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THE EFFECT OF THE DIGITAL BOOK-ASSISTED RANDAI LEARNING MODEL ON STUDENTS' PROBLEM-SOLVING SKILLS AND INFORMATION LITERACY

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ABSTRACT

Purpose: The research aims to see the effect of using digital books based on the RANDAI learning model on students' problem-solving skills and information literacy in biology learning.

Theoritical Framework: The integration of local wisdom will make the material more contextual so that learning becomes more meaningful. Digital books that are integrated with local wisdom can be concretized through digital books based on the RANDAI learning model.

Methodology: The study was conducted at a secondary school in the province of West Sumatra, Indonesia. The learning applied in this study uses the theoretical framework of the RANDAI model (Reciting, Analyzing the problem, Narrating the solution, Doing the solution, Assessing the solution, and Implementing the solution) which is problem-based learning integrated with local wisdom. Data collection was carried out through a test referring to Polya's problem-solving skills while for information literacy using a questionnaire referring to the Association of College and Research Library indicators. Data were analyzed using a parametric t-test and n-gain analysis.

Result and discussion: This study found that problem-solving skills and information literacy through learning with the RANDAI learning model assisted by digital books can promote students' problem-solving skills in science learning.

Conclusion: the RANDAI learning model with the help of digital books has an effect on the problem-solving abilities and information literacy of high school students.

Keywords: problem-solving skills, for information literacy, randai learning model digital books.

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O EFEITO DO MODELO DE APRENDIZAGEM RANDAI ASSISTIDO POR LIVROS DIGITAIS SOBRE AS HABILIDADES DE RESOLUÇÃO DE PROBLEMAS E A LITERACIA DA INFORMAÇÃO DOS ALUNOS

RESUMO

Finalidade: A pesquisa visa ver o efeito da utilização de livros digitais com base no modelo de aprendizagem RANDAI sobre as habilidades de resolução de problemas dos alunos e alfabetização em informação na aprendizagem de biologia.

Estrutura Teórica: A integração da sabedoria local tornará o material mais contextual para que a aprendizagem se torne mais significativa. Livros digitais que são integrados com a sabedoria local podem ser concretizados através de livros digitais baseados no modelo de aprendizagem RANDAI.

Metodologia: O estudo foi realizado em uma escola secundária na província de Sumatra Ocidental, Indonésia. O aprendizado aplicado neste estudo utiliza o quadro teórico do modelo RANDAI (Recitar, Analisar o problema, Narrar a solução, Fazer a solução, Avaliar a solução e Implementar a solução) que é aprendizagem baseada em problemas integrada com sabedoria local. A coleta de dados foi realizada através de um teste referindo-se às habilidades de resolução de problemas da Polya, enquanto para a alfabetização da informação usando um questionário referente aos indicadores da Associação de Faculdade e Biblioteca de Pesquisa. Os dados foram analisados por meio de um teste t paramétrico e de uma análise de ganho n.

Resultado e discussão: Este estudo descobriu que habilidades de resolução de problemas e alfabetização em informação através da aprendizagem com o modelo de aprendizagem RANDAI assistido por livros digitais pode promover habilidades de resolução de problemas dos alunos no aprendizado de ciência.

Conclusão: o modelo de aprendizagem RANDAI com a ajuda de livros digitais tem um efeito sobre as habilidades de resolução de problemas e alfabetização em informação dos alunos do ensino médio.

Palavras-chave: habilidades de resolução de problemas, para alfabetização em informação, randai learning model digital books.

1 INTRODUCTION

Education is currently in the era of science with an extraordinary acceleration of knowledge improvement and is supported by the application of digital media and technology so that everyone can freely access any information, and its validity cannot be accounted for, resulting in complex social problems (Riyadi et al., 2021). Freedom of information and improvements in technology also affect student character and have the opportunity to erode national cultural values (Zubaidah & Arsih, 2021). Therefore, preventive action is needed so that cultural values are not eroded by the negative impacts

of technological progress.

