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Development of ESQ-Based LKPD on the Circulation System Material For SMA/MA

Khairatunnisa[1]*, Ardi[2], Syamsurizal[3], Relsas Yogica[4], Helsa Rahmatika[5]
Biology Education Study Programme, Padang State University
*Correspondence Address: krtn2801@gmail.com

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ABSTRACT

The objective of the Merdeka Curriculum is to address previous educational issues, which requires appropriate learning media with a supportive model. The learning media commonly used by teachers at Padang 8 State Senior High School is LKPD. The learning model commonly used by teachers at Padang 8 State Senior High School is PBL. However, the LKPD still used by teachers does not yet include cases in the LKPD. The Merdeka Curriculum not only prioritises cognitive values but also spiritual values. All biology materials can be linked to ESQ. LKPD that contains models and is equipped with ESQ will add a spiritual dimension to students. The results of interviews and observations of students show that the material on the circulatory system is difficult to understand. Therefore, PBL-based LKPD with an ESQ nuance was developed for the material on the circulatory system. The research and development (R&D) used a 4-D model that was limited to 3-D, namely define, design, and develop. The research instruments used in this study were interview sheets for teachers, validity test sheets, and practicality test sheets. In the definition stage, data was collected by interviewing one biology teacher and distributing observation sheets to 63 students in Phase F at Padang 8 State Senior High School. The data obtained was then analysed qualitatively and quantitatively. Based on the research results, it can be concluded that the validity test results obtained were 83.31% (highly valid) and the practicality test results obtained by teachers were 93.05% (highly valid), while the results of the practicality test by students obtained 90.33% (highly valid), thus producing a PBL-based LKPD with an ESQ nuance on the subject of the circulatory system for senior high school/MA that is highly valid and highly practical.

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INTRODUCTION

Education is a goal-oriented process. Education is pursued because there are certain objectives to be achieved. The goals of national education, as formulated in the Basic Education Law, reflect the entirety of Indonesia both as a religious being, a social being, an ethical being, an intellectual and creative being, as well as a good citizen (Kuntjojo., 2022). According to Suryana *et al*., (2018) In the education system, the curriculum is a

very important component because it not only concerns the goals and direction of education, but also the learning experiences that each student must have and how to organize those experiences. In line with the opinion Sukmawati *et al*., (2023) the curriculum serves as a guideline for organizing learning activities, implying that within the curriculum there is guidance for interactions between teachers and students. Thus, the curriculum functions as the 'heart' of the educational process in schools to empower students' potential.

Currently, the curriculum in Indonesia has changed from the 2013 curriculum to the independent curriculum. The independent curriculum is a new curriculum that has been officially approved as a refinement of the 2013 curriculum and the emergency curriculum. This curriculum will be fully implemented in 2024 after an evaluation of K-13 is conducted. The core of the independent curriculum is independent learning. It is designed so that students can explore their own interests and talents more deeply (Ainissyifa *et al*., 2023). The use of learning media in the Merdeka curriculum is also based on students' learning styles, namely visual, auditory, and even kinesthetic. The use of media should not be too much or excessive in the classroom because it can confuse students and not clarify the concepts being taught specifically (Ningsih *et al*., 2024)..

From the interview with the biology teacher at SMAN 8 Padang, Mrs. Mailizarni, S.Pd, M.Si, she applies biology learning methods through group discussions, demonstrations, experiments, and Question & Answer sessions with students. However, there are still some students who are not active in learning biology. The learning media already used by the teacher, especially those teaching in Phase F, include textbooks, student worksheets (LKPD), assisted with learning videos related to the lesson material. She has also implemented learning models, one of which is Problem Based Learning (PBL). However, the difficulty experienced by the teacher in applying this model is that there are still students who are unable to analyze a given problem. The student worksheets (LKPD) used by teachers still do not include the PBL syntax within the worksheets. It can be concluded that the worksheets used are still general worksheets and contain brief introductory material and unclear images, making it difficult for some students to understand them. Problem Based Learning (PBL) is a learning model that focuses on solving real problems as a way to enhance students' understanding and skills. PBL aims to make learning more relevant and contextual, so that students can apply their knowledge in real-world situations (Budiarti *et al*., 2024). In line with the opinion Parapat *et al*., (2023) It states that linking the PBL learning model provided in the LKPD can encourage students to solve problems so that they can better understand the material.

Based on interviews with teachers and observations of eleventh-grade students in Phase F at SMAN 8 Padang, the circulatory system material is considered difficult to understand, with a data acquisition rate of 98.4%. This is due to the material being very complex and students not being able to observe the material being taught directly, so the information conveyed to the students does not achieve the intended learning objectives. Therefore, the researcher chose the circulatory system material according to the results of interviews and observations of the students. Based on the Daily Assessment (PH) scores obtained from the school for the 2023 academic year, the PH scores for Phase F. In

the Independent Curriculum, the teacher is essentially the teacher who adjusts the way students learn to the various characteristics of the students. The Independent Curriculum is not only demanding cognitive, but attitude and character are also demanded not far from the 2013 curriculum where the spiritual aspect is the most prioritized as well as the Independent Curriculum. In line with the goals of national education, both the books and LKPD used do not contain values related to the Emotional Spiritual Quotient (ESQ). according to (Dewi & Rodli, 2021) In the ESQ concept, every human being has intellect and emotions, but these two aspects are not complete if they are not combined with spiritual intelligence. Emotional Spiritual Quotient (ESQ) is the way we utilize spiritual meaning, values, purpose, and motivation in our thinking process (IQ) and feeling process (EQ) when making decisions, and in thinking or doing something with ESQ, we as humans acknowledge the existence of God with all His greatness and can implement it in daily life. This is a (religious) psychology concept that acknowledges the existence of God, which is different from Western psychology concepts that rely only on intellect (ratio) and emotions.

