

# Development Of Biology Learning Instrument With Guided Inquiry Model By Life Skills Oriented In Madrasah Aliyah

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**Abstract-** This research aims to: developing of biology learning instrument with guided inquiry model by life skill oriented in Madrasah Aliyah. The main purpose of this research to development of biology learning instrument with guided inquiry model by life skill oriented. This research was conducted in students at MA Amanatul Ummah Surabaya academic year 2018/2019. The sample in this research was 25 students of class X at MA Amanatul Ummah Surabaya academic year 2018/2019. This research consists of 2 stages, namely the first stage of developing learning instruments, and the second stage is testing the learning instruments in class. Data collection techniques from this research were observation, tests, and questionnaire. Based on the results of research and discussion, it can be made the conclusion development of biology learning instrument with guided inquiry model by life skills oriented is suitable use for learning Biology and improving student learning achievement.

**Index Terms-** Development of Biology Learning Instrument, Guided Inquiry Model, Life Skills Oriented

## I. INTRODUCTION

As the changes and dynamics of society continue to move towards the current of globalization, the problems and challenges that must be faced are increasingly complex and more complicated, including the education sector. Education is a very important requirement for every human being to develop his life as a person, a member of society and a quality citizen. One of the efforts of the government in improving the quality of education is marked by curriculum development, to date, an Education Unit Level Curriculum (KTSP) has been implemented, it is expected that with this curriculum so that school graduates have a competitive and comparative advantage by national standards.

One component developed in the KTSP preparation manual is *life skills* education which includes personal skills, social skills, academic skills and vocational skills, further in Government Regulation (PP) No. 19 of 2005 states that the curriculum for junior high school, senior high school or other forms of equivalents can include life skills education. Life skills that students must possess are thinking skills, social skills, and academic thinking skills. In general, students at the high school level already have thinking skills, while for social skills and scientific thinking skills (academic skills) are less trained. Thinking skills include the ability to dig up information, process information, and make decisions intelligently, and able to solve problems correctly and properly. Social skills can be divided into two main types, namely (1) communication skills, and (2) cooperative skills. Academic skills are often called intellectual skills or scientific thinking abilities which are the development of general thinking skills but lead to scientific activities. These skills include the ability to identify variables, explain the relationship of a particular phenomenon, formulate hypotheses, design and conduct research. Life skills education has become a policy in line with the entry into force of the content standards and competency standards of graduates [1].

In line with KTSP, Biology is a branch of science that provides a variety of learning experiences to understand scientific concepts and processes. Biology learning should be carried out in scientific inquiry to foster the ability to think, work and be scientific and communicate it as an important aspect of life skills. Therefore Biology learning in senior high school emphasizes the provision of direct learning experiences through the use and development of scientific process and attitude skills [2].

According to Depdiknas, skills that must be mastered by senior high school graduates include observing skills, submitting hypotheses, using tools and materials properly and correctly by always considering work safety and safety, asking questions, classifying and interpreting data, and communicating findings verbally or in writing, explore, and sort out relevant factual information to test ideas or solve everyday problems, this is in accordance with the concept of life skills need for an effective learning in helping students practice their thinking, working and scientific skills to solve a problem the problem. A learning model that emphasizes the process of thinking to find and find their answers in solving problems is an inquiry learning model, in this case, is a guided inquiry model.

The guided inquiry model is a learning model that helps students to learn, gain knowledge by finding themselves. This model also includes the discovery of meaning, organization, and structure of ideas or ideas. So that students gradually learn how to organize and

conduct research to achieve learning goals [3]. The inquiry model can increase students' curiosity, find solutions to problems by asking questions and trying to find their solutions. The learning model by solving problems through a series of activities (scientific methods) will stimulate students to think scientifically [4].

