Development of Electronic Student Worksheets (E-LKPD) Assisted by Wizer.Me on Gastropods Sub Material

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Abstract: One of the teaching materials that can improve student competence in cognitive aspects and student learning activities is Electronic Worksheets. Gastropods is a sub-material on the diversity of living things which is only discussed in general by the teacher so that the introduction of Gastropods to students is still lacking. To introduce and make learning more interesting, researchers provide an alternative E-LKPD assisted by wizer.me which displays descriptions, examples, pictures of Gastropods and activities that involve students directly with the natural surroundings. This research is a Research and Development (R&D) development research using the ADDIE development model which consists of Analysis, Design, Development, Implementation and Evaluation. The type of research data is qualitative and quantitative. Collecting research data using media and material validation questionnaires, perceptions of teachers and students. The test subjects in this study were 1 biology teacher, class XI students at Al-Falah Islamic High School, Jambi City, who were divided into small groups consisting of 6 people and large groups consisting of 23 people. The results of the research on the validation of material experts obtained a percentage of 83.33% in the very good category. Furthermore, the results of the validation of media experts obtained a percentage of 85% in the very good category. The results of the teacher's perception of 95% in the very good category, the results of the small group test obtained a percentage of 94.72% in the very good category and the large group test obtained a percentage of 85.94 in the very good category. Thus the E-LKPD assisted by wizer.me on the developed Gastropods sub-material is suitable for use as teaching materials that can support the learning process based on the results of validation of material experts, media experts, teacher responses and student responses.

Keywords: Electronic LKPD; Gastropods; Teaching Materials; Wizer.me

Introduction

The use of technology in education is a way to improve the quality of education. The use of technology in the manufacture of teaching materials has become a necessity as well as a demand in the teaching process. The learning environment that the teacher will arrange must include pedagogical objectives, teaching materials, teaching methodology and assessment (Sudjana & Rivai, 2010). Based on the results of observations at schools, the teaching materials used by teachers, namely subject books, PowerPoint (PPT) and the use of student worksheets (LKPD) are still very rare because they are only used on certain materials that have practicum.

According to Pawestri & Zulfiati, (2020) LKPD is a learning resource in the form of assignment sheets, learning evaluations that students must work on and LKPD is a form of implementing the teacher's role as a facilitator in the learning process. According to Farkhati & Sumarti (2019) and Prastika & Masniladevi (2021) E-LKPD is a sheet containing instructions for implementing tasks that students must do in learning with reference to basic competencies through digital electronics and the internet. According to Lailiah et al. (2021) the advantages of Student Worksheets (LKPD), namely: 1) Involve students in the learning process; 2) Support students in improving concepts; 3) Train to develop and improve process skills; 4) As a reference in

the learning process; 5) Help students record what they have learned.

LKPD in schools today are still general in nature and mostly only contain a summary of the material. The material presented is usually instantaneous without being accompanied by detailed explanations and there are no instructions for using LKPD for teachers and students. This will cause students to be less interested in the existing LKPD. The packaging of material that tends to be less meaningful causes students to only memorize material without understanding existing concepts which makes it easy to forget so that when given questions that vary slightly, students will experience confusion (Astuti et al., 2018). According to Dewi (2010) that learning done with interactive worksheets can present an exciting learning atmosphere, not boring, not feeling pressured or stiff, and not worrying about asking questions. According to Ramlawati et al. (2014) an example of interactive LKPD is the use of electronic LKPD which is made digitally and is carried out systematically and continuously within a certain period of time. Electronic LKPD can be made according to the goals to be achieved and the creativity of each teacher.

The lack of teaching methods, the variety of teaching materials and media used and the amount of material that must be delivered by the teacher make it often difficult to carry out effective learning. One of the teaching materials that can help teachers in the learning process is Electronic LKPD. According to Lailiah et al. (2021) E-LKPD can affect the cognitive level of students to increase. Interest and motivation to learn is higher when seeing new things in the learning process. Based on the results of interviews with biology teachers, the LKPD that already exists and is used in the learning process is still in the form of printed LKPD in which there are instructions for carrying out practicum or questions that must be worked on by students. . This of course still does not support learning in the current era of globalization.

