TEACHING-LEARNING THROUGH THE COOPERATIF LEARNING BASED ON INFORMATION LITERACY IN MADRASAH IBTIDAIYAH

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Abstract: The aim of this research is to know the activities of teacher and student on learning through the cooperative model based on information literacy in fourth Madrasah Ibtidaiyah (MI). In the 21st century, information literacy is important to implement in the learning process, students got much information from the media, they have to identify, analyze, and use the information for learning needs. The object of this research is student and teacher in MI West Java province – Indonesia. The methodology is descriptive research, with the quantitative approach, this research used simple statistic such as mean, median, and skoring the activities. The technique used is observation between teacher and students on learning process with cooperative learning based on information literacy. The results of this study that the activitiesbetween teacher and students in problem based learning, two way two stray, Jigsaw, student fasilitator and explaining based on information literacy increased moderately in every meeting. Especially, students interested and motivated on learning process.

Keywords:information literacy, writing skill, kooperatif learning, teaching innovation, madrasah ibtidaiyah

1. Introduction

Literacy information is the learning approach and relevant to the 21st-century situation that the technology of information very massive and sometimes have a negative impact on children life. Learning in the 21st century requires students to have information literacy skills, Tofler (Mashuri, 2015) reveals that we are in an information age or "third wave" in human civilization. Where information becomes a commodity that is contested daily in the global era, who can control information will survive, so the key is information literacy. Information literacy is a way of learning that can be applied in a variety of subjects, where students can read information, identify information, process information, or organize information, and use information in the various subject matter. In addition, information literacy is also a competence or ability related to reading ability, the ability to give information in a mind/table/graph and so on and/or scientific writing skills (USAID Prioritas, 2013). Many students in Indonesia used the internet for social media, playing an online game, or something unnecessary for their life and literacy information skill needs to implemented in the process on learning-teaching. According to Zurkowski (Pattah, 2014) from beginning information literacy was interpreted as a technique and ability to utilize information tools and basic resources to solve the problems. Nowadays, the meaning of information literacy became expand, one of the meanings of information literacy was taken from the American Library Association (ALA) in 1989, namely information literate people who knew the information needs, could identify information needed, organize information and use information effectively to solve the problems (Breivik, 2005). Information literacy is not only ability/skill, more than that Bruce, et al (Mulyono, 2015) describes there are 6 scopes on information literacy: 1) knowledge of information (frame content), 2) a set of competencies or capabilities (competency frame)), 3) method of learning (learning to frame), 4) contextual social activities (frame of personal relevance), 5) strength of social relations in the community, 6) social responsibility (social impact frames).

There are many efforts can be done by improving the information literacy skills, including through policy makers, schools, and teachers and then stakeholders who have an important role (Kharizmi, 2015). Policy makers have a central role to build information literacy skills, because in general, public schools and some private schools in Indonesia will follow every policy applied by the government (centralistic), and it is will be impacted to the perspective of teachers and students in the learning process, the policymakers should strengthen the quality is not quantity. The cooperative learning based on information literacy is one of the efforts to raise the quality of education, it is the innovation on teaching-learning designed by the researcher. Based on the problems above, the focus of this research is to know how the learning process through the cooperative based on information literacy can influence to the student's activities on learning. This study contributes to the development of paedagogic, especially planning on learning-teaching, learning strategic, learning approach, learning models, learning methods, learning techniques, media, and evaluation. On the other side, this research can be used as input for policymakers in making curriculum concept to improve literacy skills in various fields and can inspire teachers in developing learning-teaching planning in the classroom with limited media and infrastructure. Lastly, can help students in higher education in primary education department to developing teaching skills in schools.

2. Literature Review

Information literacy can be applied to learning, as stated in ACRL (2000: 3), that " i*nformation literacy is related to information technology, but for educational systems, communities and individuals information literacy can be broadly implied. Relation to information technology that someone has a skill that allows applying media technology and information with the aim to lighten the workload. So that information literacy has become a necessity for every individual one of them by developing technology skills"* (ACRL, 2000:3). Based on this opinion, information skills can initially be interpreted as capacities related to media technology and information. Nevertheless, the term is widespread, with regard to the aspect of information literacy, education can be applied in the education system.

