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Daily Activity Based Learning combined Contextual Teaching and Learning Approach in the Animal Anatomy and Development Course to Improve Critical Thinking Skill

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Abstract
Learning in the 21st century requires lecturers to be more creative in finding learning models that can be carried out by students with online learning limitations. Learning in the Animal Anatomy and Development Course requires students to carry out practical work independently to be able to better master competencies. Lecturers must look for appropriate learning models to enable students to carry out independent practicum in online learning. Appropriate learning is through a daily activity based learning model combined with 7 contextual teaching and learning standards. The research method in this study uses the classroom action research method. This research consists of 2 cycles where each cycle consists of planning, implementation, observation, reflection and evaluation stages. The data analysis technique will use SPSS with the T test. The research results show that Daily activity based learning (DABL) can improve critical thinking skills based on the posttest in each cycle. Student scores increased from pretest to posttest cycle I, and from posttest cycle I to posttest cycle II. This is proven by the average pretest score for cycle I increasing from 62.76 to 74.21. Then the post-test value from cycle I to post-test cycle II also increased from 74.21 to 80.26. After the T test with SPSS, the increase in value shows a significant difference because the T test value is <0.05, which shows that there is a real difference between the results of the pretest, posttest I and posttest II. Daily activity-based learning (DABL) can improve critical thinking skills based on posttests in each cycle because there is a combination of learning steps which include modeling, learning communities, constructivism, inquiry, questioning, reflection and authentic assessment. Learning with the Daily Activity Based Learning model is related to the achievement of SDGs no 4 Quality education which requires students to have critical thinking skills to carry out sustainable development actions.

Keywords: Daily Activity Based Learning, Contextual, Teaching, Learning, Critical Thinking

1. Introduction

Learning in the 21st century requires lecturers to be more creative in finding learning models. Learning in the Animal Anatomy and Development Course requires students to carry out practical work independently to be able to better master competencies. Lecturers must look for appropriate learning models to enable students to carry out independent practicum in learning. Contextual teaching and learning (CTL) is one of the learning strategies that educators have created to help students enhance their cognitive capacities. CTL is described as a method of introducing content or material utilizing a range of active learning strategies intended to assist students in making connections between their prior knowledge and the knowledge they seek to acquire, as well as in creating new knowledge via the analysis and synthesis of this learning process (Hudson and Whisler, 2007). The theoretical basis for CTL focuses on connection, constructivist, and active learning theory. The three main types of learning scenarios to describe how CTL are project-based, goal-based, and inquiry-oriented (Hudson and Whisler, 2007).

Increasing learning outcomes during online learning can be improved by developing contextual learning-based teaching materials (Saraswati et al, 2021) including students based on daily activities or what is also known as daily activity. Analysis of students' cognitive understanding shows high criteria with an average N-gain value of 0.70 (high criteria) using mobile learning modules based on contextual learning (Saraswati et al, 2021).

Various learning models are used by teachers in CTL, including REACT (Relating, Experiencing, Applying, Cooperating and Transferring) (Nawas, 2018), FRAME (formulate, observe, state, combine, communicate, practice) (Suryawati et al, 2010) which are able to improve understanding. students' concepts and skills (Nawas, 2018; Suryawati et al, 2010). REACT strategy is recommended to be applied in teaching and improving the writing skills of middle school students in the third grade of Madani Islamic High School, Indonesia (Nawas, 2018).

Critical thinking is one of the advanced skills needed to meet the challenges of the twenty-first century. The appropriate learning strategy is necessary to foster critical thinking and practical skills. Critical thinking among students can be achieved through learning that enables them to build their own knowledge, conduct research, cultivate curiosity, present models, foster reflection skills, and talk about both cognitive and non-cognitive abilities (Tari and Rosana, 2019). Learning can be meaningful if the content is connected to real-world situations. Teachers must be extremely creative when creating learning activities using a CTL method in order to incorporate all of the CTL components. Constructivism, inquiry, questioning, learning communities, modeling, reflection, and genuine assessment are all parts of the CTL component (Tari and Rosana, 2019).