Education is a medium for cultural conservation if it is supported by a culturally integrated learning process, in this case, known as an ethnopedagogical approach (Fahrutdinova, 2016). The ethnopedagogical approach is principled in the view of constructivism (Nana Syaodih Sukmadinata, 2010) which prioritizes the creation of meaning in which students construct their knowledge based on their initial cultural experiences. The ethnopedagogical approach can be applied in science learning and is an effective tool for connecting science and culture (Y. Rahmawati et al., 2020). Science learning with an ethnopedagogical approach is currently developing and has been developed in Kazakthan (Erkisheva et al., 2014), Nigeria (Journal & Education, 2021), Brazil, Canada, and Tanzania (Kane et al., 2016). In Indonesia, the ethnopedagogic approach has begun to be applied in biology learning (Jamaluddin et al., 2022) (Arwita et al., 2017) but the limitations of teaching materials and integrated learning guidelines with an ethnopedagogical approach result in learning through an ethnopedagogical approach still needs improvement.

Another problem related to education in Indonesia is the low level of higher-order thinking skills, one of which is problem-solving skills and student information literacy. Problem-solving skills are needed to assist individuals in making decisions (Yılmaz-özcan & Tabak, 2019) (Fuad et al., 2019), (Siswanto et al., 2018). Problem-solving skills also form the basis of lifelong learning and are closely related to student success in learning activities. However, the majority of Indonesian students have limited problem-solving skills as a result of most teachers often teaching factual knowledge and rarely connecting problems or phenomena in real life (Simanjuntak et al., 2021). Since the covid pandemic hit the world, the learning process has been carried out online (online). The learning process is more directed at planting concepts and less on practicing problem-solving skills which are important skills in this 21st-century learning. The phenomenon that occurred in West Sumatra Province, Indonesia shows that students' problem-solving skills during online learning have decreased significantly and are still in the low category, the same phenomenon was also reported from the results of research on high school students in Bengkulu, Indonesia (Fitriani et al., 2020). Limited learning resources and learning processes that have not facilitated problem-solving skills are the cause of these problems so they need to be considered carefully, especially in online-based learning.

The available learning resources are currently a problem because they are limited

to the form of printed books, worksheets, and PowerPoint media which are still conventional (Mukminin et al., 2019) so they are not able to support the learning process, especially online learning which is widely used in technological times and situations. pandemic. In contrast to the use of learning media in the implementation of conventional education which really requires the presence of educators, the use of digital books as a new way of the learning process no longer prioritizes face-to-face interaction but can be carried out by relying on internet-based messages, using software and web-based so that it is still possible. students to share views and ideas in a virtual environment (Kivunja, 2014), including understanding learning material, working on practice questions, completing assignments, and taking exams (Chng, 2020). Book media is able to change students' attitudes, but with electronic media students' attitudes can change to become active because electronic media allows them to interact and absorb messages from the media (Susanto & Riyanto, 2020). For this reason, students need other alternative media as learning materials to receive illustrations and a deeper understanding by using applications in the form of multimedia-based learning media, one of which is in the form of digital books.

Digital books are learning media that are highly relied on in online-based learning processes both synchronously and asynchronously. Technology designed according to student needs will contribute to solving learning problems (Riyanto et al., 2020). In conventional education systems, teaching content is communicated by the presence of a teacher (Chng, 2020), but this new way of learning does not necessarily require face-to-face interaction but instead relies on Internet-based messaging, using software and Web tools that allow participants to create and share ideas, views, in an online virtual environment (Kivunja, 2014) including learning materials, doing practice questions, completing assignments and sitting for exams (Chng, 2020). In the context of this research, digital books also need to be integrated with local wisdom and local potential through an ethnopedagogical approach. Digital books based on an ethnopedagogical approach aim to make the learning process not only touch cognitive aspects but also provide a touch of attitude. The integration of local wisdom will make the material more contextual so that learning becomes more meaningful (Nweke, 2021). Digital books that are integrated with local wisdom can be concretized through digital books based on the RANDAI learning model. The RANDAI learning model is a problem-based learning model integrated with local wisdom. Digital books based on the RANDAI model have

opportunities in promoting students' problem-solving skills by increasing critical thinking skills, applying previous and new knowledge, and collaboration skills, and thereby facilitating the feedback process by promoting a deeper understanding of scientific phenomena. The purpose of this study is to describe the potential of digital books based on the RANDAI learning model in promoting students' problem-solving skills in secondary schools.