Technology-based learning is not just the use of information and communication technology that delivers learning material, but material can be accessed via the internet. Facing the current advances in information technology, the resulting technology-based products are familiar and have even become a necessity in helping and facilitating the completion of work, including in the learning process. The needs of the LKPD can be done by making various innovations that are tailored to the needs and learning objectives and involving technology in them such as technology/ICT-based E-LKPD (Azhar et al., 2020).

Based on the results of the analysis, the curriculum that is being tested in schools is the Merdeka curriculum, where in this curriculum many material chapters are omitted so that many material concepts will not be learned by students. One of them is the Gastropods sub-material where in the 2013 curriculum it is included in animalia material, whereas in the independent curriculum animalia material is no longer available so that the material is incorporated into material diversity of living things, causing misconceptions about the Gastropod class such as the meaning, characteristics and examples of Gastropods. Based on the results of observations in Muara Sebrang Village, West Tanjung Jabung Regency as a potential source of local gastropods, there are various types of gastropods that we can meet because the village is still relatively beautiful and is a mangrove area which is the habitat of gastropods.

Based on the results of the questionnaire, 17 out of 32 students with a percentage of 53.1% did not know the characteristics and classification of the Gastropod class. This is because the introduction of Gastropods to students is still lacking. To support the learning process, the researcher intends to provide an alternative electronic worksheet assisted by wizer.me which discusses the Gastropod class. Electronic LKPD is made using Microsoft Word 2019, Canva, wizer.me and flip PDF professional which aims to achieve learning objectives. The wizer.me website is used because it is considered sufficient according to the needs of teachers because there are various features that make it easier for teachers to make E-LKPD and there are various features that can be used.

Research on worksheets assisted by wizer.me previously conducted by Rahmadani & Putri, (2021) entitled Development of Interactive Student Worksheets Writing Descriptive Text Using Wizer Media in Promoting Higher Order Thinking Skills (HOTS) for Class 8 Students at MTSN 2 Medan obtained the results of the expert validation stated that the media was feasible to use with an average score of 4.5 in the very good category. Research by Kumalasari & Julianto, (2021) entitled Development of Natural Science Student Worksheets Assisted by the Wizer.me Website Alternative Energy Materials for Class IV Elementary Schools was found to be valid, practical and effective in use. As a result of the learning test, it is effective with an average score of 81.6, a maximum score of 100 and a completeness level of 85.7%.

Method

This type of research is research and development (R & D) using the ADDIE development model which consists of 5 stages, the Analysis, Design, Development, Implementation and Evaluation stages. The test subjects were students of class XI Science (IPA) 2 at Al-Falah Islamic High School, Jambi City. The type of data used

is qualitative and quantitative data. Data collection instruments in the form of observation, interviews and questionnaires. The measurement scale of the product validation questionnaire and product trials uses a Likert scale with intervals of 1 to 4. Validation is carried out by material experts and media experts by providing an assessment questionnaire to test the feasibility of the product.
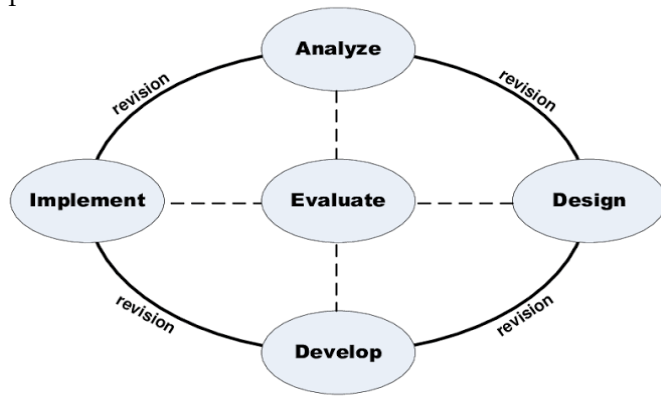

Figure 1. ADDIE Development Model Scheme (Widyastuti & Susiana, 2019)

Result and Discussion

Based on the ADDIE development model, it consists of 5 stages, namely the Analysis, Design, Development, Implementation, and Evaluation stages.