The Animal Anatomy and Development course is one of the scientific subjects in the Biology Education Study Program. Since the 2015 academic year, the Biology Education Study Program Curriculum, Universitas Kristen Indonesia has referred to the Indonesian National Qualifications Framework, which ensures that graduate competency meets the objectives of the

curriculum. To increase student competence, the learning model is carried out using contextual teaching and learning (CTL). In its implementation, the CTL approach consists of three stages, namely planning, implementation and reflection on each cycle (Khotimah and Masduki, 2016). Various research results show that using the CTL approach improves critical thinking skills (Wahyuningtyas and Wuryadi, 2018; Tari and Rosana, 2019), conceptual understanding (Wahyuningtyas and Wuryadi 2018), and students' practical skills (Tari and Rosana, 2019). There is a high relationship between critical thinking skills and CTL so that the better the critical thinking skills, the higher the conceptual understanding (Wahyuningtyas and Wuryadi, 2018).

Hasaruddin et al. (2015) and Bustami et al. (2018) stated that if CTL model learning is applied then critical thinking abilities can increase. Apart from improving students' abilities, CTL also improves lecturers' abilities and skills in preparing Semester Learning Plans (RPS) (Khotimah and Masduki 2016). Various CTL learning models were developed by researchers including RANGKA (Suryawati et al., 2010). CTL uses a FRAME approach (formulate, observe, state, combine, communicate, practice) and is proven to be able to improve problem solving abilities in accordance with students' scientific attitude rules (Suryawati et al., 2010).

Daily activities are a form of informal learning activities. Empirically, it appears that students who come from rich rural environments find it easier to recognize and analyze biodiversity learning compared to students who live in cities. Therefore, we suspect that daily activities are an approach that can be used to improve students' critical thinking skills, called daily activity based learning (DABL).

The study in the animal anatomy and development course is the structures that make up animals (fish to mammals), which we can easily find in the surrounding environment every day. Several animal structures are easily found in everyday life, including bones, skin, feathers, hair, scales, claws, nails and teeth, so this material is very suitable for application in CTL learning using the DABL approach. Therefore, students need help to find the right learning model to be able to gain direct experience even in online learning conditions.

The learning approach that can be taken when online learning conditions and the implementation of a learning system from home is to utilize what is always done every day by a student or their parents. The daily activity based learning approach is an approach that uses daily activities such as cooking, bathing, eating and gardening as a learning tool to understand lecture material, especially Animal Anatomy and Development courses. Daily activity based learning is a learning approach that is worth considering to be chosen as the approach applied in the online learning system.

Daily activity based learning (DABL) is a special form of contextual learning or contextual teaching and learning (CTL) model. The DABL syntax also adapts the contextual teaching and learning syntax. This syntax includes modeling, learning communities, constructivism, inquiry, questioning, reflection and authentic assessment. This syntax is very suitable for learning in Animal Anatomy and Development courses.

Students must possess 21st century skills since the curriculum in Animal Anatomy and Development courses must be updated to reflect recent advancements. The Partnership for 21st Century Skills (Leward and Hirata, 2011) states that 21st century skills encompass capacities in learning and innovation (learning and innovation skills), life and career (life and career skills), and

information, media, and technology (information, media, and technology skills). High Order Thinking Skills (HOTS), which include critical thinking, problem solving, communication, and teamwork, are the main focus of 21st century skills (Paige, 2009). The lecturer's selected method of instruction needs to be suitable for achieving these 21st century competencies. Context-based approaches are seen to be the most suitable..

This contextual-based approach is closely related to learning using events that occur around students in daily activities. So it can be concluded that contextual-based learning focuses on learning that is connected to daily activities to gain the desired knowledge. Daily life is an activity that is always carried out by students. Activities that are commonly carried out will give a deep impression if interpreted wisely to gain knowledge.

Daily activities or daily activities provide ample space to be able to master the science of Animal Anatomy and Development. Utilizing daily activities in learning using the Contextual Teaching and Learning (CTL) learning syntax will further help students to be able to combine online learning activities at home which will support the government program, namely learning from home. The advantage of inquiry learning process and science activity based daily life for students is in the form of understanding more interesting concepts in a more enjoyable way because they are more active both physically and mentally in the learning process (Anggoro et al., 2018). Research that specifically integrates Daily Activity Based Learning (DABL) with the Contextual Teaching and Learning (CTL) approach in biology courses in universities, especially in the Anatomy and Animal Development courses to improve students' critical thinking skills, is still very limited. This gap demonstrates the need for studies that explore the effectiveness of such combined approaches in building critical, reflective, and contextual learning experiences.

This contextual learning approach or Contextual Teaching and Learning aims to train students to always use critical thinking skills and be skilled in processing knowledge to find and create something that is useful for students themselves and others. Contextual environmental conditions that always experience dynamics will enable students to have critical thinking skills and be skilled in processing knowledge. CTL contains constructivism, namely a learning process that emphasizes building one's own understanding actively, creatively and productively based on previous knowledge and from meaningful learning experiences. We will organize knowledge in our minds and then we will give it meaning. through real experiences that we get from the surrounding environment.