According to Doyle (1992) *An information literate person is oue who: Recognizes the need for information. Recognizes that accurate and complete information is the basis for intelligent decision-making. Formulates questions based on information needs Identifies potential sources of information*

Develops successful search strategies Accesses sources of information including computer-based and other technologies Evaluates information. Organizes information for practical application Integrates new information into an existing body of knowledge. Uses information in critical thinking and problem solving. The characteristics of an information box are: knowing the need for information, recognizing that correct and complete information is the basis for the right decision making. Ask questions based on required information, identify potential sources of information, develop information-seeking strategies, access information resources, including computer-based and other technologies, evaluate information, gather information, integrate new information into knowledge and use information in critical thinking. and problem solving.

The definition of information literacy is very diverse, information skills are not just a functional ability or a series of procedures, but also social, individuals who deal with information (Boon, et al. 2007). Furthermore, Farrell (2016) adds that, referring to this context, information skills can be used as content in scientific disciplines, where the use of information is integrated into the existing socio-culture and is very fundamental in the learning process. Information that is effective can be deliberately or not used in learning or curriculum. Bruces and Hughes (2010) explain when deliberately an information experience is obtained, there will be a learning design, this can improve the pedagogical aspects so that information skills are built into students (Dawes, 2017: 2).

Information literacy can be said as a property that is owned by someone (the competency framework) (Bruce, Edwards, Lupton, 2015). The ability in question is focused on a person's ability to behave or performance. Where someone can open, evaluate and use information from different sources. Similarly, what is explained in the National Standardization Body (BSN) in (Nurohman, 2014) that information literacy is the ability to recognize information needs when solving problems, developing ideas, asking important questions, using different types strategies for information gathering, determining appropriate information, relevant and authentic.

Standing Conference of National and University Libraries (in Pattah, 2014) has provided a model of information literacy, known as "*the Seven Headline Skills*", this model is suitable for use in the learning process at university level, the ability of information includes the following components:

a. Ability to know the necessary information
b. Possibility to differentiate ways to deal with gaps in information
    1) Knowledge of the right information sources, both printed and non-printed
    2) Select and sort resources correctly to handle the task in question
c. The ability to understand problems that affect access to resources
d. The ability to develop strategies to find information
    1) Understand the necessary information so that it fits the source
    2) Develop systematic methods appropriate to their needs
    3) Understand the principles of creating and developing databases
e. The ability to find and access information
    1) Develop suitable search techniques
    2) Use of information and communication technology
    3) Use index and abstract services correctly
    4) Use the method of independence readiness
f. The ability to compare and evaluate information generated from different sources
    1) Knowing the issue of bias and authority
    2) To know the scientific evaluation process of peer reviews
    3) Knowing the right selection process for the required information
g. The ability to organize, use and communicate information in the right way, depending on the situation
    1) With reference to bibliographical references in the final report and the thesis
    2) Building a bibliographic system
    3) Use information to solve the problem
    4) Communicate effectively with the right media
    5) Knowledge of copyrights and plagiarism
h. The ability to combine existing information and build on it, as input for creating new knowledge.

Whereas according to Arroyo (2013) the information literacy component is as follows:

a. Task identification
   1) Determine the information problem,
   2) Identification of required information.
b. Information search strategy
   1) Determine all possible sources,
   2) Choose the best source.
c. Location and access ,:
   1) Search for resources (intellectual and physical),
   2) Find information about sources.
d. Use of information,
   1) Involve (hear, see, touch, read) information in the source,
   2) Extract the relevant information.
e. synthesis
   1) Arrange from different sources,
   2) Present information.
f. Evaluation
   1) Process judge (efficiency),
   2) Assessment of the product (effectiveness).

Information skills can be applied to educational programs, such as in social studies, science, Indonesian language, mathematics and early grades. This is why MI teachers can work together on different methods, approaches or learning models with information skills. The following are learning models and strategies that have worked together with information skills:

a. Problem-based learning based on information literacy

Problem Based Learning (Problem-based learning) or abbreviated as PBL is a familiar learning model, this model is often used in the process of learning at the basic level. According to Gallagher (Toharudin, et al., 2002: 99), PBL is a form of learning in which students are confronted with a situation and condition that leads to incomplete information and there are several questions that have not been answered. Intentional scenarios are presented so that students are involved in problem solving, such as interpreting and describing problems, making hypotheses, tracking information, conducting experiments or research, finding solutions that suit the circumstances of the project. problem and weighing those solutions in benefits.