2 THEORITICAL FRAMEWORK

2.1 ETHNOPEDAGOGICAL APPROACH IN SCIENCE LEARNING

An ethnopedagogical approach based on constructivism views prioritizes the creation of meaning in which students construct their knowledge based on their initial cultural experiences, this also means that learning with integrated culture will be able to build students' conceptual understanding of the material being studied. The use of the cultural integration paradigm in the learning process is also based on Piaget's learning theory which emphasizes the active involvement of students in the learning process. Ethnopedagogical-based learning is important to implement considering that Indonesia is a pluralistic country, both ethnic and ethnic, where globalization and technological developments can cause cultural changes in Indonesian society.

Even though the education curriculum in Indonesia has undergone several developments, it still contains content and a learning process about local potential and uniqueness according to the advantages of the area where they live. The 2013 curriculum and the independent curriculum which are currently implemented give a mandate that the learning process contains ethnopedagogical content where learning activities are required to emphasize the local wisdom of students. The ethnopedagogical approach creates a learning environment and designs learning experiences that integrate local culture as part of the learning process (Syasmita, 2019).

Biology as part of the natural sciences is a field of study that is developing very rapidly along with technological developments. Science learning plays an important role in equipping students with problem-solving skills and important life knowledge (Zubaidah & Arsih, 2021) because it is very important to master science knowledge not only as theory but also to be able to apply it in everyday life (Leksono et al., 2015). The ethnopedagogical approach is an appropriate alternative approach to biology education and practice can have a positive effect on student achievement, the process of acquiring

skills and interests. The ethnospedagogical approach can be easily felt, felt, and often found in students' daily lives (Winarto et al., 2022). This also causes students to easily understand learning material.

2.2 PROBLEM-SOLVING SKILLS

Are one of the skills that must be possessed in 21st-century education (Riyadi et al., 2021) and are the main focus in education (Rosli et al., 2013). Problem-solving involves using cognitive abilities to find new, inventive, methodical, and analytical solutions to problems that arise in real life (Asiye & Bilge, 2016). According to Selcuk, Alkan, and Erol (2008), problem-solving abilities include the capacity to understand problems, develop and implement solutions, and assess these answers (Şener et al., 2015).

Problems are described as conflict situations where the person is hindered from achieving a goal (Yilmaz & Yiğit, 2020). Therefore to help students build their understanding and encourage rich and meaningful interactions in class, teachers must be aware of how students think while they are learning in class (Valdez & Bungihan, 2019) and carefully create a learning atmosphere and learning strategy to suit their needs. , interest, motivation, and characteristics of students (Pentang et al., 2021).

To be able to measure problem-solving skills, experts have revealed several different ways, such as through multiple choice instruments (Istiyono et al., 2019), through Multiple complex systems in measuring interactive problems (Greiff, 2017), using the Structure of the Observed Learning Outcomes model (Greiff et al., 2015), using the Higher-Order Thinking Skills (HOTS) Model test (Abdullah et al., 2019), authentic assessment as an assessment strategy (Rosli et al., 2013). Measurement of problem-solving skills can also be done through a written test in the form of an essay with reference to the indicators raised by Polya, Mourtos, and Greenstein (2012): (1) problem identification, (2) make plans, (3) carry out plans, and (4)) evaluation of results (Fitriani et al., 2020).

2.3 INFORMATION LITERACY SKILLS

Technological developments make information easier to obtain. At present, information is not only obtained through printed writing but has developed in the form of online information that can be accessed anywhere and anytime. In the science learning process, students will build theories based on the information they have obtained either

through online media, newspapers, social media, magazines, or through direct interviews with experts or resource persons. In the learning process, students collaborate while using various sources of knowledge to build theory (Akinoğlu & Tandoğan, 2007). The widespread dissemination of information online requires students to have information literacy skills in order to be able to filter the information they receive (Juleha et al., 2019). In addition, the need for science material in various places forces students to develop information literacy.