By adding ESQ to several pages in LKPD, students know how important attitudes and ethics are in social relations with fellow humans. All biological material can be associated with ESQ, because biology is close to our lives and all problems in this universe will have solutions in the Qur'an if we continue to learn and find out. ESQ is one of the alternatives to achieve an education that is loaded with norms and values. Based on the results of student observations, data was obtained that 100% of students agreed to develop LKPD with ESQ nuances. This is in line with the research findings Darussyamsu, *et al.,* (2018) In the evolution material, the ESQ approach can improve students' acceptance and understanding of evolution in the evolution material in the Biology Department of UNP. Based on the problems and findings of previous researchers, the researcher has conducted a development study on PBL-Based ESQ-Inspired Student Worksheets on the Circulatory System Material for SMA/MA.

METHOD

This research is a development study (Development Research or R&D) using the 4-D model developed by S. Thiagarajan, Dorothy S. Semmel, and Melvyn I in 1974, only up to the Develop stage, which includes validity testing and practicality testing. The subjects of this study were two Biology lecturers from the FMIPA UNP, namely Dr. H. Syamsurizal, M. Biomed, and Relsas Yogica, M.Pd, as well as three high school Biology teachers from SMA Negeri 8 Padang serving as validators, namely Mailizarni, S.Pd, M.Si, Syafia Devita, S.Si, and Fitri Handayani, S.Pd. Delviza Eka Putri, S.Pd and 32 students from class XII F2 at SMAN 8 Padang participated in testing the practicality. The object of this study was PBL-based LKPD infused with ESQ elements on the circulatory system material at SMAN 8 Padang. This research was conducted at SMA Negeri 8 Padang and the Department of Biology, Faculty of Mathematics and Natural Sciences, State University of Padang. The study was carried out from November 2023 to August 2024. The data used in this research are primary data. Primary data are data obtained directly from the research subjects, which include teacher interview sheets, student observation sheets, validity test sheets,

and practicality test sheets of PBL-based LKPD with ESQ nuances on the topic of the circulatory system.

RESULTS AND DISCUSSION

a. The Validity Of PBL-Based LKPD With ESQ Nuances

The PBL-based ESQ-themed LKPD was validated by Dr. H. Syamsurizal, M. Biomed, and Mr. Relsas Yogica, M.Pd, as well as three Biology teachers from SMA Negeri 8 Padang as validators, namely Ms. Mailizarni, S.Pd, M.Si, Ms. Syafia Devita, S.Si, and Ms. Fitri Handayani, S.Pd. The results of the validity test of the PBL-based ESQ-themed LKPD can be seen in Table 1.

Table 1. Validity Test Results By Validators

No.	Aspect	Validation (%)	Value	Criteria
1.	Content Suitability	83,33%		Very Valid
2.	Language	81,25%		Very Valid
3.	Presentation	85,83%		Very Valid
4.	Graphics	82,85%		Very Valid
Average		**83,31%**		**Very Valid**

Source: Validity Test By Validators, 2024

Based on the validity test results by the validators in Table 1, the average validity score of 83.31% is categorized as very valid in terms of content feasibility, language, presentation, and graphic quality of the LKPD, making it suitable to proceed to the practicality stage. In the aspect of content feasibility, the PBL-based LKPD with an ESQ nuance received a score of 83.33%, categorized as very valid. This indicates that the developed LKPD meets the valid criteria. In line with the opinion Yanti *et al*., (2019) that the feasibility aspect of the content includes the suitability of the material description, the accuracy of the material, and the up-to-date of the material. In the linguistic aspect, the PBL-based LKPD with ESQ nuances obtained a score of 81.25% with very valid criteria, this shows that the ESQ-based PBL-based LKPD in the Phase F of the high school circulation system material that was developed has used clear language and in accordance with good language rules according to EYD so that it does not cause double information and is overall easy to understand by students. In line with the opinion Irsalina & Dwiningsih., (2018) stating the writing and language of the LKPD in an easily understandable way makes it easier for students to understand, thus preventing different interpretations.