The other concept explains that "Problem Based Learning is a learning model that exposes students to complex real-life problems that provide the context of acquiring the knowledge needed to solve problems by identifying what is learned. Usually, students collaborate in groups, with learning process facilitated by a teacher" (Hmelo-Silver, 2004:236). In this case students in groups learn about complex problems in real life by making students more active, so that the role of the teacher is limited to the supervisor. Based on these opinions, students as students should solve problems and problems in groups and teachers and identify them as facilitators. While Arends (2009: 402) shows that "Problem Based Learning (PBL) is a learning approach where students are faced with authentic problems so they can develop their own knowledge, develop high-level and inquiry skills, establish students and increase their self-esteem". Arends further explained that students in the PBL face authentic problems, so that they can build up knowledge at a high level and build up their knowledge independently.

Fogarty (Zaduqisti, 2010: 185) states that PBL is a learning model that poses a problem between the two parties, namely the teacher and students as an incentive to be a source of learning so that students can learn independently. That is why teachers in PBL play an important role in creating a more challenging learning environment, such as presenting interesting problems, problems built on the needs and the reality faced by students, so that their minds are challenged to solve them. Asking questions can also be used as a way to encourage students to think about a problem, as expressed by Eviani, Utami and Sabri (2014: 4) that PBL is a type of learning model that leads students to a problem that needs to be resolved by questions so that students are provoked to think.

One of the advantages of PBL is that students can think critically and creatively, because this model uses real problems in the world as a basis for students to think critically and to solve a problem

and to link it to the concept of learning (Mulyani, Kartono , Daryanto, & Rukayah, 2015). In addition, the PBL can train students to participate actively in equal learning and students must cooperate with their group members with a sense of responsibility, so that all students are involved and active in the learning process (Resvan, Suryani, & Kaswari, 2016).

Table 1 PBL Syntax Based on Information Literacy

Model Arends		**Arroyo's Literacy of Information**		**PBL Model Based on Information Literacy**
Phase	**Teacher Behavior**	**Phase**	**Student-Teacher Behavior**	**Student-Teacher Behavior**
Provide orientation about the problems faced by students.	The teacher discusses the learning objectives, describes various important logistical needs and motivates students to be actively involved in activities and problem solving.	Identifying Information	The teacher determines the problem and identifies the problem	The teacher presents the problem and conveys initial information regarding the problem to be studied with the help of the media
Organize students to conduct research and investigations.	The teacher helps students to define and organize learning tasks related to the problems they face.	Information search strategy	The teacher determines the source of information and chooses the best source (trusted)	The teacher provides information, can be in the form of articles, magazines, newspapers, textbooks, or sources related to problems to groups of students
Assist the investigation of students independently and in groups.	The teacher encourages students to get the right information, accurate, and carry out experiments and look for explanations and solutions.	Location and access to information	Students identify and look for other important information related to the source of the problem	The teacher encourages students to get information accurately and look for explanations and answers related to the problem, can also be helped by a small experiment
Develop and present artifacts and exhibits.	The teacher helps students plan and prepare appropriate artifacts, such as reports, video recordings, and models and help them to convey it to others.	Use of information	Students hear, see, touch and read information and identify relevant information	Students discuss by identifying what information is obtained in the source of information by reading, and marking important things related to the problem in the reading source.
Analyze and evaluate processes in order to overcome or find solutions to problems.	The teacher helps students to reflect on the results of their investigations and the processes they use.	Synthesis	Students organize the information obtained and present it	Students write the results of information obtained in a semi-scientific report
		Evaluation	The teacher evaluates the process	Students reflect and conclude the learning process