Analysis Phase

The analysis carried out was an analysis of the curriculum, needs, characteristics of students and materials. From the results of the analysis carried out, it was found that the curriculum implemented in schools is the Independent Curriculum, where in the curriculum there are many material chapters that are no longer specifically discussed, one of which is the material in this research which is currently incorporated in the material on the diversity of living things. Teachers need innovative worksheets to maximize the learning process and make it easier for students to understand the material because the worksheets in schools are still print-based and have never used electronic worksheets that can be accessed online. Based on the results of observations in class X students tend to have visual and auditory learning styles where they look enthusiastic when they see new things, one of which is when the teacher uses teaching materials and learning media that support the learning process such as videos and pictures that can explain or describe what is being explained.

Design Stage

The E-LKPD is made in Microsoft Word, Wizer.me, Canva and Flip PDF Professional which includes pictures, videos and links to practice or evaluation questions and practicum which are directly connected to the wizer.me website. The E-LKPD consists of a cover, preface, table of contents, instructions for use, Flow of Learning Objectives (ATP) & indicators, material summaries, activities in the E-LKPD, glossary, references and developer profiles.

Development Stage

At this stage, the E-LKPD is validated by material experts, media experts and product trials. The following are the results obtained:

Table 1. Material Expert Validation Results

Indicator	Stage Validation (%)		
	1	2	3
Compatibility with competence	75	75	75
Content	55.5	75	88.88
Evaluation	75	75	75
Language	62.5	75	75
Product Percentage (%)	56	75	83.33
Category	Not good	Good	Very good

Table 2. Media Expert Validation Results

Indicator	Stage Validation (%)	
	1	2
Consistency completeness	87.5	87.5
Legibility	70	85
Display Quality	60	75
Completeness	91.66	100
Product Percentage (%)	73.3	85
Category	Good	Very good

Table 3. Perception Results of Biology Teachers

Indicator	Stage Validation to (%)
Appearance	100
Content	93.75
Convenience	87.5
Benefits	100
Product Percentage (%)	95
Category	Very good

Table 4. Student Assessment Results

Indicator	Stage Validation to (%)	
	Small group	Big group
Appearance	95.83	86.23
Convenience	93.75	86.05
Attractiveness	91.66	86.41
Benefits	100	85.86
Product Percentage (%)	94.72%	85.94%
Category	Very good	Very good

Implementation Stage

The implementation phase carried out in this study was only carried out during product trials where the researcher introduced the E-LKPD to students, then

distributed student assessment questionnaires on the developed E-LKPD to find out whether the product was good enough to be used in the learning process.

Evaluation Stage

The evaluation phase carried out is formative evaluation. The formative evaluation activities carried out are material expert validation, media expert validation and product trials.

Product development in the form of E-LKPD assisted by wizer.me on the Gastropods sub-material was developed using the ADDIE development model with 5 stages. In the first stage, namely the analysis stage which consists of curriculum analysis, needs analysis, analysis of student characteristics and material analysis. Based on the results of observations made in schools, it was found that problems occurred in the learning process, especially in biology learning, namely the lack of variations in teaching materials in the form of printed worksheets and only used during practicums. The curriculum used has changed from the previous K13 curriculum to the Merdeka curriculum.

Along with the development of the world of education, the quality and quality of education itself must also be improved. Improving quality and quality is a policy that is of course dynamic and sustainable in the future. Therefore, developments and adjustments to the curriculum must also be carried out in order to improve the quality and quality of existing education (Arviansyah & Shagena, 2022). But with the changes in the curriculum used, of course there are also changes in the learning process. One of the impacts of this curriculum change is that there is a lot of material that is no longer specifically discussed, such as the Gastropods sub-material in the K13 curriculum, which is included in the kingdom Animalia, but in the Merdeka curriculum, the Animalia material is no longer specifically discussed so that it is combined with the material on the Diversity of Living Things which is discussed in outline.