In terms of the graphics aspect, the PBL-based LKPD with an ESQ nuance that was developed received a score of 82.85%, with the criterion of very valid. This criterion indicates that the LKPD already contains components such as clear instructions, a review of competencies, learning objectives, systematic material, and is equipped with PBL and ESQ. In line with the opinion Astuti *et al*., (2018) stating that LKPD can also provide full

opportunities for students to express their abilities in developing thinking skills through searching, guessing, and even reasoning. In terms of graphics, the PBL-based LKPD with an ESQ nuance obtained a score of 82.85%, with a very valid criterion. This criterion shows that the PBL-based LKPD with an ESQ approach already has an appropriate font size and type, the images presented, and the media display are suitable for the needs of the students. In line with the opinion Umbaryati., (2016) stating that a good image for LKPD is one that can effectively convey the message or content of the image to the LKPD users, with the more important aspect being the clarity of the content or message of the image as a whole.

b. The Practicality Of PBL-Based LKPD With ESQ Nuances

The practicality test stage of the ESQ-themed PBL-based LKPD on the circulatory system material was carried out by a biology teacher at SMA Negeri 8 Padang, namely Mrs. Delviza Eka Putri, S.Pd, and 32 students of class XII Fase F2 at SMA Negeri 8 Padang. The results of the practicality test of the ESQ-themed PBL-based LKPD by the teacher and students can be seen in Table 2.

Table 2. Results Of Practicality Tests By Teachers And Students

No	**Aspect**	**Practical Value**	
		Teacher	**Students**
1.	Attractiveness	95,83%	89,96%
2.	Ease Of Use	89,58%	90,23%
3.	Benefits	93,74%	90,81%
	Average	93,05%	90,33
	Criteria	Very Practical	Very Practical

Source: Practical Testing By Teacher And Students, 2024

Based on the results of the practicality test by teachers and students, the PBL-based ESQ-themed LKPD on the circulatory system material obtained a score of 93.05% from teachers with the criterion of very practical, while the practicality from students obtained a score of 90.33% with the criterion of very practical. In terms of the attractiveness aspect, the PBL-based ESQ-themed LKPD on the circulatory system material developed received a score of 95.83% from teachers with the criterion of very practical, while for students it received a score of 89.96% with the criterion of very practical. The attractiveness score of the ESQ-themed PBL-based LKPD was highest for teachers because LKPD is one of the learning media that can be used by teachers, especially for the circulatory system material. ESQ-themed PBL-based LKPD can motivate students to learn; if students have the desire to learn, it is easier for teachers to deliver the learning material, so ESQ-themed PBL-based LKPD can also help overcome students' boredom. The attractiveness score for students was 89.66% with a very valid criterion, indicating that the developed LKPD presents images and visuals that are interesting for students to see, thereby helping to overcome students' boredom during learning. In line with the opinion Teresya *et al*., (2022) stating that the indicators of usability are easy to learn, easy to use, and clear and easy to understand.

In terms of ease of use, the ESQ-themed PBL-based student worksheet (LKPD) developed received a score of 89.58% from teachers, with a very practical criterion, while for students it received a score of 90.23%, also with a very practical criterion. The ease of use score by teachers is 89.58%, which is slightly lower than that of the students. Since students find it easy to use the LKPD, teachers can guide them in completing it without spending much time on understanding the biology material. The highest ease of use score for the ESQ-themed PBL-based LKPD was obtained from the students because the LKPD also serves as a tool to help them understand the learning material. The instructions for using the PBL-based LKPD with an ESQ nuance are easy for students to understand, allowing them to save time in comprehending the material and completing the exercises in the LKPD. In addition, the LKPD uses language that is easy for students to understand and has a suitable format that is easy for students to carry anywhere. In line with the opinion Sartika., (2019) stating that the selection and use of good compositions as well as communicative illustrations need to be considered so that the developed learning media can increase students' attention and interest.

In terms of the benefits, the developed LKPD received a score of 93.74% from teachers with a very practical criterion, while students obtained a score of 90.81% with a very practical criterion. In terms of benefits, the highest score was obtained in practicality by teachers. This is because the developed LKPD can assist students in independent learning, help teachers in conducting a well-directed learning process, and help teachers in developing students' thinking through PBL, where there are cases that train students' critical thinking skills in finding solutions to problems and support teachers as facilitators. The PBL-based LKPD with an ESQ nuance is designed to include ESQ, allowing students to relate verses from the Qur'an, especially in the material on the circulatory system. In line with the opinion Zulaeha *et al*., (2024) stating that the LKPD also makes students more active in learning activities and the LKPD also helps in the process of understanding as well as practicing the material that will be studied.

CONCLUSIONS AND SUGGESTIONS

Conclusions

Based on the results of the research conducted, it can be concluded that the validity test conducted by 2 biology lecturers and 3 biology teachers at SMA Negeri 8 Padang obtained a score of 83.31% with the criterion of very valid. In the practicality test conducted by 1 biology teacher at SMA Negeri 8 Padang, a score of 93.05% was obtained with the criterion of very practical, and 32 students of class XII Fase F2 obtained a score of 90.33% with the criterion of very practical.

Suggestions

Based on the research that has been conducted, the study suggests the following.

1. Other researchers are expected to maximize the implementation of the research so that the effectiveness testing stage of PBL-based LKPD with an ESQ approach on the circulatory system material for high school/Islamic senior high school can be conducted.

2. Other researchers are expected to be able to relate biology material to ESQ, because all biology material can be linked to ESQ and ESQ is very important for students, especially in the independent curriculum.

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