Based on experience as a Biology teacher at MA Amanatul Ummah Surabaya and the results of questions and answers to fellow teachers, students lack mastery of concepts in Biology lessons, due to several things one of which is learning biology at senior high school/MA level tends to be abstract, so students experience difficulties in understanding the concept. Biology learning at senior high school/MA level is very dense, so observational or experimental activities are rarely carried out because it saves more time and all material can be provided, even though a lot of material in biology requires experimentation and observation. Methods like this do not provide opportunities for students to practice life skills, namely the ability to think scientifically (academic skills). Student academic skills will not develop in students when the learning process does not accommodate the occurrence of scientific activities. Guided inquiry facilitates scientific activities through experimental activities to develop student's scientific thinking abilities [5].

Based on these facts it is deemed necessary for an appropriate learning tool to be developed by the teacher in applying the learning model that involves students in direct learning activities while simultaneously training student's academic and social skills with the guided inquiry learning model. Guided inquiry learning process designed with scientific learning will stimulate students to foster scientific attitudes through scientific activities, so students will better understand science process skills [6]. Students involved in inquiry activities are an effective way to help students develop scientific thinking skills as well as social skills.

The ability to think scientifically in experiments by the steps of scientific work needs to be trained which includes formulating problems, formulating hypotheses, determining experimental variables, designing experiments, conducting experiments, conducting data analysis, and drawing conclusions. Students need to be helped to understand the concepts of biology and master scientific work skills, so the guided inquiry learning model is suitable to help teachers and students get maximum results in the learning process.

Student's inquiry abilities can be trained by exposing students to real problems that are close to student's lives, one of which is transport material on the membrane. Membrane transport is one of the materials contained KTSP in senior high school/MA curriculum in the odd semester of class XI. The competency standards set out in the KTSP are understanding the structure and function of cells as the smallest unit of life. The expected basic competence in transport material on membranes is to compare transport mechanisms on membranes (diffusion, osmosis, active transport, endocytosis, and exocytosis). Transport material on the membrane is material that is close to our lives and many difficult concepts on the material, transport material on the membrane is suitable when taught with guided inquiry learning models, by practicing life skills, because in it there are many problems that can train the ability to think and can do direct experimentation, so students are expected to be able to solve problems from the knowledge they have, this is in accordance with the benefits of life skills that are as a provision for students to face and solve life problems, then proactively and creatively seek and find solutions so that they are finally able to overcome them. In line with this the guided inquiry learning model is a learning model whose learning activities are centered on students, where students are trained in their ability to think in solving a problem, in the process students get guidance from the teacher to be more directed so that both the implementation process and the objectives to be achieved are carried out with well.

Starting from all of the above, research will be carried out by developing of biology learning instrument with guided inquiry model by life skill oriented in Madrasah Aliyah.

## II. EXPERIMENTAL METHOD

### 2.1 General Background of Research

The main purpose of this research to development of biology learning instrument with guided inquiry model by life skill oriented. This research was conducted in students at MA Amanatul Ummah Surabaya academic year 2018/2019.

### 2.2 Sample of Research

The sample in this research was 25 students of class X at MA Amanatul Ummah Surabaya academic year 2018/2019.

### 2.3 Instrument and Procedures

This research consists of 2 stages, namely the first stage of developing learning instruments, and the second stage is testing the learning instruments in class.

### 2.4 Data Analysis

#### a. Data Analysis Validation of Learning Instruments

Data analysis validation of learning instruments components was carried out with qualitative descriptive statistics, namely by averaging the scores of each component whose results were described [7].

$1.00 \leq \text{SVP} \leq 1.50$ : Not suitable and cannot be used yet.

$1.51 \leq \text{SVP} \leq 2.50$ : Not appropriate and can be used with many revisions.

$2.51 \leq \text{SVP} \leq 3.50$ : Feasible and can be used with minor revisions.

$3.51 \leq \text{SVP} \leq 4.00$ : Very feasible and used without revision

Information:

SVP = Device Validation Score

#### b. Data Analysis Assessment of Learning Implementation

Assessment and observation of learning implementation is carried out at first and second meetings by observers who have been trained so that they can operate the observation sheets correctly. This assessment includes an introduction, core activities, and closing.