The ability to understand scientific procedures and interact meaningfully with scientific knowledge that can be accessed in everyday life is known as scientific literacy (Fives et al., 2014). Information literacy forms the basis for lifelong learning (Gu, 2020). Information literacy skills as a set of skills, which require individuals to recognize when information is needed and have the ability to find, evaluate, and use the information needed effectively (Durodolu & Mojapelo, 2020). Information literacy can also be defined as a set of skills, which requires individuals to recognize when information is needed and have the ability to find, evaluate, and effectively use the information needed (Eskola, 2005). Students who already have literacy skills mean they have the ability to access, evaluate, and use information from various sources (Doyle, 1992) and use information in the learning process, problem-solving, and making formal and informal decisions in the context of learning, homework, or in education. (Tirado & Muñoz, 2012).

3 METHOD

3.1 RESEARCH DESIGN

This study adopted a quasi-experimental design with a Pretest-Postest, Nonequivalent Multiple Group Design. Pretest and posttest were conducted to test the effectiveness of the two different treatments related to students' problem-solving abilities and information literacy.

3.2 POPULATION AND SAMPLE

The population of this study was 2 classes with a total of 52 class X students from SMA in Matur, West Sumatra, Indonesia. The entire population is the research sample (total sampling technique). Students in experimental group 1 (26 people) studied with the RANDAI learning model assisted by digital books, and experimental group II (26 students) received discovery learning.

3.3 INSTRUMENT

The research instrument was an essay test on problem-solving skills of 6 questions with an assessment rubric that refers to indicators of problem identification, making plans, carrying out plans, and evaluating results. The test equipment is categorized as valid with a validity value of 0.88 and reliable with a value of 0.93. Meanwhile, the instrument used to measure students' information literacy is to use an information literacy questionnaire. This information literacy questionnaire was prepared in accordance with the indicators Association of College and Research Libraries (ACRL) (2000) which consist of determining the required information needs, finding the required information effectively, evaluating information and sources critically, and combining some of the information into a knowledge base and value system, individually or in groups using the information to achieve certain goals and using information with issues related to education, law and society. This questionnaire contains 31 statements which are presented with a choice of answers using a Likert by eliminating point 3 (undecided/neutral) on the basis of avoiding doubtful answers. Questionnaires were distributed at the beginning (pretest) and at the end (posttest). After the questionnaire was filled in by students, the results of the questionnaire analysis

3.4 RESEARCH PROCEDURE

Each of the classes were taught using different learning models (RANDAI and discovery learning). The experimental class uses the RANDAI learning model assisted by digital books. The following methods were used to teach the material: (1) Reciting; (2) Analyzing the problem; (3) Narrating the solution; (4) Doing the solution; (5) Assessing the solution; (6) Implementing the solution. To carry out learning with the RANDAI model, each student activity has been organized in a digital book. Students use the instructions contained in the digital book in carrying out each step. Experimental class II learning uses the discovery learning model. The stages of learning carried out through the discovery learning model include (1) stimulation; (2) Problem statements; (3) data collection; (4) Data Processing; (5) Verification and (6) Generalization.

3.5 DATA ANALYSIS DATA ANALYSIS

in this study used paired sample t-tests with the help of the SPSS 26 for windows. In addition, to see how effective the digital book based on the RANDAI model is, the N-

gain test was carried out. Levene's test and the Kolmogorov-Smirnov test, however, were previously used to determine the normality and homogeneity of the data. The increase in student science literacy was analyzed by normalized N-gain. the criteria of the gain score, $g \geq 0.7$ is a high category, $0.3 \leq g < 0.7$ is a medium category and $g < 0.3$ is a low category

