



Research Article

Development of Contextual Teaching and Learning (CTL) Oriented Student Worksheets (LKPD) on Digestive System Material for Class XI High School.

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ABSTRACT

Implementation of learning is one of the main tasks of teachers to teach students. The intended learning is the creation of conditions that allow it to occur in students. Learning will improve cognitive, affective, and psychomotor abilities, these abilities are accompanied by experience gained during the learning process that applies anywhere and anytime and can be applied in everyday life. One of the materials for class XI that is difficult for students to understand is the material on the digestive system. One way that can be done is to make it easier for students to understand the material on the digestive system by developing Contextual Teaching and Learning (CTL) oriented student worksheets teaching materials, with this worksheet students can relate learning materials to everyday life. Student worksheet (LKPD) development is carried out using 3 stages of 4-D model development. The stages are defined, design, and develop. The data collection instruments used were validity and response questionnaires. The student worksheets were validated by 3 validators and a response test was conducted on 25 students of class XI and one Biology teacher at SMA Negeri 2 Lembang Jaya. This research produces student worksheets with Contextual Teaching and Learning (CTL) orientation on the digestive system material for class XI. The results of the validity of the student worksheets obtained 91.78% with very valid criteria both in terms of the feasibility of content, language, presentation, and graphics. The results of the teacher's assessment of the practicality of the student worksheets obtained an average of 93.28% with practical criteria and an average student assessment of 86.65% with very practical criteria in terms of ease of use, efficient learning time, and benefits. It can be concluded that the student worksheets (LKPD) oriented to Contextual Teaching and Learning (CTL) with a valid category and the responses of teachers and students about its practicality are included in the very practical category.

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INTRODUCTION

Education in a broad sense is a learning experience that takes place in the living environment and affects individuals. Education in a narrow sense is teaching held in schools as formal educational institutions (Mudyahardjo, 2012). Law of the Republic of Indonesia No. 23 of 2003 states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by students, society, nation, and country.

Activities in the educational process are known as learning according to Johar and Hanum (2016), learning is an activity that involves teachers and students together to achieve the desired goals. Organizing learning is one of the main tasks of the teacher to teach students. Learning in question is the creation of conditions that allow it to occur in students. Students are expected to obtain learning outcomes in the form of intellectual, emotional, and physical experiences of students. Learning will improve cognitive, affective, and psychomotor abilities, these abilities go hand in hand with the experience gained during the learning process that applies wherever and whenever.

The ongoing learning process is supported by teaching materials. Teaching materials are components of learning tools for teachers to help improve student learning outcomes that are arranged practically and effectively. So that teaching materials make it easier for students to master the learning material taught in the learning process. Majid (2012) states that teaching materials are all forms of materials used by teachers to help carry out learning activities. With teaching materials, students can learn a basic competency coherently and systematically so that cumulatively they can master all competencies as a whole and integrate them.

Teaching materials have a function in the learning process according to Aisyah et al. (2020), there are three main functions of teaching materials in learning activities, namely: (1) guidelines for teachers in directing the learning process and the substance of competencies that should be taught to students, (2) guidelines for students in receiving directions in the learning process as well as a substance of competencies that students should learn/master, (3) teaching materials as a means of evaluating the achievement of learning outcomes so that teaching materials must be following the basic competencies and indicators to be achieved by the teacher. Teachers must be able to make suitable teaching materials, one of which is the Student Worksheet (LKPD). LKPD is teaching material in the form of sheets that contain material, summaries, and contains instructions that students must do. The purpose of LKPD is (1) to present a teaching material that makes it easier for students to interact with the learning material provided by the teacher, (2) to present tasks that can increase students' mastery of the material being studied, (3) trains students' independent learning, (4) makes it easier for teachers to give assignments to students (Krismawati, et al., 2019). Based on the results of interviews conducted by the author with biology teacher Mrs. Delsa Aryani, S.Pd. at SMA Negeri 2 Lembang Jaya on January 26, 2021, revealed that the teaching materials used were in the form of textbooks, modules, PPT, and LKPD. The LKPD used found several shortcomings, including the LKPD used by students was less attractive because the material presented was in the form of just sentences

without pictures that clarified students' understanding of learning material. Images on teaching materials make students feel challenged, interested and think about finding and exploring further the learning material.

Hilmi (2017), states that in the learning process using pictures, students' learning experience increases, and students not only get information in the form of words but get real experience from the images displayed so that learning material stays in memory longer. The LKPD used by the teacher has not provided examples that are close to real life. In the absence of examples, students prefer to receive and listen to explanations from the teacher rather than discover concepts actively from the material discussed in the learning process. The LKPD used by the teacher has not displayed certain characteristics such as the use of learning steps.