The Daily Activity Based Learning (DABL) model based on CTL syntax will contain steps that can be used to improve critical and creative thinking and provide opportunities to use these higher level thinking skills in the real world to develop their intellectual abilities (Johnson, 2009). With contextual learning (CTL), students will be invited to see contextual conditions that are always dynamic. From these always dynamic conditions, students will develop their critical thinking skills to respond to existing conditions. Conventional learning such as textbooks and teacher-oriented which results in passive learning and is not connected to real life results in students' critical thinking abilities not developing well and ultimately affecting their learning outcomes (Bustami et al., 2018).

Critical thinking in learning really needs to be developed, in order to develop students' critical thinking skills in biology learning that is interesting for students, an innovative learning approach is needed that is in accordance with the characteristics of biology learning. One learning approach that could be an option to improve students' critical thinking skills in biology learning is the daily activity-based Contextual Teaching and Learning (CTL) learning approach. Daily activity-based contextual learning allows students to understand facts, concepts, generalizations and theories in biology learning linked to daily activities to be linked to the knowledge that will be conveyed in lectures.

Daily Activity Based Learning (DABL) also allows students to solve problems in their daily social environment. The main components of daily activity-based contextual learning include constructivism, inquiry, questioning, modeling, learning communities, reflection and authentic assessment (Johnson, 2009). Students will relate contextual matters to theory during class learning. If lecturers are able to foster critical thinking attitudes in students, then the biology learning process will no longer be a boring activity but can become an efficient, active and enjoyable learning activity for students and lecturers. Students who have high critical thinking skills will usually find it easy to solve problems.

2. Methods

This type of research is Classroom Action Research with a qualitative approach and a quantitative approach. This research design uses the Kemmis & McTaggart model, which is carried out in 2 cycles consisting of planning, implementation, observation, and reflection. This model was chosen because it provides a systematic and reflective framework that allows researchers and lecturers to collaboratively improve learning practices in a real classroom setting. It is especially effective for evaluating and refining instructional strategies such as Daily Activity Based Learning combined with CTL, as it emphasizes continuous improvement through cycles of action and reflection. The subjects of this research were Biology Education students, FKIP, Indonesian Christian University. The data collection technique used in this research was (1) pre-cycle tests (2) cycle I and II tests, (3) observation sheets for the implementation of Daily Activity Based Learning (CTL Syntax). The research instruments used were observation sheets and learning outcomes tests according to critical thinking indicators.

3. Result and Discussion

This research was conducted with a class action research method which includes 2 cycles. The first cycle consists of planning, execution, observation, reflection, and evaluation. The results of reflection in the first cycle continue to the second cycle for evaluation in compiling planning in the second cycle, followed by implementation, reflection observation, and evaluation. At the beginning of the cycle and at the end of each cycle, critical thinking skills test data were taken. So 3 pretest data were obtained, the first cycle postes were taken from midterm evaluation results, and

the second cycle postes were taken from final exam results. The results of these tests are then analyzed using the SPSS program. The analysis carried out is a data descriptive test, normality test, homogeneity test, and T test to determine the difference between 2 average values. The following are the results of a data descriptive test with SPSS descriptive analysis test.

Table 1.
Descriptive analysis results

Data type	Minimum	Maximum	Mean	Std. Deviation
Pretest result data	40.00	77.00	62.76	10.28803
Data postest cycle 1	51.00	87.00	74.21	10.22839
Data postest cycle 2	60.00	90.00	80.26	7.67277

From the results above, we can see that the pretest result data has the lowest average value of 62.76 and the postest result data in cycle two has the highest average value of 80.26. The data also showed that in each cycle there was an increase in the value of critical thinking skills to be higher, namely from cycle one to cycle two, initially the value from 74.21 to 80.26. To prove whether the difference in average values is real or not will be continued in the T test in the table below. However, before conducting the T test, the data on the values of pretst, posttest cycle I, and postest cycle II must be tested for prerequisites first, namely the normality test and homogeneity test to be able to continue the T test parametrically. The homogeneity test is performed with the Levene test and the normality test is performed with the Kolmogorov Smirnov test.

