

The Effects of Application of Student Worksheets Based on PITA Questions (Productive, Imaginative, Open, and Analytical) and Local Wisdom on Student Independence

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Abstract. This study aims to see student independence through the provision of student worksheets based on "PITA" questions (Productive, Imaginative, Open, and Analytical) and local wisdom. The research was conducted at the Teacher's Training and Education Faculty Universitas Riau (Biology Education Study Program). The research was conducted in the Invertebrate Systematics course, during March-April 2022. This research is a quantitative descriptive study. Data collection using e-questionnaire (google form) and interview guidelines. The e-questionnaire (google form) is used through a summative response scale, using a modified Likert scale with 4 answer choices. The results of the study explain that the application of LKM based on "PITA" questions (Productive, Imaginative, Open, and Analytical) and local wisdom has an impact on increasing student independence by 88%. The dominant indicator that develops is self-regulation by 93%. The results of the interview also explained that 95% of students were more independent in mastering the concept of Invertebrate Systematics and were able to relate it to local wisdom. The increase in student independence is due to the existence of a question guide that is able to stimulate students to study independently and be able to relate it to local wisdom.

Keywords: Student worksheets based on PITA questions and local wisdom, student independence

INTRODUCTION

21st century learning, technological advances, and the Covid-19 pandemic have further emphasized the importance of learning that leads to hybrid and blended learning. Hybrid and blended learning can be applied in whole or in part. Worksheets can be designed manually or electronically, the most important thing is to help in achieving the goals to be achieved in the learning process. Worksheets are used in learning to have a clear direction, while the accuracy of their design can help students to study individually or in groups actively (Sari and Wulanda, 2019). Worksheets make students understand and solve problems in the surrounding environment scientifically (Trisianawati and Darmawan, 2018).

The Student Worksheet (LKM) is a guide for students to carry out investigations or problem solving activities that can develop process skills so that students are able to find and develop facts, concepts, attitudes and values from the material that has been delivered (Julianti and Sumarmin,



2018). The worksheets used should not only contain material, but also be able to integrate local wisdom or local culture, so that learning is more contextual and culture-based.

Local wisdom is an idea or idea of the local community that has wise and wise values that are still maintained by the community from generation to generation (Ilhami & Riandi, 2018). The purpose of local wisdom is that the learning can be oriented towards increasing the literacy skills of students and maintaining the ideas or ideas of the local community that are wise and wise. Thus, local wisdom can be used as a source of learning for students because it contains knowledge (Ilhami et al, 2018). According to Snively & Corsiglia (2001) that indigenous science has been developing in society for generations. Wijana (2015) in his research explains that the integration of local wisdom-oriented character education in environmental science courses can improve the soft skills of biology students. The local culture that is integrated in the learning model is called the local culture-based learning model. This model is quite effective in improving the basic science skills of junior high school students (Suastra & Tika, 2011).

The availability of worksheets is very helpful in the learning process, especially learning in universities which predominantly use practicum. Especially in the Invertebrate Systematics course. This course is a course that requires practicum (in the room or in the field). This course is also an activity that directs students to learn how to observe species, identify the characteristics and characteristics of each phylum, classify species based on their phylum, explain the different characteristics of each phylum, examine the life of each invertebrate animal, and know the role of each invertebrate. invertebrates for life. Based on the explanation above, it can be concluded that the Invertebrate Systematics lecture has many benefits, is interesting to learn, is very important for the development of other sciences, and is useful for humans in dealing with evolution due to natural changes (R.A. Putra, 2014).

The worksheets used in invertebrate systematics lectures are not only oriented to local wisdom, but are expected to be able to accommodate students' higher-order thinking skills. Thus, the form of questions in electronic worksheets is the main key in the success of a worksheet. Questions that are considered appropriate to the learning needs of students are the "PITA" questions (Productive, Imaginative, Open, and Analytical). PITA questions are included in the types of high-level questions. Sarihat and Munastiwi emphasized in their research that one of the most effective ways to stimulate "experiencing" activities for students is by giving assignments through productive, imaginative, and open-ended questions (Sarihat and Munastiwi, 2021). However, making PITA questions is not



easy. Educators are still difficult in designing PITA questions (Maryono and Budiono, 2021).

Learning today does not only produce students who master various competencies, but more than that. The resulting students must be able to become lifelong students who are competent, have character, and behave according to the values of Pancasila. This is related to two things, namely the competence to become a democratic Indonesian citizen and to become a superior and productive human being in the 21st Century. In this case, Indonesian students are expected to be able to participate in sustainable global development and be resilient in facing various challenges. The explanation formulates a form of students or students that Indonesia expects, namely students who have a Pancasila profile.

The Pancasila Student Profile has six competencies that are formulated as key dimensions, namely: Faith, fear of God Almighty, and noble character; Global diversity; Worked together; Independent; Critical reasoning; and Creative. Specifically in this study, researchers focused on student independence. Learning independence affects a person's learning outcomes (Laksana and Hadijah, 2019). Thus, the researchers measured the independence of students after the implementation of the student worksheet based on the "PITA" (Productive, Imaginative, Open, and Analytical) question and local wisdom.

METHODS

This research is a quantitative descriptive study, which was carried out at the Riau University's FKIP (Biology Education Study Program). Research that uses quantitative is because it uses numbers, starting from data collection, interpretation of the data, and the appearance of the results (Arikunto, 2013). The research was conducted on the Invertebrate Systematics course, during March-April 2022. The data collection used an e-questionnaire (google form) and interview guidelines. e-questionnaire (google form) which is used through a summative response scale, using a modified Likert scale with 4 answer choices. The Likert scale is a way to measure attitudes, opinions, and perceptions of a person or group about social phenomena (Sugiyono, 2014). The data obtained were analyzed by considering the range interval and the interpretation of independence. More clearly can be seen in Table 1.