Mrs. Delsa Aryani and an analysis of 25 students stated that the digestive system material is one of the class XI learning materials which is classified as difficult with a percentage of 44%. Under Aydın's (2016) statement, the human digestive system is a difficult material because the study of its physiology is abstract. The mechanism of the digestive system cannot be seen directly, so the understanding that students receive is often not by scientific concepts. In addition to examining the relationship between the structures in the tissues that make up the organs in the digestive system about nutrition, basic competence in the digestive system material also requires explaining bioprocesses and disorders that occur in the human digestive system. Mrs. Delsa Aryani revealed that students had difficulty understanding the processes that occur in the digestive system and tended to only memorize the organs. This method of learning by memorizing does not equip students to solve problems in the long term. This is because memorization is only able to survive for a short time. Learning by memorizing makes it difficult for students to understand the concepts in biology lessons. Memorizing material from textbooks without understanding its meaning results in learning objectives not being achieved. Learning material obtained during the learning process is not only to get grades but must be useful in everyday life. Following Trianto (2012), that learning will be meaningful if students learn learning materials that are appropriate to the context of life and find meaning in the learning process so that learning is more enjoyable.

Based on the results of the student questionnaire 100% of students needed teaching materials that were packaged in an attractive, easy-to-understand, and equipped with pictures. In the analysis of the needs of teaching materials, as many as 66% of students stated that teaching materials were very important in the learning process. The teaching materials in question are LKPD which are related to everyday life. That LKPD needs to be used to support learning. The learning model that supports knowledge related to everyday life is Contextual Teaching and Learning (CTL). Herianto and Indana (2020) state that Contextual Teaching and Learning (CTL) is a learning activity that encourages students to make connections between the knowledge acquired in the learning process and its application in everyday life as members of the family and society. According to Selvianiresa and Prabawanto (2017), Contextual Teaching and Learning (CTL) is learning that emphasizes active students trying new things by connecting their experiences, and

helping students build their minds, rather than passive recipients of the information. There are 7 learning components of Contextual Teaching and Learning (CTL), namely constructivism, discovery, asking, learning communities, modeling, reflection, and actual assessment.

According to Hasibuan (2014), the characteristics of Contextual Teaching and Learning (CTL) learning are (1) making meaningful relationships (learning by doing), (2) carrying out significant activities, students can connect between learning and real life, (3) self-regulated learning, (4) work together, students can work together effectively, teachers help students understand by communicating with each other, (5) think critically and creatively, students can think at a higher level so they can analyze, solve problems, make decisions, and use logic and can be proven, (6) maintain students' personalities by knowing, paying attention, giving hope, motivating, and strengthening themselves, (7) achieving high standards, (8) using authentic assessments, students are able to use academic knowledge in real-world contexts for meaningful purposes.

Associating learning materials with Contextual Teaching and Learning (CTL) orientation in everyday life can encourage students to make connections between the knowledge they have and apply it in their lives as a family and community. Based on the description above, the authors conducted research on "Development of Contextual Teaching and Learning (CTL) Oriented Student Worksheets on Digestive System Material for Class XI SMA".

METHOD

This research was developed using 3 stages of 4-D model development. The stages are defined, designed, and develop. The data collection instrument used was a validity and response questionnaire. LKPD was validated by 3 validators and a response test was carried out on 25 class XI students and one Biology teacher at SMA Negeri 2 Lembang Jaya.

- a. Determine the validity value by:

$$\text{Validity value} = \frac{\text{Total score obtained}}{\text{Total highest score}} \times 100 \%$$

- b. Provides a modified validity assessment of (Riduwan, 2011).

81% - 100%	= Very Valid
61% - 80%	= Valid
41% - 60%	= Valid Enough
≥21% - 40%	= Invalid

- c. The product response value developed with the results of data tabulation is then searched using the formula (Purwanto, 2012).

$$\text{Percentage of response} = \frac{\text{Score obtained}}{\text{Maximum score}} \times 100\%$$

- d. Provides a response test assessment according to the criteria modified from (Riduwan, 2011).

91%-100%	= Very Good
76% - 90%	= Good
61% - 75%	= Fairly Good

≥60% = Not Good

RESULT AND DISCUSSION

The Validation Analysis of Contextual Teaching and Learning (CTL) oriented worksheets are as follows.