Based on the average rating of the two observers for each aspect observed, the categories will be determined, namely:

- 1.00-1.99: Very poor (implemented, not suitable)
- 2.00-2.99: Inadequate (implemented, not suitable)
- 3.00-3.49: Sufficient (implemented, not systematic)
- 3,50-4,00: Good (implemented, systematic and precise) [8]

To determine the reliability of the instrument of observing the RPP, the data obtained from the two observers were tested for compatibility using the following formula:

$$R = \frac{A}{D + A} \times 100\%$$

Information :

- R = Instrument Reliability (percentage of agreement)
- A = Frequency of matches between the two observers (agree)
- D = Frequency of mismatch between the two observers (disagree)

The instrument of implementing RPP is said to be reliable, if the reliability value is > 75% [9].

c. Analysis of Student's Learning Achievement

Analysis of individual completeness data was analyzed using quantitative and qualitative descriptive analysis. The standard used to determine student mastery learning in this study is if the average achievement of indicators representing learning objectives meets the Minimum Mastery Criteria (KKM) of Biology in MA Amanatul Ummah Surabaya which is set at 75%. Academic skill completeness scores can be seen from the scores obtained on the process of learning achievement test whose learning objectives reflect aspects of academic skills. Data on the assessment of student's products and processes is analyzed using the following formula:

$$\text{Mastery of individual learning} = \frac{\text{number of indicators achieved}}{\text{number of all indicators}} \times 100\%$$

Classical completeness data analysis was analyzed using quantitative and qualitative descriptive analysis. Classical completeness can be calculated using the following formula:

$$\text{Classical completeness} = \frac{\text{Number of students completed}}{\text{Total number of students}} \times 100\%$$

The results of the assessment process and student product learning test results were also analyzed in quantitative and qualitative descriptive terms, namely the N-Gain analysis. Gain shows differences in mastery or understanding of student's concepts before and after treatment. Normalized score gain indicates the level of effectiveness of the treatment rather than the acquisition of the score. N-Gain is formulated [10] as follows:

$$\% \langle g \rangle = (\% \langle Sf - Si \rangle / (100 - \% \langle Si \rangle))$$

Information:

- <g> = gain index (N-Gain)
- <Si> = score before treatment (pretest)
- <Sf> = scores after treatment (posttest)

The N-Gain criteria is divided into 3 levels namely:

- 1) Learning with "high gain", if <g> ≥ 0.7;
- 2) Learning with "moderate gain", if 0.7 > <g> ≥ 0.3; and
- 3) Learning with "low gain", if <g> < 0.3.

To find out the sensitivity of a learning needs to be sought the sensitivity of the items. This sensitivity analysis is carried out on the product learning achievement test. The sensitivity index of an item shows a measure of how well the item can distinguish between students who have received learning and those who have not received learning. An effective item index is between 0.00 and 1.00 and the greater positive value indicates that the sensitivity of the item to the learning effects is also greater. While the criteria used to state that each item is sensitive or sensitive to the effects of learning is to have a sensitivity value (S) ≥ 0.30 [11].

The formula for calculating item sensitivity is as follows:

$$S = \frac{Ra - Rb}{T}$$

Information:

- S = sensitivity index
- Ra = Many students answered correctly on the final test
- Rb = Many students answered correctly on the initial test
- T = Many students take the test [12]

d. Analysis Observation of Social Skill

Social skills analysis is done descriptively quantitative and qualitative, observation of student's social skills in teaching and learning activities (KBM) is analyzed using the formula:

$$NKH = \frac{SKH}{\sum SKH} \times 100\%$$

Information :

- NKH = Life Skills Value
- SKH = Life Skills Score
- ∑SKH = Maximum total score [13]

The life skills assessment categories are as follows:

- 1) Not good, if  $\leq 20\%$  of the aspects can be observed.
- 2) Poorly, if 20% - 40% aspects can be observed.
- 3) Good, if 50% - 70% aspects can be observed.
- 4) Very good, if 80% - 100% aspects can be observed.

e. Analysis of student's responses

To analyze student's responses concerning student's interests and motivations for the teaching and learning process is done by calculating the percentage of student's responses to each aspect [14]:

This percentage is calculated by the equation:

$$\% \text{ Response of each aspect} = \frac{f}{n} \times 100\%$$

Information:

f = Number of students who gave responses

n = Total number of students

### III. RESULT AND DISCUSSION

The results of this study are to produce biology learning instrument with guided inquiry by life skills oriented that are appropriate for improving student learning achievement. Learning instruments developed include Learning Implementation Plans (RPP), Student Activity Sheets (LKS), Student Books, and Learning Achievement (THB) products and processes. Based on the results of the validation of learning instruments carried out by experts shows that the implementation of learning instruments developed in general has a device validity score (SVP) greater than 3, meaning that all learning instruments developed are feasible and can be used with minor revisions. The results of this assessment are supported by the opinion of Ratumanan, which states that the learning kit: (1) is not feasible if it shows a value of 1.00 to 1.50; (2) it is not feasible if it shows a value of 1.51 to 2.50; (3) feasible if it shows a value of 2.51 to 3.50; (4) it is very feasible if it shows a value of 3.51 to 4.00. The success of the learning process is supported by the existence of guidelines that are used as a reference by the teacher in managing learning activities. Learning Implementation Plan (RPP) is a guideline that is designed systematically to describe the scenario of the presentation of learning material by the stages of learning used as a guide for teachers in managing learning activities.

The results of the lesson plan assessment by the validator covering aspects of learning objectives, learning activities, and supporting learning activities have a range of values between 3-4 in general and very good categories so that they are very suitable for use in learning. This is because the lesson plan developed in accordance with Permendiknas No. 41 2007 that in the lesson plan there is a learning process plan covering the syllabus, and lesson plans that contain the identity of subjects, competency standards (SK), basic competencies (KD), indicators of competency achievement, learning objectives, teaching materials, time allocation, learning methods, learning activities, assessment of learning achievement, and learning resources. Also, there are also indicators of conformity with basic competencies and learning objectives with indicators.

The achievement of RPP assessment categorized as very good or very feasible to use, is also due to the development of RPP in accordance with the stage of guided inquiry learning [15] which includes: (1) problem formulation; (2) put forward a hypothesis; (3) collecting data; (4) testing hypotheses; and (5) formulating conclusions. In the RPP scenario, it also integrates components of life skills namely academic skills and social skills that can train students' abilities in scientific thinking and social abilities. This is in accordance with the underlying life skill principles of Learning to Know (learning to gain knowledge, Learning to Do (learning to be able to do / work), Learning to Be (learning to be a useful person), Learning to Live Together (learning to can live with others). The success of learning is also supported by the existence of several learning components namely a student book containing teaching material in it, worksheets, and student learning outcomes test sheets or evaluation sheets. Student books are devices that function as student handbooks that are used as reading the material and as student learning guides both in the learning process in the classroom and independent learning. The results of the assessment of the textbooks by the validator obtained information that the quality of student books is categorized as good which includes components (1) content worthiness, (2) language and, (3) presentation. Scores obtained from the assessment of student books have a range of grades between 3-4, this shows that the student books developed are suitable for use in learning Biology with minor revisions.

Achievement of the quality of student books with good categories so that they are suitable for use in this learning because the student books developed are based on the criteria for developing textbooks according to the Teaching Materials Development Guide. A good book is written using good language and is easy to understand, is presented in an interesting way, equipped with pictures and explanations, contains ideas derived from basic competencies written in the curriculum so that it gives meaning as teaching material for students who learn it [16]. Achievement of student book assessment is good and appropriate to use, also because in the introduction of each section in the student book there is a review of problems that can arouse students' curiosity, because the review of these problems is authentic and often occurs in everyday life. This is in line with BSNP 2006 which states that the presentation of student books should pay attention to the relationship with real life in order to arouse student's learning enthusiasm to apply the information obtained, so students have the opportunity to be creative and innovative [17]. Likewise, the worksheets were developed with the aim of guiding and facilitating students in finding knowledge concepts through experiments. Inside the worksheet contains activities that train several life skills, namely academic skills and social skills. Academic skills (the ability to think scientifically) are integrated in the worksheet through experiments with scientific method stages including activities to formulate problems, formulate hypotheses, design experiments, conduct experiments, organize data, analyze data, and make conclusions. While social skills that are trained include the ability to communicate and work together in groups.