Table 2 Jigsaw Model Based on Information Literacy

Model Stepen, Sikes dan Snapp		**Information Literacy Arroyo**		**Jigsaw Model Based on Information Literacy**
Phase	**Teacher Behavior**	**Phase**	**Student-Teacher Behavior**	**Student-Teacher Behavior**
Divide groups into expert groups	Students are grouped as many as 1 to 5 students.	Identifying Information	The teacher determines the problem and identifies the problem	The teacher groups students into groups of origin to identify problems
Provide material to each group of experts	Each person in the team was given a different material section	Information search strategy	The teacher determines the source of information and chooses the best source (trusted)	The teacher distributes material from various different sources to the expert group...
Share different sub-material for each group member	Each member is given the assigned material section	Location and access to information	Students identify and look for other important information related to the source of the problem	The original group student identifies important information contained in the text
Make expert groups	Members of different groups who have studied the same sub-section meet in new groups (expert groups) to discuss their sub-chapters	Use of information	Students hear, see, touch and read information and identify relevant information	The teacher groups students in expert groups to discuss information that has been owned by each expert member.
Discuss knowledge from expert groups in the original group	After finishing the discussion as a group of experts, each member returns to the original group and takes turns teaching their group mates about the sub-section they are mastering and each other member listening carefully	Synthesis	Students organize the information obtained and present it	Students discuss information obtained from each member and present it in expert groups
Present the results of the discussion	Each expert presents the results of the discussion	Evaluation	The teacher evaluates the process	Each group member presents the results of the discussion from a group of experts to their original group. And the teacher gives reinforcement to the portion of learning that occurs
Evaluate	The teacher gives an evaluation			The teacher gives a test writing report
Closing learning	Cover			Students conclude learning

Table 3: Syntax of Information Literacy-Based TS-TS Model

TS-TS Lie Model		Arroyo's Literacy Information Model		Jigsaw Model Based on Information Literacy
Fase	**Teacher Behavior**	**Fase**	**Student-Teacher Behavior**	**Student-Teacher Behavior**
Preparation phase	The teacher groups students into several groups	Identifying Information	Guru menentukan masalah dan mengidentfikasi permalahan	The teacher determines the problem and identifies the problem
Teacher presentation	The teacher makes an introduction	Information search strategy	The teacher determines the source of information and chooses the best source (trusted)	The teacher gives direction and explains a little about the material to be learned from various different sources
Group activities	The teacher organizes students by determining who is visiting and visiting	Location and access to information	Students identify and look for other important information related to the source of the problem	Students group and identify important information about the material
Group presentation	The teacher arranges students to present the results of the discussion	Use of information	Students hear, see, touch and read information and identify relevant information	Some students visit each other and provide information to other groups
Evaluation	The teacher evaluates learning outcomes	Synthesis	Students organize the information obtained and present it	Students present the results of information obtained from visits to their groups
Appreciation	The teacher gives rewards	Evaluation	The teacher evaluates the process	The teacher provides evaluations to students

Table 4 Sintaks SFE Model Based on Information Literacy

Model Imas and Berlin Sani		Information Literacy Arroyo		SFE Model Based on Information Literacy
Fase	**Teacher Behavior**	**Fase**	**Student-Teacher Behavior**	**Student-Teacher Behavior**
Explain the competencies to be achieved	The teacher conveys the learning objectives to students	Identifying Information	The teacher determines the problem and students identify the problem	The teacher explains the learning objectives and determines the problems that will be discussed by students
Explain the outline of learning	The teacher presents an outline of the material to be studied	Information search strategy	The teacher determines the source of information and chooses the best source (trusted)	The teacher distributes material from a variety of different sources, then explains in broad outline what needs to be done by each group and individual students regarding the information source

Provide opportunities for students to present material	The teacher divides students into groups to present the results of the discussion	Location and access to information	Students identify and look for other important information related to the source of the problem	Students identify and search for important information in the source to be presented to other students
Presenting student opinions	The teacher concludes the results of student discussion in each group	Use of information	Students hear, see, touch and read information and identify relevant information	Students hear, see, touch and read information and identify relevant information
Conclude all learning activities	The teacher concludes the learning material	Synthesis	Students organize the information obtained and present it	Students in the group present the results of the discussion and the teacher listens and concludes each information that has been processed by the students
Evaluation	The teacher evaluates student learning outcomes	Evaluation	The teacher evaluates the process	The teacher gives an evaluation
Closing learning	The teacher closes the lesson			The teacher closes the lesson