Table 1. The Range and Interpretation of Independent Learning

Average Score Range	Interpretation
0 - 25	Low / Not Independent
26 - 50	Less / Less Independent
51 - 75	Enough / Self-Sufficient
76 - 100	Tall / Independent

RESULTS AND DISCUSSION

The results of the study explain that the application of LKM based on "PITA" questions (Productive, Imaginative, Open, and Analytical) and local wisdom has an impact on increasing student independence. The dominant indicator developing is self-regulation, more clearly can be seen in Figure 1.

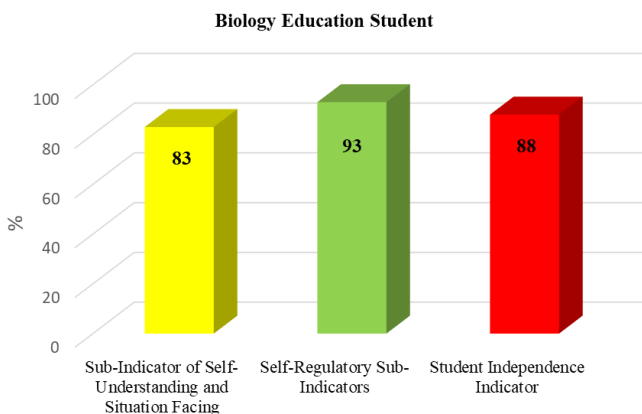


Figure 1. Data on Independence Indicators and Sub-Indicators

Figure 2 is also supported by the results of the interview, which explains that 95% of students are more independent in mastering the concept of Invertebrate Systematics and are able to relate it to local wisdom. The increase in student independence (88%) was due to the existence of a question guide that was able to stimulate students to study independently and be able to relate it to local wisdom. The independence referred to in the dimension of the Pancasila student profile is that Indonesian students have the initiative for their own development which is reflected in the ability to be responsible, have strategic plans, take action and reflect on the process and results of their experiences. For this reason, Indonesian students need to have self-awareness and the situation at hand and have self-regulation. Independence is an activity that is carried out



without depending on others in achieving goals (Suhendri and Mardalena, 2013).

Self-regulation is a very prominent sub-indicator of independence from the research results (93%). Self-regulation is an individual's internal component that raises motivation and moves individuals to be able to design, achieve life goals and evaluate every effort made and involvement in the organization is only one of the factors related to increasing the ability of individual self-regulation (Grahani and Mardiyanti, 2019). Research results R.A. Putra emphasized that the dominant indicator for developing is self-regulation, amounting to 92% (biology study program) and 90% (citizenship education study program) (R.A. Putra et al, 2022). Thus, it is increasingly important for educators to help improve self-regulation in students.

The integration of local wisdom in the worksheet is important and greatly affects the learning process. In addition, exploring local wisdom is a positive study in order to keep local culture from becoming extinct. Student teacher candidates, who will later become teachers, should be able to integrate learning with local wisdom. Teachers also take part in preserving the local potential so that it does not become extinct over time (Pieter, 2016). The use of local wisdom helps students understand the learning process by direct observation of the learning object. In line with the nature of learning which should emphasize process skills so that students are more active in building their knowledge (Ilhami et al, 2018).

The high level of independence and understanding of local culture cannot be separated from the form of the worksheets used. The worksheets used should contain questions that are able to lead students to higher-order thinking. The problems presented on the worksheets can use everyday problems to be solved in groups so as to provide opportunities for students to gain understanding, improve creative thinking skills (Sari and Wulanda, 2019) and improve scientific literacy skills (Rosdiana, et al. 2018).

Based on their nature, advanced questions are divided into 4, namely: productive, imaginative, open, and analytical (PITA). 1) Productive questions are questions that encourage students to make observations, experiments and investigations. The opposite of productive questions are unproductive questions. 2) Imaginative questions are questions that encourage students to imagine. The opposite of imaginative questions are factual questions. 3) Open-ended questions are questions that encourage students to find more than 1 correct answer. The opposite of open questions are closed questions. 4) Analysis questions are questions that direct students to analyze a question, so that a comprehensive answer is produced (Tanoto Foundation Program PINTAR, 2018).



PITA questions are included in the types of high-level questions. Sarihat and Munastiwi emphasized in their research that one of the most effective ways to stimulate “experiencing” activities for students is to give assignments through productive, imaginative, and open-ended questions (Sarihat and Munastiwi, 2021). PITA questions are questions that can improve various competencies and accommodate various types of learning styles.

CONCLUSIONS AND SUGGESTIONS

The application of LKM based on "PITA" questions (Productive, Imaginative, Open, and Analytical) and local wisdom has an impact on increasing student independence by 88%. The dominant indicator that develops is self-regulation by 93%. The results of the interview also explained that 95% of students were more independent in mastering the concept of Invertebrate Systematics and were able to relate it to local wisdom. The increase in student independence is due to the existence of a question guide that is able to stimulate students to study independently and be able to relate it to local wisdom.

It is necessary to conduct research to measure the correlation of self-regulation with students' mastery of concepts in the Invertebrate Systematics course and further analysis related to Indigenous Science related to the concept of invertebrate systematics.

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