Based on the results of the needs analysis obtained from interviews with the biology teacher, it is known that students' learning resources include subject books, powerpoints, pictures, learning videos and have never used electronic or online based worksheets. Students are more interested in following the learning process when the teacher displays new things such as using pictures, learning videos or direct practice. The use of information and communication technology in learning is carried out in order to increase effectiveness in the implementation of the learning process so that it is expected to increase student learning outcomes and the quality of individual students in terms of using technology more precisely and usefully. This is supported by the existence of school facilities such as the availability of wifi, a good operator network in the school environment and students are allowed to bring mobile phones.

Based on the results of the analysis of the characteristics of students, it is known that they tend to have visual and auditory learning styles so they are very enthusiastic, as they often ask questions when the teacher explains the material using the help of various teaching materials and they claim to be helped by the teaching materials and learning media that the teacher has been using in the process of learning. According to Khulsum et al. (2018) teaching materials are a set of learning tools or tools containing learning materials, methods, limitations and ways of evaluating that are designed systematically and attractively in order to achieve the expected goals, namely achieving competence and sub competence with all its complexity. The media is a container for messages that the source or distributor wishes to forward to the target or recipient of the message. Therefore, the role of teaching materials and media in the learning process is important because it will make the learning process more varied and not boring. In addition, the use of teaching materials and media also aims to convey learning messages in order to achieve the goals to be obtained from the learning process that has been carried out.

The results of the material analysis show that students still have difficulties in studying the Gastropods sub-material, among other things, students still do not know the characteristics of Gastropods such as a soft body, shell and walking using their stomach and the classification of the Gastropod class, in which case they are not too able to distinguish examples of species from the Gastropod class and examples of the species mentioned are not yet uniform. To help explain Gastropod class material, a wizer.me Assisted E-LKPD was created which can assist in the learning process. According to Prastowo (2014) LKPD consists of 6 main components namely titles, basic competencies, study guides and subject matter, supporting data, tasks or work steps, and evaluation.

After the analysis phase is carried out, then the design stage is carried out for the E-LKPD assisted by wizer.me which will be developed. At this stage the researcher made a storyboard. After storyboarding is complete, the E-LKPD will be designed and created using the Canva application, Microsoft Word 2019, the wizer.me website and will be published in the form of a link using the help of Flip PDF Professional v2.4.9.32.

After the E-LKPD has been designed and made, then the material is validated three times. Based on the results of validation by material experts, the final percentage of the E-LKPD was obtained at 83.33% in the "Very Good" category so that the E-LKPD was feasible to be tested on students without improvement. The

