



Identification of Students' Self-Regulated Learning Using E-Module Assisted with Integrated Liveworksheets of Toraja's Local Potential

Normalia Sandy Palumpun^{1*}, Insih Wilujeng², I Gusti Putu Suryadarma³, Suyanta⁴, Muhammad Hafizh Syaukani¹

¹Science Education Program on Graduate School, Faculty of Mathematics and Natural Sciences, Yogyakarta State University, Indonesia

²Department of Science Education, Faculty of Mathematics and Natural Sciences, Yogyakarta State University, Indonesia

³Department of Biology Education, Faculty of Mathematics and Natural Sciences, Yogyakarta State University, Indonesia

⁴Department of Chemistry, Faculty of Mathematics and Natural Sciences, Yogyakarta State University, Indonesia

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Abstract: Self-regulated learning is a very important aspect of 21st-century learning. However, from the results of previous research and observations that have been made, it is known that the self-regulated learning of students is still in the low category. The purpose of this study was to analyze the self-regulated learning of students through the implementation of an e-module assisted by an integrated Liveworksheet to the local potential of Toraja in the interaction of living things with the environment. The type of research used is descriptive analysis, and the instrument used consists of a self-regulated learning questionnaire, interview guidelines, and observation sheets. The sample technique used was purposive sampling with 32 students of SMP Negeri 1 Rantepao as sample. The results showed that the aspect of don't depend on other people had an average percentage is 62% (medium), an initiative is 65% (medium), discipline is 77% (high), the responsibility is 83% (high), self-confidence is 71% (high), setting study goals is 67% (medium), and evaluation is 71% (high). The overall average of students' self-regulated learning is in the high category, with a percentage is 70.85%. The use of learning media is very important in training students' self-regulated learning, so teachers are expected to be more innovative in using interactive learning resources.

Keywords: Self-regulated learning; e-module; liveworksheet; local potential

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Introduction

The 21st century brings many changes in the world, a very visible change is the advancement of technology, information and communication. One other aspect that is developing as a result of progress in the 21st century is education. Governments around the world are faced with the enormous challenge of how to reform education in line with technological, social, economic and political developments in the 21st century. Indeed, the concepts of civic education, employment, students, teachers, and information,

knowledge, authority, freedom, and even government are all changing (Churchill, 2013). Hendarman (2016) states that the challenge for Indonesia's future education challenges is to produce students who have skills for 21st century learning.

Indonesia as a developing country is trying to improve the skills of students so that in the future, they are able to produce human resources who have high competitiveness and are able to be on par with human resources from other developed countries. One of the skills that are needed in the 21st century is self-regulated learning (Astikawati, et al., 2020). Self-

* Corresponding Author: normaliasandy.2020@student.uny.ac.id

regulated learning is the ability of students to be responsible, make their own decisions, take the initiative, be able to formulate learning goals, learning resources, learning needs, and control the learning process themselves to achieve the desired learning goals (Ningsih & Nurrahmah, 2016; Bungsu, et al., 2019). Previous research has shown that students' self-regulated learning is still relatively low (Rijal & Bachtiar, 2015; Youngest, et al., 2019). This can be seen from the number of students who are not able to do their own work and see the answers from their friends. The results of interviews conducted with teachers of SMP Negeri 1 Rantepao, showed that teachers had never measured the self-regulated learning of students. This is supported by the results of observations which show that there are still many students who tend to be passive in learning. Most of these students still find it difficult to do their own work, are embarrassed to ask questions or express opinions, and have difficulty learning on their own.

Research conducted by Serevina et al., (2018) shows that students are more interested in learning material through videos, ppt, simulations, software, animations, and images that can usually be accessed on laptops (mobile phones). Learning using smartphones is able to support a variety of media in learning so that learning is more innovative and students will be more active in improving their understanding (Price, et al., 2014; Singh & Samah, 2018). Smartphone-based learning can be used anytime and anywhere (Hasbiyati, et al., 2018).