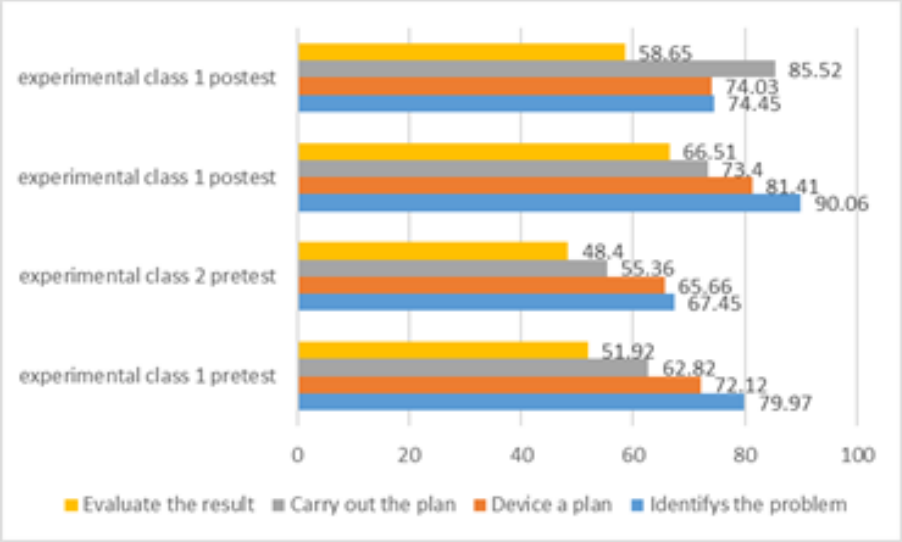
4 RESULT AND DISCUSSION

4.1 RESULTS

4.1.1 Results of students' problem-solving skills

Based on the results of data analysis of problem-solving skills in experimental class 1, namely the class that learned using the RANDAI learning model assisted by digital books was higher than the experimental class II which studied with the discovery learning model (Figure 1)

Figure 1. Differences in the problem-solving abilities of experimental class I and experiment II



Source: Research data processed using Microsoft Excel

The results of the prerequisite tests (tests for normality and homogeneity) showed that scores of students' problem-solving skills were normally distributed and were homogeneous. After the normality and homogeneity tests were carried out, a hypothesis test was carried out. paired sample t-test with the help of the SPPS 26 for Windows program. The results of the hypothesis test can be seen in Table 1.

Table 1. The results of the statistical test of problem-solving skills

			95% Confidence Interval of the Difference				
Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	dF	Sig. (2-tailed)
65.615	10.196	1.000	63.632	67.598	65.626	103	0.000

Source: Research data processed using a statistical software

Based on the data in Table 1, the sig. (2-tailed) of 0.000 where the value is smaller than the significant value <0.05. This shows that there are significant differences in problem-solving skills between experimental class I and experimental class II. These results show the meaning that learning using digital books based on the RANDAI model has a positive effect on students' problem-solving skills compared to learning using the discovery model. To find out how effective the digital book based on the RANDAI model is in promoting students' problem-solving skills, the N-gain test is then carried out (Table 2).

Table 2. N-Gain test results for students' problem solving skills

treatment	N-gain score	Information
experimental class I	0.33	currently
experimental class II	0.27	low

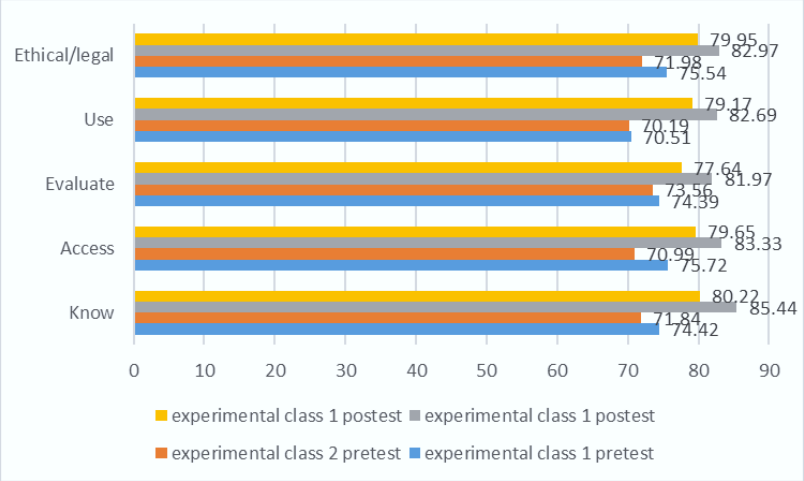
Source: Research data processed using a statistical software

Based on Table 2, the normalized N-Gain shows that the acquisition of N-Gain scores for the experimental class I taught using the RANDAI learning model assisted by digital books has a moderate effect on promoting students' problem-solving skills. This normalized N-Gain result can be interpreted that the RANDAI learning model assisted by digital books is more effective in promoting problem-solving skills compared to learning with the discovery model.