The results of the Student Activity Sheet (LKS) assessment by the validator covering aspects of assessment (1) format, (2) language and, (3) content obtains a score with a range of grades between 3-4. This LKS assessment is categorized as good so it is suitable for use in learning Biology with minor revisions. The achievement of quality LKS with this good category is because the LKS that was developed

refers to the Teaching Materials Development Guide that the LKS is an activity sheet containing instructions, steps to complete the task in accordance with the BC to be achieved. Student Activity Sheet (LKS) contains at least: title, basic competency to be achieved, completion time, equipment / materials needed, brief information, work steps, tasks that must be done, and what needs to be done. A proper worksheet will make it easier for teachers to carry out learning, and for students will help learn independently, learn to understand, and carry out tasks. The next learning component is the learning achievement test sheet which is used to evaluate student learning achievement consisting of the product THB sheet and the process THB sheet. The assessment instruments are arranged based on learning objectives and are used to measure the achievement of basic competencies determined based on the completeness of the indicators. Students are able to master the basic competencies if all indicators on the basic competencies are complete. Product learning outcomes test in the form of multiple choice questions as many as 15 numbers, while the process of learning outcomes test in the form of 7 numbers of description questions. Product learning achievement tests to measure cognitive mastery, while process learning outcomes tests to measure student academic skills. The results of the assessment sheet of student learning achievement by the validator covering aspects of (1) material, (2) construction and, (3) language scores with a range of grades between 3-4. This THB assessment sheet is categorized as good for all aspects assessed so that it can be used in Biology learning with minor revisions. Based on the description above it can be said that the learning instruments developed based on each assessment by the validator are included in the appropriate category for using Biology learning with a few revisions so that they can be tested in class.

The results of the implementation of learning instruments that have been developed obtained the results of the implementation of lesson plans, student learning outcomes, academic skills, social skills, and student responses. The implementation of the lesson plan can be assessed from the implementation of the components in the lesson plan that have been planned and obtained from the observations of two observer teachers from schools with a range of scores from 1 to 4 at meetings 1 and 2. The implementation consists of introduction, core activities, and closing. In Table 4.9 page 102, the results of observing the implementation of the RPP for all aspects of learning range from 3.50 to 4.00 and are categorized as good with the reliability of the RPP implementation of 85.17% or 0.85. The instrument is said to be reliable if its reliability,  $R \geq 0.75$  or 75%. Assessment of the Implementation of the RPP gets an average score that increases at the first meeting to the second meeting. This is because at the first meeting students still feel new and are not accustomed to learning to use guided inquiry models. Students are accustomed to learning with the teacher centered method, so that at this meeting some students seem awkward and somewhat confused in conducting learning activities. This makes the teacher continually directing and guiding step by step so that students feel easy and interested in learning. At the initial stage more guidance is given, then gradually the guidance is reduced in trying to find a concept to understand new knowledge. Although students must try to overcome the difficulties encountered, teacher assistance is still needed. At the second meeting, students seemed to have gotten used to the guided inquiry model and were more enthusiastic in solving the problem being discussed. Student learning achievement which are the results of learning products on the mastery of transport material on the membrane obtained from the results of the pretest and posttest. Giving pretest and posttest aims to find out the sensitivity of the items and the completeness of the indicators in the student learning achievement test.