3. Material & Methodology

b. Data

The technique of determining respondents is done by determining the population that is associated with the problem, namely the writing ability of MI students. There are four MIs spread over West Java that are the subject of research, including: students and fourth grade MI Al-Muttaqin Bandung Regency, 4th grade 1 Bandung City, fourth grade students MI MIftahul Falah Cianjur and 5th grade students Darul Hufadz Bandung, Techniques for Data collection was carried out in two ways: 1) Observation, observation was carried out by observing the learning process by using a cooperative model of information skills carried out in four MIs scattered throughout the city and the regency of Bandoeng, the learning process was observed by an observer (class teacher), The observed activities are set out in a questionnaire that has been compiled (attached). The observation questionnaire is made in the form of a scale, with each observed item of activity or behavior being scored from a scale of 1-4. Scale 1 does not mean done, scale 2 is done but less, scale 3 is sufficiently done, scale 4 is done well or perfectly. The items of activity or behavior in the observation questionnaire were checked and the results were analyzed on the basis of statistical analysis. 2) Test is a tool for measuring and assessing individuals. Tests can be interpreted by an objective measuring instrument and can be used to measure psychological or individual behavior by seriously and comprehensively comparing one and the other (Sudijono, 1996). The tests carried out in this study take the form of performance tests, in which students write, summarize and draw up a simple descriptive report. In broad terms, writing students is aimed at writing a systematic report, using the right punctuation, using the right language and logical thinking. The technique of analyzing observation data is processed using an activity formula where the results of the acquisition of activities are averaged and interpreted. The activity observed is the activity of teachers and students while learning with the aid of a cooperative model of information skills that is in progress. The formula for the learning activity can be seen as follows:

$$\text{Teacher activity presentation} = \frac{\text{teacher activity score}}{\text{maximum score}} x\ 100\%$$

$$\text{Student activity presentation} = \frac{\text{student activity score}}{\text{maximum score}} x\ 100\%$$

Mastery of Individual Learning, intended to find out students who are complete and incomplete in learning. The calculation can be obtained by the formula:

$$Value = \frac{\text{Score obtained}}{\text{Maximum score}}$$

The learning completeness in a horn is intended to find out the overall completeness of learning. As for calculating the completeness of learning in a hornical manner is as follows:

$$Score = \frac{\text{complete number of students}}{\text{the number of sudent}} x100\%$$

to find out the average value of students obtained by equation:

$$\text{Average (x)} = \frac{\Sigma X}{\Sigma N}$$

c. **Method**

The type of research used is descriptive quantitative research, such as the research used by Suhandani & Julia (Nazir, 2005: 54) descriptive research conducted for measurements, while the descriptive method has the purpose of making descriptions, descriptions or explanations systematically, factually and accurately regarding the facts, characteristics and relationships between phenomena investigated. According to Sugiyono (2008) descriptive research is research conducted to determine the value of independent variables, either one variable or more (independent) without making comparisons or connecting with other variables. The variable data examined in this study is the variable activity of students and teachers in the learning process, as well as the variable writing ability of students after using a cooperative model of information literacy. This research is non-experimental research, therefore research only describes the object that occurs, and does not connect or compare with other variables. The researcher used descriptive statistics such as finding the mean, median, mode, and so on.

4. Results and Discussion

a. Result

The results of the activities carried out by the teacher were obtained for four meetings using the PBL model based on information literacy. The results of these activities can be seen in the table below :

Table 5 Teacher Activity Every Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action I	Action II
Final score	56,19	63,81	76,19	96,19