Current learning resources that are usually used by students in the learning process are books, student worksheets and also articles that are still in print (Ahmad, 2017; Kaczorowski, et al., 2019; Sitorus, et al., 2019). Therefore, more varied learning media are needed to increase the willingness of students to carry out the learning process. The use of learning media will increase the learning experience of students, make students not bored, and provide interesting learning to students (Bidawi, 2016; Puspitarini & Hanif, 2019).

One of the learning media that can be used by educators in helping the learning process is a module. Sidiq and Najuah (2020) said that currently, most of the modules are made in printed form. Modules in this form tend to be monotonous and less attractive to students. One way to make modules more attractive to students is to create modules in electronic form that can be used as interactive media because other media can be inserted such as images, animations, audio and video (Herawati & Muhtadi, 2018). E-modules that can be accessed using smartphones have been developed using e-learning based technology-based learning resources. E-modules are able to attract students' interest in learning, are easily accessible anytime and anywhere using laptops and various other types of

gadgets, so that students are able to fully understand the subject matter (Saraswati, et al., 2019).

E-modules are expected to be able to be implemented as self-regulated learning resources that can improve students' understanding and learning independence (Jekse, et al., 2014; Erna, et al., 2021;). In addition to containing text, images, and graphics, the e-module is capable of loading various features such as audio, music, animation and video (Darmaji, et al., 2019). One of the e-modules that can be used is an e-module in the form of a magazine commonly called an e-magazine and is developed in the form of software with HTML format that can be accessed via smartphones, laptops (Saraswati, et al., 2019). The application used in developing the e-module is Heyzine. Heyzine can be accessed for free as well as paid which is run online. Heyzine-based e-modules are capable of loading videos, images, animations, websites, audio, links, and various other interesting features.

In addition to e-modules, another learning that is able to take advantage of e-learning is the electronic-based Student Worksheet (e-Worksheet). Students worksheet is one of the teaching materials that can accelerate the process of understanding and self-regulated learning of students (Yaumi, 2018: 118). E-student worksheet enables students to apply interactive learning and can be accessed easily either through personal computers (laptops) or smartphones (Zahro & Yuliani 2010). E-Worksheet is able to contain pictures, videos and questions that can be answered directly by students without using other sources (Ratnawati, 2021). Interactive e-worksheet has its own advantages in face-to-face learning because it requires less time and costs (Asma, et al., 2020). One example of an interactive e-worksheet is Liveworksheet. Liveworksheet is an interactive online worksheet that is able to correct and assess automatically (Nurbayani, et al., 2021). Research conducted by Andiyani et al., (2020) shows that there is an increase in student learning activity when using Liveworksheets. Liveworksheet is able to contain multiple choice questions, drag and drop, matchmaking, essay, video and image features.

In the learning process, if the teacher wants to make learning more interesting, then the teacher needs to relate learning to the daily lives of students. According to Ibrohim (2015), science learning cannot be separated from the environment, science learning will be more meaningful when the objects, sources, teaching materials used are related to the lives and needs of students. Indonesia is rich in various potentials, cultures, and natural resources of each region (Anisa, 2017).

The integration of local potential in science learning is in accordance with the 2013 curriculum, where local potential is able to store original and useful

science concepts for the lives of students and the wider community (Suastra, et al., 2011; Fitriani, et al., 2019; Khaerani, 2020). Toraja is known for its culture and natural beauty. However, until now, science learning that is integrated with the local potential of Toraja is still very rare. One of the local potentials in Toraja is the Tilanga Spring. The Tilanga Spring is a natural pond that is famous for its eel or masapi fish in it. Through the local potential of the Tilanga Spring, students will be invited to study the interactions of living things with the environment in them.

Based on the results of observations and interviews conducted at SMP Negeri 1 Rantepao, it is known that students and teachers have never used learning media such as e-modules and also Liveworksheets as learning resources in science learning. Learning resources that are always used by teachers in learning activities are printed student worksheets. Over the past few years, science learning at SMP Negeri 1 has never been integrated with the local potential that exists in Toraja.