The results of the completeness of the indicators and the sensitivity of the product learning achievement, it can be seen that the test results of the learning outcomes applied have a sensitivity index between 0.33 to 0.79 with an average value of item sensitivity matter of 0.6. The minimum completeness criteria (KKM) applicable in MA Amanatul Ummah Surabaya, students are declared complete learning outcomes when they have achieved a value of  $\geq 75$  as a limit of mastery of the material, while classical completeness set  $\geq 75\%$  of students complete their learning in the class. The results of the analysis of student learning completeness are presented in Table 4.11 page 106, showing that for the initial test (pretest) students get a range of values between 0 to 40 with an average completeness value of 25.8 with completeness of 0% . Very low completeness at the time of the pretest is because students have not received the material to be studied, so they are only able to work on a few questions, but most of their answers are wrong. While the results of the final test (posttest) after the learning process by implementing the guided inquiry model by life skills oriented, students have obtained the material that has been learned. Posttest results show a range of values between 60 to 100 with an average completeness of 86.3, there are 2 out of 24 students who have grades below 75 so the classical completeness achieved by students is 91.7%, because the classical completeness achieved  $\geq 75\%$ , it is stated that students have completed their learning in the class. This shows that the majority of students achieve the mastery of the product learning outcomes test and are categorized as complete in studying the transport material on the membrane. The completeness results that do not reach 100% are considered reasonable, because each student has different abilities, besides that because of the many subjects that must be mastered by students, so students have difficulty in achieving high grades in each subject they learn. The results of the N-Gain statistical analysis of 24 students on all indicators of product learning achievement show a value of  $\langle g \rangle$  of 0.82. This shows that the learning activities carried out can improve student learning achievement because they are in the high category. The achievement of completeness of student learning outcomes indicates that the guided inquiry learning model oriented on life skills can improve student learning achievement.

The guided inquiry learning model is one of the student-centered learning models, where students are trained in their ability to think in solving problems directly, this is in accordance with the principles of life skills learning which is contextual learning, which emphasizes the relationship between real life and student environment and experience. The essence of life skills education is an effort to improve the skills, knowledge, attitudes and abilities that enable learners to live independently. The process learning achievement test is used to assess student academic skills after the teaching and learning activities take place. Process learning achievement tests that reflect academic skills are given in the form of essay questions. Academic skills contained in the test process of learning outcomes include aspects of formulating problems, formulating hypotheses, identifying variables, designing experiments, organizing data into tables, analyzing data, and making conclusions. The results of the completeness analysis of student learning achievement show that the results of the pretest students have a range of values between 0-32.85 with an average completeness value of 14.43 with completeness of 0%. Very low completeness at the time of the pretest is because students have not received the material to be studied, so they are only able to work on a few questions, but most of their answers are wrong, even many of the students leave their answer sheets blank. While in the posttest results students have a

range of values between 74.5-100 with an average value of completeness of 91.7, there is 1 of 24 students who have grades below 75 so that the classical completeness achieved by students by 95.8%, due to classical completeness achieved  $\geq 75\%$ , it was stated that students had completed their learning in the class. The completeness results that do not reach 100% are considered reasonable, because each student has different abilities, other than that due to the many subjects that must be mastered by students, so students have difficulty in achieving perfect grades in each subject they learn. This shows students have reached the completeness of the learning achievement test process, so that student's academic skills are categorized as complete.

The results of the analysis of academic skills through student process learning achievement tests during the pretest and posttest experienced a percentage increase in each aspect that includes aspects of formulating the problem increased by 74.17%, formulating a hypothesis 73.33%, identifying variables 69.64%, designing an experiment 62.64%, organizing data into tables 74.17%, analyzing data 87.08% and making conclusions 77.08%. The highest increase in data analysis aspects was 87.08%, this is because many students at the time of the pretest were not able to analyze the data. Students assume that data analysis is the most difficult thing among a series of stages of the scientific method, but after the learning process students are trained in the stages of implementing the scientific method directly in an experiment. Thus students have no difficulty in analyzing data. In the aspect of designing the experiment the percentage increase was 62.64%. This shows that students in the initial stages before learning enough to be able to make a design with materials and tools that will be used, because students have previously studied the steps of the scientific method and students do not have too much difficulty in designing aspects of the experiment. The results of the N-Gain statistical analysis of an average of 24 students in each aspect assessed from the learning outcomes of the process showed a range between 0.79 to 0.99.