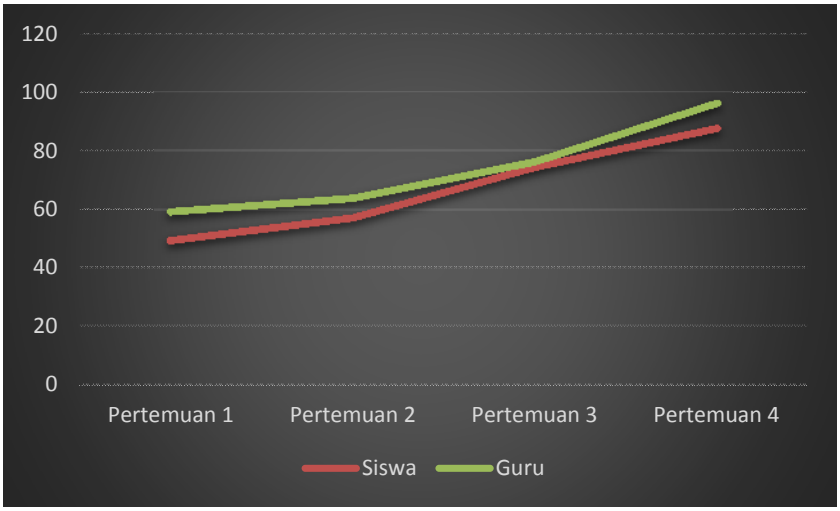
Table 5 shows that at the first meeting the teacher's activity was at the value of 56.19 which means that the teacher's activity was in the moderate category, almost half of the aspects in PBL-based information literacy had not been done well. The second meeting showed an increase of 63.81, which means it was still in the medium category. At the third meeting the final score increased to 76.19 which means high category, meaning that almost all activities were carried out by the teacher. The fourth meeting, showed a very sharp increase of 96.19 which meant that the category was very high, meaning that almost all aspects of the activity were carried out by the teacher:

As for student activities, you can see the comparison of activities in the table below:

Table 6 Student Activities for Each Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action I	Action II
Final score	49,52	57,14	74,28	87,62

Table 6 explains that the results of student activities have increased at each meeting. At the first meeting, student activities were still in the low / less active category, amounting to 49.52. The second meeting with the final score of 57.14 was in the moderate / moderately active category. In the third meeting, the final score increased significantly at a score of 74.28 which means high / active. And at the sixth meeting, it increased quite sharply by 87.62 which was in the very high category. When compared between teacher and student activities in this learning model, it looks like in the chart below::



Graph 1
Comparison of Teacher and Student Activities at Each Meeting

In graph 1, it is seen in the first meeting that student activities are in the low category as well as teachers, even though their activities are higher than students. In the second meeting, student activity increased slightly compared to teachers who tended to be the same as the previous meeting. However, in the third meeting, the activities of students and teachers alike increased at almost the same level, and in the fourth meeting students' activities increased sharply as did the teacher.

The results of the activities carried out by the teacher for four meetings using the information literacy-based Jigsaw model can be seen in the table below:

Table 7 Teacher Activities Each Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action III	Action IV
Final score	70,58%	83,35%	94,11%	100%

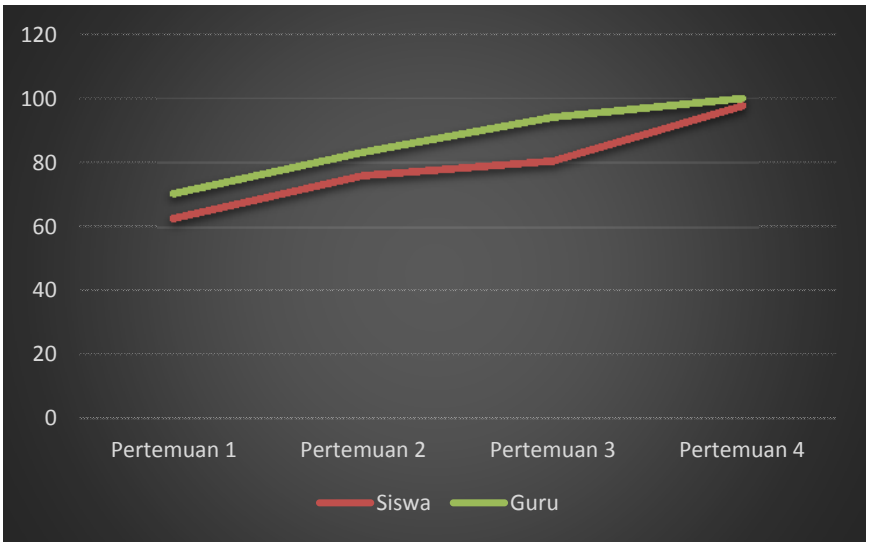
Table 7 shows that teacher activity at the first meeting was at a score of 70.58%, which means that teacher activities are in the moderate category, almost half of the aspects in the information literacy-based Jigsaw model have not been done all. There was an increase in the second meeting significantly, namely 83.35%, which means it is still in the very high category. At the third meeting, the final score increased dramatically to 94.11%, which means high category. The fourth meeting, showed a very perfect increase of 100%, which means the category is very high, meaning that all aspects of activities in PBM are carried out by the teacher.