Based on the description of the problem and the literature review above, it is necessary to conduct research that aims to analyze the level of self-regulated learning of students using e-module learning media assisted by Liveworksheets that integrates Toraja's local potential in the interaction of living things with the environment. In this study, the Liveworksheet link will be embedded in the e-module, so that students can work directly on existing interactive questions. The implementation of the e-module learning media with the help of Liveworksheet is expected to be able to train the self-regulated learning of the students of SMP Negeri 1 Rantepao.

Method

This type of research is descriptive quantitative. The research was conducted in November at SMP Negeri 1 Rantepao through limited face-to-face learning. The research technique used is purposive sampling based on the recommendation of the science teacher. The research subjects were 32 students of class VII SMP Negeri 1 Rantepao for the academic year 2021/2022. The data collection technique was carried out using a self-regulated learning questionnaire instrument adapted from Aprilia and Suryadarma (2020), interview guidelines and observation sheets that had been declared valid by expert lecturers. The research instruments used in this study include a self-regulated learning questionnaire, interview sheets and observation sheets. The learning media in the form of e-modules assisted by Liveworksheets used in this study have also been declared valid by expert lecturers. The research flow can be seen in Figure 1.

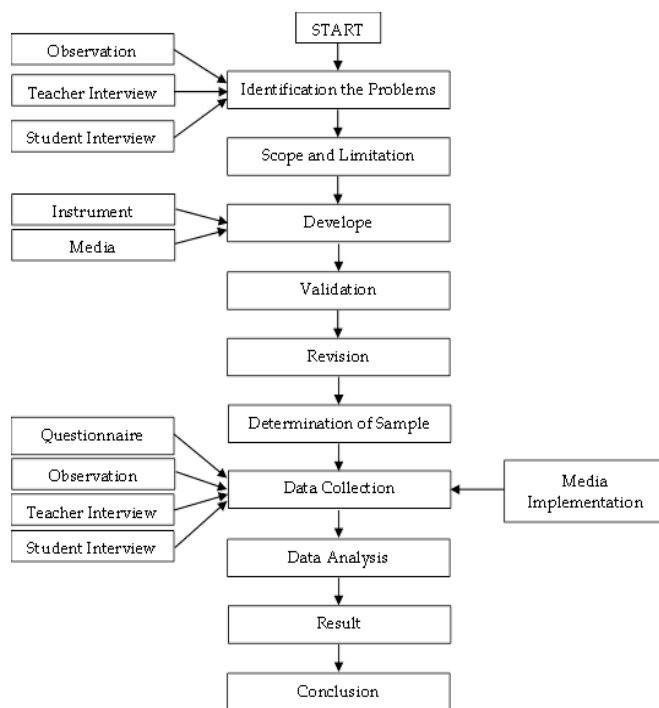


Figure 1. Flowchart of Method

Data from the results of filling out the self-regulated learning questionnaire were analyzed by descriptive statistics (percentage), while the results of observations and interviews were analyzed by qualitative descriptive analysis. The percentage results obtained are then converted into qualitative values using the category table from Widoyoko (2011) with categories that can be seen in Table 1.

Table 1. Categorization of the Percentage of Self-Regulated Learning

Achievement Percentage Range (%)	Score	Category
$X > 84.00$	A	Very high
$68.00 < X \leq 83.99$	B	High
$52.00 < X \leq 67.99$	C	Medium
$36.00 < X \leq 51.99$	D	Low
$X \leq 35.99$	E	Very low

Result and Discussion

The study began with interviews and classroom observations, then the researcher through the science teacher sent an e-module link and an integrated Liveworksheet to Toraja's local potential to be accessed during the learning process via a smartphone. Interviews with teachers and students aimed to determine the learning resources that are often used, the form of learning media needed, the knowledge of teachers and students regarding local potential, cognitive level and self-regulated learning of students. While class observations were carried out to determine the activities of students and teachers in learning which included the learning methods used by teachers in

delivering the material, and the responses of students to the learning. The results of interviews and observations are used as a basis in developing implemented learning media.

