product revision was carried out after validation by material experts and media experts. The revisions were made according to input and suggestions given by the experts. The suggestions by the experts are as follows :

1. Suggestions for improvement from material experts

Learning videos are provided to help students understand before working on the questions.

2. Suggestions for improvement from media experts

Suggestions and questions are added to find out students' responses.

After the students' electronic worksheets development stage was completed until valid, the researcher then looked at the students' responses to the students' electronic worksheets assisted by Wizer.me that was being developed. The student response questionnaire was given after conducting a trial of the students' electronic worksheets.

At the small group evaluation stage, it was necessary to test it on 5-10 students. The researcher chose trial subjects consisting of 5 class X students at MA Sarji Ar-Rasyid, with varying abilities (above average, average, and below average). In this case, students provide an assessment of the product through a learning media assessment instrument. Furthermore, the trial results were analyzed and revised.

Based on the student validation questionnaire in the small-scale trial, the following overall results can be obtained :

$$P = \frac{\text{Total Value Obtained}}{\text{Total Maximum Value}} \times 100\%$$

$$P = \frac{278}{400} \times 100\% = 69,5\%$$

Based on the calculations above, the percentage value obtained from the results of the small-scale trial was 69,5%.

A large-scale trial was conducted by 18 students consisting of 9 male students and 9 female students of class X at MA Sarji Ar-Rasyid. All students assessed the product through a questionnaire. The researcher analyzed the results of the student assessment to revise the second revised product to reduce the level of weaknesses of the developed product. The end of this procedure was the product of research and development in the form of students' electronic worksheets assisted by Wizer.me as a source and learning media. The user's test assessment through a questionnaire is as follows :

Based on the student validation questionnaire in the big-scale trial, the following overall results can be obtained :

$$P = \frac{\text{Total Value Obtained}}{\text{Total Maximum Value}} \times 100\%$$

$$P = \frac{1284}{1440} \times 100\% = 89,16\%$$

Based on the calculations above, the percentage value obtained from the results of the big-scale trial was 89,16%.

The creation of this final product is in the form of students' electronic worksheets assisted by Wizer.me. The material taken in this learning is about informatics and generic skills. The creation of these students' electronic worksheets has been carried out by researchers, so that it has entered the final stage of creating a product in the form of students' electronic worksheets for class X students at MA Sarji Ar-Rasyid. This final stage is in the form of refinement and re-creation of products that have gone through trial and revision stages from various parties, so that a students' electronic worksheets will be obtained that are worthy of supporting the learning process at MA Sarji Ar-Rasyid, especially for class X students in the subject of Informatics.

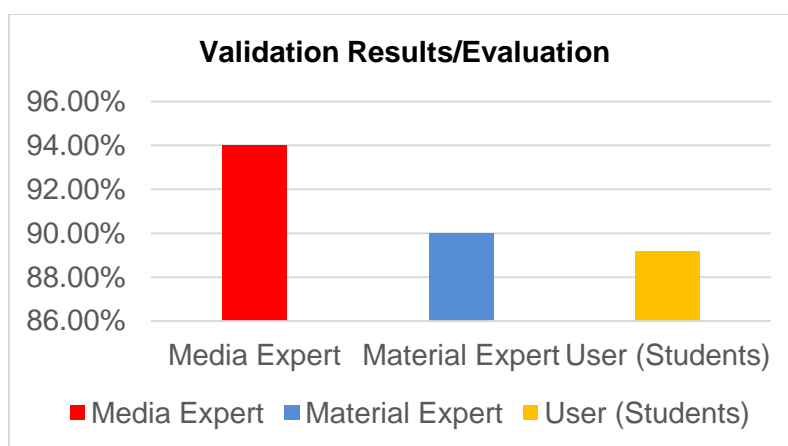
The researcher will explain the results of this research and development resulting in students' electronic worksheets assisted by Wizer.me with Informatics material and generic skills for class X at MA Sarji Ar-Rasyid which have been validated. The results of the students' electronic worksheets were obtained from the average percentage of the validation results of the two experts, namely: Romlatul Hasanah, S.Kom (as a TU teacher at MA Sarji Ar-Rasyid), and Mr. Zainol Hakim, S.Pd (as an Informatics subject teacher) for class X at MA Sarji Ar-Rasyid. The results of the assessment can be seen in the table below :

**Table 4. Result Data of Validation and Trial**

Number	Validation/Trial	Average	Category
1.	Media Expert	94,0 %	Very Feasible
2.	Material Expert	90,0 %	Very Feasible
3.	User (Students)	89,16 %	Very Feasible

Based on the validation that has been done, the students' electronic worksheets that has been developed by the researcher is declared "Very Feasible" so that it can be used as a teaching material that can facilitate teaching and learning activities. So it can be concluded that the students' electronic worksheets assisted by Wizer.me on informatics and general skills material for class X developed by the researcher meets the criteria of "Very Feasible" and does not need to be revised.

Comparison of validation results by media experts, material experts, and assessments by users (students) is presented in the following graph.

**Figure 3. Expert and User Validation Results**

## CONCLUSION

Based on the results of the research and development that has been carried out, it was found that the level of feasibility of students' electronic worksheets was declared feasible from the results of media expert validation with an average score of 94% in the "Very Feasible" category, material expert validation with an average score of 90% in the "Very Feasible" category, and user (student) assessment with an average score of 89.16% in the "Very Feasible" category. So, it can be concluded that students' electronic worksheets with the Wizer.me application are feasible to be used in Informatics learning for class X at MA Sarji Ar-Rasyid.

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