results of the material expert validation carried out can
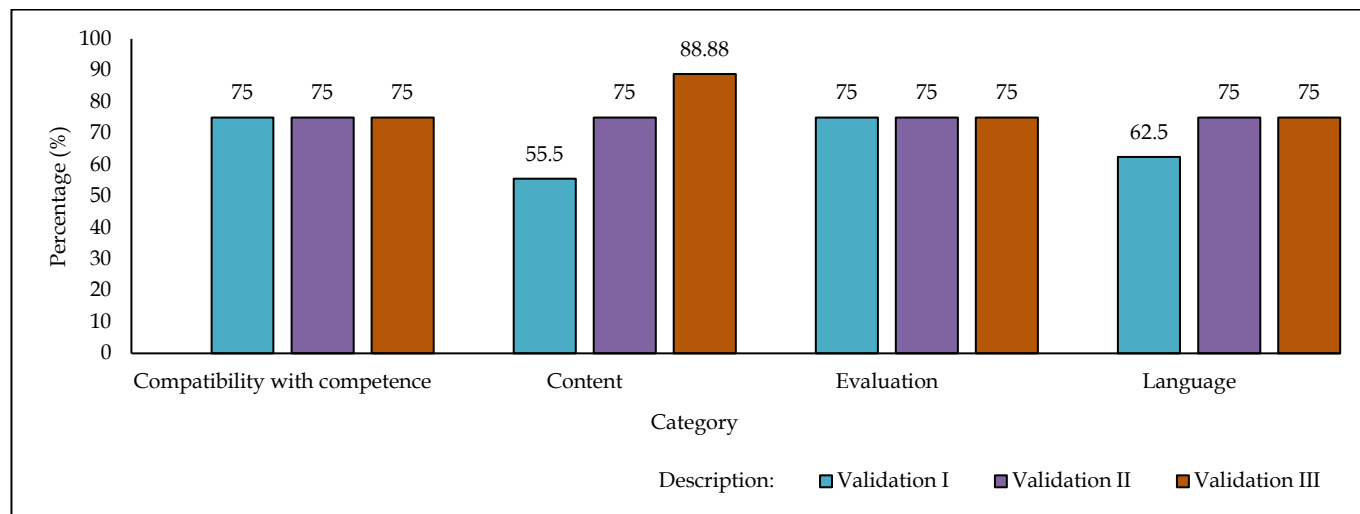
be seen in Figure 2.

Figure 2. Percentage of Material Expert Validation Results

The next stage is validation by media experts. Based on the validation results by media experts, the final percentage of the E-LKPD was obtained at 85% in the "Very Good" category and without any further improvements so that the E-LKPD was feasible to be tested in the field. From the two stages of media validation it can be concluded that the process for each stage shows improvement and the product is feasible to

try out. These results were obtained from the E-LKPD which was developed because the E-LKPD was made interesting, in which the e-LKPD assisted by wizer.me presented text, images, videos along with supporting links so that they could be accessed and clicked directly by students to view the images. or video more clearly. The results of media expert validation can be seen in Figure 3.
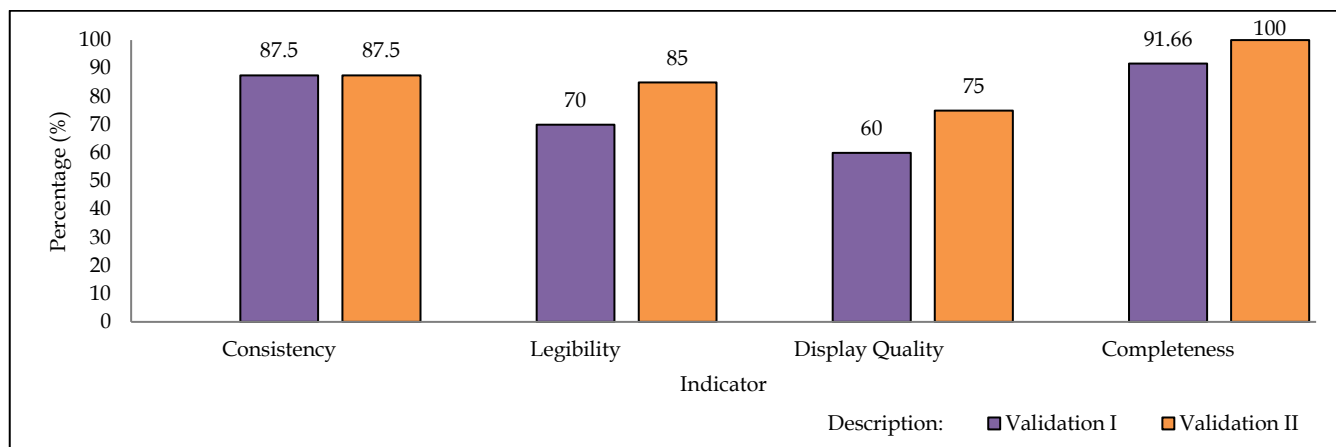

Figure 3. Percentage of Media Expert Validation Results

These results were obtained from the E-LKPD which was developed to be attractive and easy to understand. The presentation of the material is carried out well because it is systematic and coherent and consistent so that it can make it easier for students to understand the content of the material and the E-LKPD that is made. Then, the sentences used are simple and the language used is in accordance with Enhanced Spelling and standardized terms so that students can easily understand them. In addition, the use of pictures and videos in the E-LKPD also adds to students'

understanding of learning material.