Table 1. Analysis of Contextual Teaching and Learning (CTL) Oriented LKPD Validation

No.	Aspects	Value Validity (%)	Criteria
1.	Content eligibility	92.59	Very Valid
2.	Linguistics	91.67	Very Valid
3.	Presentation	90	Very Valid
4.	Graphics	92.86	Very Valid
Average		91.78	Very Valid

The average validation value of Contextual Teaching and Learning (CTL) oriented worksheets on digestive system material for class XI SMA is 91.78% with valid criteria. This shows that the developed LKPD is valid from various aspects, namely content feasibility 92.59%, language 91.67%, presentation 90.00%, and graphics 92.86%.

Based on the aspect of the language component, it has an average of 91.67%. the validity with very valid criteria. The linguistic component includes readability, clarity of information, good and correct rules of the Indonesian language. In terms of the graphical component, it has a validity value of 92.86% with very valid criteria, this indicates that the developed LKPD is good and interesting. The indicators of the graphic component are the suitability of the use of type and size of letters, the suitability of the layout, the suitability of images and tables, and the suitability of the display design. In accordance with Busljeta (2013), in making teaching materials must pay attention to things such as color composition, appearance, and type and size of letters to increase student motivation and the learning process.

The response test was carried out by filling in the teacher and student response questionnaires. Analysis of the results of the response test by the teacher can be seen in Table 2.

Table 2. Results of Teacher Responses on the Practicality of Contextual Teaching and Learning (CTL) Oriented Worksheets on Digestive System Material for Class XI SMA

No.	Aspects	Response Values (%)	Criteria
1.	Ease of use	96.87	Very Practical
2.	Effective learning time	87.50	Very Practical
3.	Benefits	95.45	Very Practical
Average		93.27	Very Practical

Based on Table 2, it can be seen that the teacher's response to Contextual Teaching and Learning (CTL) oriented worksheets on digestive system material for class XI SMA was very good. This shows that LKPD is very well used by teachers as teaching material on the digestive system material.

The Contextual Teaching and Learning (CTL) oriented LKPD response test was carried out by 25 students. The results of the response test analysis can be seen in Table 3.

Table 3. Results of Student Responses on the Practicality of Contextual Teaching and Learning (CTL) Oriented Worksheets on Digestive System Material for Class XI SMA

No.	Aspects	Response Values (%)	Criteria
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1.	Ease of use	88.50	Very Practical
2.	Effective learning time	85	Very Practical
3.	Benefits	86.45	Very Practical
Average		86.65	Very Practical

Based on Table 3 it is known that the response of students to Contextual Teaching and Learning (CTL) oriented worksheets (LKPD) on digestive system material for class XI SMA was 86.65% with good criteria. This shows that LKPD is well used by students as teaching materials in learning about the digestive system material for class XI SMA.

Judging from the aspect of ease of use by teachers and students on Contextual Teaching and Learning (CTL) oriented worksheets, it is categorized as very good by teachers with an average of 96.87% and good by students with an average of 88.50%. This shows that the Contextual Teaching and Learning (CTL) oriented LKPD is clear, and simple, the language is easy to understand, has good size, and is easy to use.

In terms of the efficient aspect of learning time, the teacher is categorized as good with an average of 87.50% and students are in the good category with an average of 85%. This shows that Contextual Teaching and Learning (CTL) oriented worksheets are efficient to use because they can help teachers and students allocate the right time in the learning process of the digestive system. According to Safira (2020) good teaching materials are efficient in the use of learning time to increase the activity and independence of students with all the limitations of space and time they have.

In terms of the benefits aspect, teachers and students are categorized as very good with an average of 95.45% and students with 86.45% with a good category. This shows the well-developed Contextual Teaching and Learning (CTL) oriented worksheets. This shows that the LKPD-oriented Contextual Teaching and Learning (CTL) is very useful for teachers and students. The benefits obtained are 1) assisting the teacher's role, 2) helping students understand concepts, 3) helping students associate learning material with real life (CTL), 4) increasing students' interest and motivation to learn, 4) creating feelings of joy in learning, and 5) help students learn independently. The statement of Lufri et al. (2018), is that the learning atmosphere will usually be attractive to students so that students quickly understand the learning material. In general, this research went smoothly. The obstacle encountered in this study was the limited time to carry out practicality tests so only response tests were carried out by teachers and students.

CONCLUSION

Contextual Teaching and Learning (CTL) Oriented Contextual Teaching and Learning (CTL) Student Worksheets on digestive system material for class XI SMA developed can be categorized as very valid and produced through 3 stages of the 4-D model, namely the define, design, and develop stages. It can be concluded that LKPD with Contextual Teaching and Learning (CTL) orientation is valid and good for teachers and students.

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