The achievement of completeness of learning achievement oriented to academic skills process indicates that guided inquiry learning model oriented on life skills is effective in improving student learning achievement. Social skills include the ability to communicate and work together in groups. Social skills are observed after learning activities. Observed social skills include verbal communication (asking questions, answering questions, expressing ideas / opinions, discussing and presenting), written communication (reporting the results of experimental discussions in writing), and working together in groups. The results of the percentage of student's social skills showing that the highest percentage of students' social skills is in the aspect of students being able to work in groups of 94.27%. This shows that the guided inquiry learning model oriented on life skills can train social skills in students. Social skills are trained in accordance with the objectives of Biology subjects in high school, namely: (1) Fostering scientific attitudes that are honest, objective, open, resilient, critical and can work together with others, (2) Developing experience to be able to submit and test hypotheses through experiments, and communicating experimental results verbally and in writing, and (3) Developing analytical, inductive, and deductive thinking skills by using biological concepts and principles. The ability to work together needs to be developed so that students are accustomed to solving problems that are rather complex. The intended collaboration is to cooperate with mutual understanding and help each other to achieve good goals. In other social skills the lowest percentage is shown in the aspect of students being able to convey ideas or opinions of 70.83%, this is because in reality oral communication is apparently not easy to do. Often people can not accept the opinion of the speaker, not because of the contents or ideas, but because of the way it is delivered is not pleasing. In this case the ability to choose words and how to convey is needed so that they are easily understood by the speaker.

Student's responses to the teaching and learning process by applying the guided inquiry learning model by life skills oriented obtained using student's response questionnaire sheets which are student's responses to teaching and learning activities that have been carried out. The results of the analysis of student responses showing that most students respond positively to the aspects measured, most students are interested, feel new and easily understand the components of the material / lesson content, student books, worksheets, evaluation sheets, atmosphere learning, and the way the teacher teaches. In addition, most students feel new to the guided inquiry learning model by integrating academic skills in learning. Students feel happy in carrying out learning by practicing questioning skills, answering questions, expressing ideas or opinions, discussing, presenting, reporting the results of experimental discussions in writing, and working together in groups which are components in social skills. At the end of student learning is given an evaluation sheet of product learning outcomes tests and a process to measure students' abilities after KBM, students state they find it easy to answer evaluation sheets and achieve learning objectives. This shows that the results of students' responses to life-oriented guided inquiry learning models give positive responses to all aspects measured. This is because the guided inquiry oriented learning model life skills are considered new and fun, students can conduct experiments directly and can work together with friends in the group. This positive response shows that students are enthusiastic about the learning presented.

Based on the description above, it can be seen that student learning achievement which include product learning achievement and process learning achievement that reflect academic skills have reached completion, the implementation of the lesson plans can be carried out properly in accordance with the developed lesson plans, social skills get good categories, and the results of student responses give a positive response to all aspects measured. This shows that the learning device developed has met the eligibility criteria to improve student learning outcomes in Madrasah Aliyah, especially in the transport material on the membrane. Based on the results of the study found that the results of the development of learning tools in the form of validation of Biology learning tools guided inquiry model oriented to life skills include Learning Implementation Plans (RPP), Student Activity Sheets (LKS), Student Books, and Learning Outcomes Test (THB) of products and processes, everything can be categorized well and can be used in the learning process by making a little improvement. The implementation of the lesson plan for all learning activities including the preliminary, core, and closing stages received an average score ranging from 3-4 and categorized well with the reliability of the implementation of the lesson plan at 85.17%. These results indicate that the Biology guided inquiry learning implementation plan oriented to life skills can be carried out properly, in accordance with the developed lesson plans. Student learning achievement which include product learning outcomes achieve a classical mastery of 91.7%, and the learning outcomes of the process of achieving a classical mastery of 95.8%. Students were declared complete learning in the class because they had reached the classical completeness set by the school by  $\geq 75\%$ .

Academic skills consisting of formulating problems, formulating hypotheses, identifying variables, designing experiments, organizing data into tables, analyzing data, and making conclusions from grades obtained by students after answering test questions on learning

outcomes that reflect academic skills have been achieved completeness. Social skills which include verbal communication (asking questions, answering questions, expressing ideas / opinions, discussing and presenting), written communication (reporting the results of experimental discussions in writing), and working together in groups to get good judgment categories. The results of the study stated that guided inquiry learning model by life skills oriented and their learning instruments can improve student learning achievement.

#### IV. CONCLUSION

Development of biology learning instrument with guided inquiry model by life skills oriented is suitable use for learning Biology and improving student learning achievement.

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