According to Utami (2018) suggests that media images have benefits for students, namely: 1) facilitate students' understanding, 2) clarify and enlarge small important parts so that they can be observed, 3) generate interest in students and 4) can improve a description. Furthermore, the advantages of video media according to Rusman (2012), namely: 1) giving messages that can be received more evenly by students, 2) very suitable for explaining a process, 3) overcoming the limitations of space and time and 4) giving a deep

impression that able to influence the attitude of students.

After the e-LKPD product assisted by wizer.me has been validated, product trials are then carried out on biology teachers and students consisting of a small group of 6 people and a large group of 23 people. The results of the teacher's perception questionnaire on the E-LKPD obtained a percentage of 95% in the "Very Good" category. The results of the small group student questionnaire on the E-LKPD got a percentage of 94.72% in the "Very Good" category. The results of the large group student questionnaire on the E-LKPD got a percentage of 85.94% in the "Very Good" category. So it can be concluded that the developed E-LKPD can be used in the learning process because it is interesting, practical and easy to use and adds to knowledge related to the Gastropod class. Especially with the presentation of supporting videos in explanations so that students can streamline their time in learning, provide new experiences and provide accurate and more interesting information for students.

In the current era of globalization, Information Communication Technology (ICT) is very urgent, even a very essential requirement in determining the quality and effectiveness of the learning process. This makes technology an important thing in life in the 4.0 era. In the face of an increasingly rapid world change, science is very important to be integrated with technology. Based on this, LKPD innovation is needed based on technological developments (Suryaningsih et al., 2021). Utilization of information and communication technology in learning can support the development of students' cognitive, affective and social abilities to become higher (Ganefri et al., 2017). The use of technology in the learning process is 80% interesting and easy for students to understand (Ghavifekr & Rosdy, 2015).

The next stage is Implementation (Implementation) where in this study, this stage was only carried out during trials. This is due to limited teaching hours, material that has been completed, differences in curriculum during observation and product trials so that only product trials are carried out and students try to work on 2 practice questions in the E-LKPD with the results of 29 small and large group students where 20 students scored above Minimum Completeness Criteria (KKM) 72, 8 students scored below KKM, and 1 student only submitted but did not fill out questions. Thus, students can access and use the wizer.me website to work on the questions presented. The use of the wizer.me website can also be used as an alternative for teachers in making practice questions because there are various features available that make it easier for teachers.

The next stage, namely Evaluation, which is carried out is a formative evaluation. The formative evaluation activities carried out are material expert validation, media expert validation and product trials. After conducting product trials, from the results of the biology teacher's assessment questionnaire in the section on the suitability of the E-LKPD with ATP and the ease of accessing the E-LKPD, the lowest average score was 75%, this is a record and evaluation that in the future it is necessary to make better adjustments again in making a similar E-LKPD. The results of the response of small group students on the attractiveness indicator got the lowest average score, namely 91.66%, while the response of the large group on the usefulness indicator got the lowest score, namely 85.86%.

Conclusion

Development is carried out using the ADDIE model. This research produced a product in the form of an E-LKPD assisted by wizer.me on the gastropod sub-material for class X SMA. Product feasibility is obtained from the assessment of material expert validation and media expert validation. The product feasibility percentage was 83.33% and 85% in the "very good" category. The teacher's assessment of the E-LKPD obtained a percentage of 95% in the "very good" category. The response of the students in the small group trial obtained a percentage of 94.72% while in the large group trial it was 85.94% in the "very good" category. Suggestions and comments from students are used as researchers as evaluations and improvements to the E-LKPD so that it is more feasible and efficient to use in the learning process.

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