As for student activities, you can see the comparison of activities in the table below:

Table 8 Student Activities for Each Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action III	Action IV
Final score	62,94%	76,15%	80,63%	97,66%

Table 8 explains that the results of student activities have increased at each meeting. At the first meeting, student activities were still in the fairly low / less active category, amounting to 62.94%. In the second meeting, with a score of 76.15% in the active category. And at the third meeting, the final chord increased sharply to 80.63% which means high / active. And at the fourth meeting increased higher to 97.66% which was in the very high category. When compared between teacher and student activities in this learning model, it will look like in the chart below:



Graph 2
Comparison of Teacher and Student Activities at Each Meeting

In graph 2, it is seen that in the first meeting students' activities were in the category that was quite high as well as the activities of the teacher, in the second meeting, student activity increased slightly compared to the teacher who tended to be the same as the previous meeting. However, in the third meeting, the activities of students and teachers alike increased at almost the same level, and in the fourth meeting students' activities increased sharply so did the teachers.

The results of the activities carried out by the teacher for four meetings using the SFE-based information literacy model can be seen in the table below:

Table 9
Teacher Activity at Each Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action III	Action IV
Final score	75,00%	87,50%	93,75%	95,83%

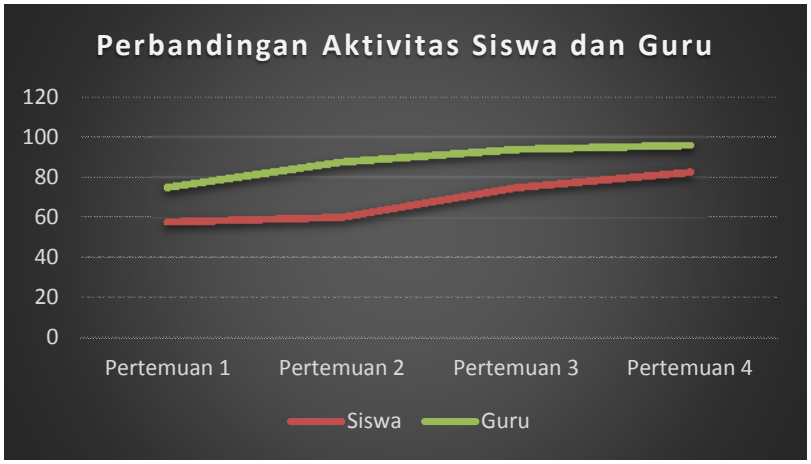
Table 9 shows that teacher activity at the first meeting was at a score of 75.00%, which means that the teacher's activity was in the moderate category, or nearly half of the

aspects in the information literacy-based SFE model had not been implemented. And there was a significant increase in the second meeting of 87.50%, meaning that the activities of the teachers were in the high category (active). In the third and fourth meetings, it increased dramatically in the range of 93.75 - 95.83% which meant that the category was very high / active. As for student activities, you can see the comparison of activities in the table below:

Table 10 Student Activities at Each Meeting

Information	Meeting 1	Meeting 2	Meeting 3	Meeting 4
	Action I	Action II	Action III	Action IV
Final score	57,93%	60,36%	74,88%	82,60%

Table 10 explains that the results of activities students experience in SFE-based information literacy learning have increased at each meeting. At the first meeting, student activities were in the fairly low / less active category, at 57.93%. The second meeting slightly increased to 60.36%. The third meeting, there was an increase at a fairly active level of 74.88%, and in the fourth meeting increased higher to 82.60% which means active. Comparison between teacher and student activities is shown in the graph below:



Graph 3
Comparison of Teacher and Student Activities at Each Meeting

In graph 3, it can be seen that the activities of teachers and students are less proportional Teacher activity looks high and continues to increase until the end of the meeting in the range of values of around 75% - 85%, while the activities of students are in the less active position in the first and second meetings, and quite increase at the third meeting, and slightly increase at the end of the meeting.

b. Discussion

Information literacy leads to how students can search, identify, process and communicate information in reading texts obtained from internet media. Research conducted by Chang, Jong and Huang (2012) entitled "Using Electronic Resources to Support Problem-Based Learning". shows a similar trend that the ability of students to find the right sources on the internet can encourage problem-based learning. In addition, the use of electronics has a very large influence on learning. This means that electronic use, which is one part of information literacy, can empower students. Explanation of the teacher who keeps making the learning process monotonous and feels less important. The teacher is only a facilitator for students, because PBL basically focuses learning on students. Hutchings and O'rourke (2014) explained that learning with the PBL model makes students more independent because most learning processes are carried out by groups of students. Starting from

learning objectives, assignments and investigations carried out. That is, independent student activities can improve their activities in learning.

Access to information is a basic right for students in this century, the ease of accessing information is an important part of information literacy for which electronic media, especially the internet, is one source of learning. Although it is undeniable that this right has not been fully internalized, one of the goals of information literacy learning is to create responsibility for students in accessing all information obtained. Moreover, students' writing ability, as expressed by Nurdiyanti and Suryanto (2010) that the success of literacy learning can be seen from the student's output in the form of written work produced. While efforts to improve reading and writing learning are supported by information literacy that involves information media such as tape recorders, cassettes, vcd players, books, and magazines.

There are several factors that cause students 'writing skills to be very low, including the lack of reading material in the library, the lack of active students in the learning process, and the lack of students' interest in writing and learning in a conventional manner (Ramadhanti, 2016). students' abilities in writing, one of them is the Jigsaw model, the results of a study from Rusidah (2017) show that the Jigsaw model can increase a positive influence on writing skills. Based on the results of the analysis, the application of information literacy-based jigsaw models during the learning process can have a positive effect, thus, information literacy-based jigsaw models can increase student activity, seen by the increase in the average value of student activity in each action. that the Jigsaw data model improves student writing skills especially in writing drama texts. Likewise the cooperative model type TS-TS makes learning better because this model promotes collaboration between groups in solving problems (Saraswati, Soedjoko, & Susilo, 2012: 37). And writing is an activity that can be done together and work together with each other. Glenn T. Colby (2013) from the University of Colorodo Boulder, Colorodo USA, reinforces that cooperative and collaborative learning can improve students' literacy skills. This is also evidenced from research involving students from grades 2 to 12. Reviewing more than 30 years of literacy, overall students get high scores in literacy using cooperative and collaborative learning, the average value obtained can reach 94% towards the better.

5. Conclusion

a. PBL Model Based on Information Literacy The average value of teacher activities using this model are as follows: first meeting 56.19% (low), 63.81% (quite low), 76.19% (high), and 96.19% (very high) . While the average value of student activities is as follows: first meeting 49.52% (very low), 57.14% (low), 74.62 (quite high), 87.62% (high).

b. Jigsaw Model Based on Information Literacy The average value of teacher activities using this model are as follows: first meeting 70.58% (quite high), 83.35% (high), 94.11% (very high), and 100% (very high / perfect)) While the average value of student activities is as follows: first meeting 62.94% (low), 76.15% (quite high), 80.63% (high), 97.66% (very high).

c. Information Literacy-Based TS-TS Model The average value of teacher activities using this model are as follows: first meeting 75.00% (quite high), 87.50% (high), 93.75% (very high), and 93.83% (very high)) While the average value of student activities is as follows: first meeting 57.93% (low), 60.36% (quite low), 74.88% (high), 82.60% (high).

d. SFE Model Based on Information Literacy The average value of teacher activities using this model are as follows: first meeting 75.00% (quite high), 87.50% (high), 93.75% (very high), and 93.83% (very high)) While the average value of student activities is as follows: first meeting 57.93% (low), 60.36% (quite low), 74.88% (high), 82.60% (high).

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