4.2 RESULTS OF STUDENTS' INFORMATION LITERACY SKILLS

Based on the results of data analysis of information literacy skills in experimental class 1, namely the class that studied with the RANDAI learning model assisted by digital books was higher than the experimental class II which studied with the discovery learning model (Figure 2)

Figure 2. Differences in information literacy skills of experimental class I and experimental class II



Source: Research data processed using Microsoft Excel

The diagram in Figure 2 shows an increase in each indicator of information literacy from the pretest to the posttest in the sample class. After the scores were converted to information literacy values for each indicator of information literacy ability, it was found that the experimental class I had a higher average value than the experimental class II. To find out differences in information literacy in the sample class, a hypothesis test was carried out, namely the paired sample t-test. The paired sample t-test is carried out after the assumption test in the form of a normality test and homogeneity test is fulfilled. paired sample t-test with the help of the SPPS 26 for Windows program. The results of hypothesis testing can be seen in Table 3.

Table 3. Results of statistical tests of information literacy skills

			95% Confidence Interval of the Difference				
Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	dF	Sig. (2-tailed)
74.79	6.836	0.670	73.499	76.108	111.549	103	0.000

Source: Research data processed using a statistical software

Based on the data in Table 3, the sig. (2-tailed) of 0.000 where the value is smaller than the significant value <0.05. This proves that there is a significant difference in information literacy between the experimental class I and the experimental class II. These results also mean that learning using digital books based on the RANDAI model has an effect on increasing students' information skills. Is in promoting students' problem-solving skills, the N-gain test is then carried out (Table 4).

Table 4. N-Gain test results for students' problem solving skills

treatment	N-gain score	Information
experimental class I	0.30	currently
experimental class II	0.28	low

Source: Research data processed using a statistical software

Based on Table 4, the normalized N-Gain shows that the acquisition of N-Gain scores for experimental class I taught using the RANDAI learning model assisted by digital books has a moderate effect in promoting students' information literacy skills. This normalized N-Gain result can be interpreted that the RANDAI learning model assisted by digital books is more effective in promoting students' information literacy skills compared to learning with the discovery model.

5 DISCUSSION

The results of this study indicate that the digital book-assisted RANDAI learning model has an effect on students' problem-solving skills and information literacy in biology learning. This study shows that the RANDAI learning model is a learning model based on an ethnopedagogical approach whose implementation is supported by digital books based on the RANDAI learning model as a medium that facilitates students in practicing problem-solving. The digital book based on the RANDAI learning model has a unique construction because it describes the learning syntax that can be used as a student guide in learning biology. The ethnopedagogical approach that underlies these digital books can encourage students to see science within themselves and arrive at meaningful learning and understanding leading to proper application for increased achievement (Journal & Education, 2021).

Local wisdom provides content exposure that is not common with books in general. Knowledge of local potential is closely related to the student experience. Utilizing local potential in the teaching and learning process is very important for making character and contextual education learned (Khoiri, 2016). Ethnopedagogy-based science learning media is able to create a learning environment and learning experience that integrates local wisdom in the science learning process so that learning becomes more interesting and meaningful (Parmin et al., 2015). The RANDAI learning model is the result of the development of a problem-based learning model that integrates an ethnopedagogical approach Minangkabau culture, West Sumatra, has a syntax that directs students to practice problem-solving (Arsih et al., 2021). The RANDAI learning model

has six syntaxes including reciting, analyzing the problem, narrating the solution, doing the solution, assessing, and implementing (Arsih et al., 2019). The direction of each syntax and material content which is also associated with local potential, it makes the learning process more meaningful. This is in line with Khoiri (2016) who states that learning that connects local potential contexts with learning materials will help students achieve learning goals (Khoiri, 2016).

In problem-solving skills there are four indicators, namely, identify the problem, develop a plan, carry out the plan, and evaluate the result. The indicator identifies the problem (identifies the problem), and consists of understanding the problem and analyzing the problem. These indicators can be improved in the RANDAI learning process at the stage of analyzing the problem. At this stage, students can train their curiosity and the ability of students to examine and understand the problems presented through kaba (stories) contained in digital books. Dewi (2017) said the first step in problem-solving is understanding the problem. If students' understanding of the problem is correct, then students can plan a resolution (Dewi et al., 2017).