Table 2.
Pretest t-test and cycle 1 results

Data type	Types of test hail	Say.	T
Data cycle 1 pretest dan postest cycle 1	Equal variances assumed	.001	-11.44737
	Equal variances not assumed	.001	-11.44737

The data above shows the data of the T test results of the pretest results and the data of the postest results from cycle I. Before the T test was carried out, the data had been tested for normality and homogeneity. The significance value of normality postest cycle I 0.081 and 0.091 Pretest. Then for the significance value of homogeneity of both data 0.241. Based on these results, if the significance value is >0.05, then the data is said to be normal and homogeneous so that it can proceed to the parametric test, namely the two-average difference test with the T test. Based on table 2 above, it can be seen that the significance value of the T test results for the pretest and

posttest values of cycle 2 is 0.001. Since the result of significance is <0.05, it can be said that the two averages have real or significantly different values. So that the increase in value from the pretest results to the first cycle postest value is indeed recognized as a very real increase in critical thinking skills.

Table 3.
T Test Cycle 1 Results And Cycle 2 Results

Data Type	Types Of Test Results	T	Df	Sig. (2-Tailed)
Postes Cycle I And Postes Cycle 2	Equal Variances Assumed	-2.063	36	.046
	Equal Variances Not Assumed	-2.063	33.386	.047

The data above shows data on T test results from cycle I and data on postest results from cycle II. Before the T test was carried out, the data had been tested for normality and homogeneity. The significance value of the normality of the first cycle postest is 0.081 and the significance of the second cycle postest is 0.12. Then for the significance value of homogeneity of both data 0.190. Based on these results, if the significance value is >0.05, then the data is said to be normal and homogeneous so that it can proceed to the parametric test, namely the two-average difference test with the T test. Based on table 3 above, it can be seen that the significance value of the T test results for the 2nd cycle pretest and postest values is 0.046. Since the result of significance is <0.05, it can be said that the two averages have real or significantly different values. So that the increase in value from the results of the first cycle postest to the second cycle posttest value is indeed recognized as a very real increase in critical thinking skills.

The data contained in the 3 tables above corroborate that learning with Daily activity-based learning (DABL) can increase the value of critical thinking skills contained in the postest results in each cycle. Daily activity-based learning (DABL) is a very fitting learning when paired with animal anatomy and development courses. In the syntax, Daily activity-based learning (DABL) emphasizes learning by utilizing daily activities and objects around students to be able to understand anatomical and developmental material. In the Daily activity-based learning (DABL) activity, students are invited to dissect the animals they usually eat, make recipes, make videos of animal behavior and development, and students make songs and lyrics related to animal anatomy, It is hoped that by doing activities that are creative and attached to their daily activities, the knowledge they get can be more familiar. Learning experiences related to daily activities will make the material easier to understand, and will hit students so that knowledge is not easily forgotten. Daily Activity-Based Learning (DABL) emphasizes the use of everyday activities and familiar objects to help students understand anatomy and developmental material more meaningfully. This approach has been applied in a flipped classroom learning model that combines multimodal digital resources and student creative projects, which has been shown to improve anatomical understanding and critical thinking (Xiao & Adnan, 2022).

Daily activity-based learning (DABL) also emphasizes group learning syntax. Learning in groups will allow students to be able to discuss, argue, and fill each other if someone does not understand the material. Every student needs to be equipped with effective communication skills such as how to refute the opinions of others without offending them. These skills require a long process, but students need to go through this process to enrich the learning experience and foster students' mental and emotional development. Communication between members will train each student to analyze each group member. They will practice analyzing and evaluating each other's abilities (Wahyuningtyas, 2019). The exercise will have an impact on improving critical thinking skills.

Learning Activities with the Daily Activity Based Learning Model on Animal Anatomy and Development Material

This research was conducted to apply the appropriate learning model to be implemented in hybrid learning systems. This applied learning model is a learning model that utilizes the environmental conditions around students and daily activities that are often carried out by students. Daily activity based learning (DABL) is a learning model that is suitable for this hybrid learning system. Daily activity based learning (DABL) is a learning model that uses everything in everyday life to achieve learning goals for animal anatomy and development material. In pandemic conditions, students are asked not to go to campus and only study from home, this condition is used by lecturers to find models that can be used for independent learning at home and take advantage of the surrounding environment.

Daily activity based learning (DABL) is a model that adapts to 7 syntax of Contextual Teaching and Learning (CTL). The 7 syntaxes include modeling, learning societies, constructivism, inquiry, questioning, reflection and authentic judgment (Johnson, 2009). The 7 syntaxes are developed into a Daily activity-based learning (DABL) learning model including modeling, community learning, constructivism, inquiry, questioning, reflection and authentic assessment. The 7 syntaxes will be summarized into a learning cycle with the type of classroom action research. Action Research The class will be divided into 2 cycles. Cycle I is 8 initial meetings and cycle II is 8 final meetings. Each cycle consists of preparation, planning, action, observation and monitoring, reflection, evaluation and conclusion of results.