Learning using e-module learning media assisted by Liveworksheets integrated with Toraja local potential contains material on the interaction of living things with the environment contained in basic competencies 3.7 and basic competencies 4.7. Due to the limited research time, the material contained in the e-module and Liveworksheet only focuses on the concept of the environment, biotic and abiotic components and the interaction patterns of living things which include the food chain and patterns of human interaction with the environment in the Tilanga Spring. Researchers distributed sheets on how to use e-modules and also Liveworksheets to students two weeks before the learning process began.

The self-regulated learning questionnaire instrument consists of 20 statements including positive and negative statements which are divided into 7 aspects, namely not depending on others, initiative, discipline, responsible, confident, able to set learning goals, and self-evaluating which is distributed at the end of learning. The results of the students' self-regulated learning questionnaire analysis can be seen in Table 2.

Table 2. Results of Student Self-Regulated Learning

Aspect	Percentage of Achievement of Each Aspect (%)	Category
Don't depend on other people	62.00	Medium
Initiative	65.00	Medium
Discipline	77.00	High
Responsible	83.00	High
Self-confident	71.00	High
Setting Study Goals	67.00	Medium
Evaluation	71.00	High
Average	70.85	High

Through the results of the analysis of the seven aspects of the self-regulated learning questionnaire using the e-module learning media assisted by the integrated Liveworksheet of Toraja local potential, it is known that the self-regulated learning of class VII students of SMP Negeri 1 Rantepao is in the high category, which is 70.85%.

In the first aspect, which is not depending on others, it is in the medium category. The aspect of not depending on others consists of two indicators, namely being able to understand the material in the e-module and doing the tasks in the Liveworksheet without the help of others. On average, students are able to understand the material contained in the e-module. E-modules have characteristics that enable students not to

depend on others in studying the material in it (Rahmatika, et al., 2020; Murdianto, et al., 2021). Although most students are able to understand the material in the e-module, there are still some students who are not sure of the answer themselves so they ask a friend who is beside them. This is in line with research conducted by Novianti, Khoirotunnisa and Indriani (2017), where research shows that there are still students who imitate their friends' answers because they are not sure of their own answers. Students who usually see other people's answers or see answers from books or the internet usually feel unsure of their own answers and have a desire to get good grades (Vandiri, 2015; Nurhayati & Subekti, 2017; Surur, et al., 2018). One effort to overcome this problem is to provide stricter supervision, reprimand, and observe the work of students. If the student's work is the same as his friend's, then the student will get a 50% reduction in value (Surur, at al., 2018).

The second aspect of self-regulated learning in this study is the initiative which is in the medium category. The initiative aspect consists of two indicators, namely studying the material and doing tasks on their own accord. Most students have taken the initiative themselves to study the material and answer the questions that have been provided. From the results of interviews with teachers and several students, it is known that students enjoy studying learning media that includes videos, pictures, animations and interactive questions. The use of technology in learning can increase students' initiative to learn, especially if the learning media is added with learning videos, photos, and other multimedia features (Li, 2016; Yanto & Retnawati, 2018).

However, there are still some students who do not take the initiative to complete the tasks in the Liveworksheet. This is due to several factors, namely the lack of time in doing all the tasks in the Liveworksheet and also there are still some students who do not know the answers to some questions so they choose to leave their answers blank. Some students prefer to leave the answer blank because they do not understand the concept of the material being studied, do not understand the intent of the question, and feel unable to solve the problem so they choose to leave blank or answer any of the questions (Djupanda, et al., 2015; Noorarnie, et al., 2019).

The third aspect, namely discipline is included in the high category. This can be seen from the students' time in completing assignments and studying the material in the e-module and Liveworksheet. In the Liveworksheet application, researchers can see when each student's assignment was submitted. From the results of the recap in the Liveworksheet, it is known that students have submitted assignments before the time of collection. Before learning begins, all students

have entered the classroom and prepared everything needed in learning activities without being asked.