Problem-solving skills need to be trained gradually and the role of a teacher is also very influential. Problem-solving abilities that are of concern to the teacher and often practice problem-solving skills in learning, it is hoped that students will have problem-solving skills. Skills for solving a problem are not only determined by mindset but influenced by work or training (D. Rahmawati et al., 2018). Suryawati (2013: 2) says that the experience of students in the learning process, attitudes, skills, and knowledge can be combined to solve problems faced by students. The problem-solving process carried out by students will be in line with students' information literacy abilities (Suryawati, 2013). Himawan (Himawan, 2014) said that information literacy causes students to be able to choose and utilize the information for solving problems appropriately and success in learning. That is, students have the opportunity to learn to solve problems along with how students acquire information regarding existing problems, placing information under investigation to address problems, and effectively using information for problem-solving processes.

Information literacy research data of students was obtained from the measurement results using an information literacy questionnaire. Based on the pretest and posttest values for each indicator of information literacy, it is known that there was an increase in scores in both sample classes, the increase that occurred in the experimental class was

higher than in the control class. This is because the RANDAI learning model trains students in information literacy skills where students can search for information, find information, know when information is needed, and the ability to place, evaluate and use effectively their information needs.

In information literacy, there are five information literacy standards, namely (1) determining the required information needs (know) (2) finding the information needed effectively and efficiently (access) (3) evaluating information and sources critically and combining some of the information into a knowledge base and value systems (evaluate) (4) individually or in groups using the information to achieve certain goals (use) (5) using the information on issues related to education, law and social (ethical/legal).

The first information literacy standard is to determine the required information needs (know). In the RANDAI learning process, this standard can be improved at the stage of analyzing the problem. In determining the information needs needed in this standard experimental class are in the top two, this is because students are still not able to find the information as needed. Information literacy skills for students are at a capable level if they can identify and evaluate searches through the use of keywords (Ortega-Martínez et al., 2022).

The second information literacy standard is finding the information needed effectively and efficiently (access). In the RANDAI learning process, this standard can be improved at the stage of narrating the solution. Where students will share opinions and cooperate with each other in formulating ideas. The purpose of this activity is to train communication skills by sticking to kato nan ampek through barundiang (discussion) activities in constructing solutions to solve problems. Gani (2020) said that by accessing information sources digitally and online, students will be able to use technology carefully in this globalization era. Harjono (2018: 24-28) also says that information literacy is a student's ability to access, evaluate, and use information in a learning context in solving problem-solving.

The fourth standard of information is individually or in groups using the information to achieve certain goals (use). In the RANDAI learning process, this standard can be improved at the stage of assessing the problem. Students will present, and communicate the results of the investigation obtained based on the information obtained. Even though this opportunity will allow students to build knowledge through social interaction with other students, thus providing opportunities for students to evaluate each

other and improve their ability to express ideas and share understanding with other students (McCoy, 2022).

In contrast to experimental class I, the learning process in experimental class II uses the discovery learning model where this model is the model commonly used. The results of problem-solving skills and information literacy obtained by students showed low results compared to the experimental class using the RANDAI learning model. The results of Hanifah's research (Ellya Novera, Daharnis, Yeni Erita, 2021) prove that the PBL learning model is more effective than the discovery learning model in improving the thematic problem-solving abilities of grade 4 students. This is because during the learning process students' mental readiness before the learning process makes students passive in working with group members in solving problems. The textbooks used in discovery learning are not fully centered on problem-solving, making students unable to understand the concepts themselves that are in accordance with the basic competencies to be studied coupled with the ability of students who are still not optimal in finding information. A person's ability to find information when using libraries and information sources as a means for success in learning (Chow & Wong, 2020)

6 CONCLUSION

Based on the results of the study it can be concluded that the RANDAI learning model with the help of digital books has an effect on the problem-solving abilities and information literacy of high school students. Among all, the digital book-assisted RANDAI learning model based on the RANDAI model can be considered effective on a moderate scale in promoting students' problem-solving skills and information literacy.

RECOMMENDATIONS

Therefore, the use of the RANDAI learning model assisted by digital books based on the RANDAI model in the classroom is highly recommended. It is also suggested that future researchers consider conducting more in-depth investigations on the same topic to a more diverse target population, such as a group of students from different educational levels or a group of students studying other subjects.

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