The fourth aspect, namely being responsible is included in the high category. There are two indicators in the responsible aspect, namely (1) reading and carrying out learning activities according to the instructions in the e-module and also the Liveworksheet, and (2) completing assignments well. Before learning activities, students are first asked to read the learning instructions contained in each application they study. The results of the observations showed that the students read the study instructions carefully. However, there are still some obstacles faced. These obstacles include; there are still students who have difficulty accessing e-modules and also Liveworksheets, so students still need guidance from researchers to access learning media.

Students who have difficulty accessing learning media still need to be trained and given further explanations so that students are able to understand how to access media properly (Rahman, et al., 2014). When students try to complete the learning activities contained in the Liveworksheet, some of the students' smartphones cannot work properly so the researchers look for other smartphones and laptops to help students. This is in line with the obstacles faced by Kharisma (2020) which shows that there are still some students who have difficulty accessing learning applications because the smartphone specifications used are inadequate and the applications used require internet access in their use. These obstacles occur because students are using the learning media for the first time so they are still trying to adjust to access the learning media provided.

The fifth aspect, namely self-confidence, is included in the high category. The self-confidence aspect consists of several indicators, namely the courage to ask questions, and express opinions. From the observations, most students have the courage to ask questions, give opinions and speak in front of the class to convey the results of their learning activities. Students will dare to ask questions and be actively involved in learning if they are interested in the topics they are learning, and use technology-based learning media (Hadijah, et al., 2020; Nurrahmadhani, et al., 2020).

The sixth aspect, which is setting learning goals, is in the medium category. From the results of the questionnaire analysis, some students have been able to set their learning goals. Students who are able to set learning goals have more opportunities to achieve their goals. This is because students who are able to set learning goals have better learning strategies based on an understanding of the tasks they will carry out (Dent & Koenka, 2015; Kizilcec, et al., 2017). There are some students who are still difficult to set their learning

goals. From the results of the interview, it is known that students are not used to setting their own learning goals because they are used to being guided by the teacher. Students who still have difficulty setting learning goals still need to be guided and trained by the teacher in order to be able to set the learning goals they want to achieve well (Muna, 2013).

The seventh aspect of self-regulated learning in this study is evaluation which is in the high category. The learning media used in this study allow students to evaluate the results of the learning activities they have done. The e-module contains an answer key that allows students to measure their own level of understanding of the material contained in the e-module (Larasati, et al., 2020; Ramadayanty, et al., 2021). After doing each task in the Liveworksheet, the students were seen reopening the e-module to self-assess the results of their work and communicating it with their friends next to them. This is in line with research conducted by Widayastuti (2015) which shows that students often re-examine their learning outcomes to find out the level of understanding and scores they get and ask questions about material they do not understand.

The implementation of e-modules and Liveworksheets integrated with Toraja's local potential is presented to be able to apply learning anytime and anywhere. The use of learning media anytime and anywhere is able to support self-regulated learning that takes place optimally because the contents of e-modules and Liveworksheets do not only display text, but are accompanied by pictures, animations, videos, and also interactive questions (Linda, et al., 2021). Based on the results of the study, it is known that students will be more active if the learning media used is more innovative and utilizes technological developments. Teachers need to use more innovative and technology-based learning media so that students are more interested in learning. Interactive learning media containing pictures, videos, and technology-based interactive quizzes will make students more active and make learning more fun (Andriyani, et al., 2020; Ashidiq, et al., 2020; Rachmadtullah, et al., 2018).

Conclusion

Based on the research that has been done, it can be concluded that the e-module assisted by Liveworksheets is integrated with the local potential of the Tilanga Spring in the material for the interaction of living things with the environment and is able to train students' self-regulated learning. The average percentage of students' self-regulated learning is 70.85% which is in the high category. There are several aspects of self-regulated learning that still need to be trained so that students are more independent in carrying out their learning. To increase self-regulated

learning, teachers need to innovate by utilizing other interactive learning media so that students become more active in learning activities.

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