The learning of each cycle will contain 7 syntaxes of DABL modeling, community learning, constructivism, inquiry, questioning, reflection and authentic assessment. The following are activities carried out to implement DABL in animal anatomy and development courses. Activities included in the planning stage are researchers conducting surveys and explorations carried out at the UKI Cawang campus directly to find out the possibility that the campus can be used as a place for research and find problems, researchers with collaborators identify and formulate problems that arise from learning Animal Anatomy and Development, prepare a Teaching Plan referring to RPS. Then prepare several instruments in the form of observation sheets and learning evaluations in the

form of pre-test and post-test. In this case, this research lecturer colleague acts as an observer and will fill out an observation sheet on the implementation of the Contextual Teaching and Learning learning model. The learning topics used are Anatomy of the Animal Digestive System, Anatomy of the Animal Motion System, Anatomy of the Animal Reproductive System, Anatomy of the Animal Respiratory System and Animal Metamorphosis.

The stages that will be carried out in the implementation in both cycles are as follows. The first cycle carried out actions as many as two meetings. The material of the 2 meetings was Anatomy of the Animal Digestive System and Anatomy of the Animal Motion System. The activity procedure in the first cycle will gradually be carried out into activities. Preliminary activities include lecturers giving greetings and checking student readiness, informing the material to be discussed and the objectives to be achieved from the learning to be carried out, motivating students to actively participate in the learning process by providing active points for additional assignment grades, informing and confirming to students about the types of assessments that will be carried out during the learning process.

The core activities in the Motion System material include students doing pre-tests on critical thinking skills, lecturers delivering learning concept maps, lecturers making groups consisting of a group of 3 students including DABL learning community syntax. The lecturer asked students to reveal and tell what animals had been eaten at home included in the modeling syntax. From the experience above, students are asked to formulate problems about the bone system of various animals that have been eaten in their respective homes, including the syntax *of questioning.* The lecturer asked students to compile a video clip about the names of fish bones, chicken bones, frog bones, rabbit bones by being sung in a song included in the inquiry syntax. The lecturer asked students to compile their own bone names, understand the shape from the experience of eating the bones of various animals into constructivistic syntax *(contrutivism).* In the modeling syntax *(modeling)* the lecturer asked students to sing the song themselves with words consisting of the arrangement of names of fish bones, chicken bones, frog bones, rabbit bones by being sung in a song. The lecturer asked students to present the song and video clip by singing in the ZOOM class and being assessed by other groups into authentic *assessment* and modeling syntax. The lecturer asked students to explain the difficulties in making video clip projects and how to overcome them, including the reflection syntax. The inquiry syntax is seen when students create songs and connect them with various bone names and their locations. Students must find their own tone relationship with the right bone name. The location of the bones must also be arranged behind the name of the bone so that the song contains the name, location, and function in order. Modeling plays an important role because it provides real-world examples of high-level cognitive processes such as evaluating information, making arguments, and drawing logical conclusions. Through observation, students can imitate and internalize these thinking strategies. This is supported by the Cognitive Apprenticeship and Social Learning Theory proposed by Bandura, where learning occurs through observation of other people's thinking behavior. Fisher et al., (2021) emphasized that modeling equips students with explicit thinking structures that support the systematic development of critical

thinking skills.

The second core activity in the digestive system material is that the lecturer asks students to create a group consisting of a group of 3 students into the learning community syntax. The lecturer asked students to reveal and tell them whether they had eaten beef and chicken offal. From the experience above, students are asked to formulate problems about organs that enter the digestive system of various animals that have been eaten in their respective homes (*syntax questioning*). The lecturer asked students per group to compile a recipe with various organs involved in the digestive system of chickens, burjng, horses, frogs, pigs and cows including inquiry syntax. The lecturer asks students to compile what are the digestive organs and what recipes can be made with these digestive organs including *constructivistic* syntax. A constructivist learning environment allows students to conduct meaning-oriented exploration, reflection, and problem-solving. This approach is rooted in the Experiential Learning Theory developed by Kolb, which is now updated and adopted in the context of 21st century learning. Rizki and Sholihah (2020) prove that this approach is effective in encouraging critical thinking skills through meaningful, exploratory, and contextual learning activities.

In the modeling syntax, the lecturer asks students to show the results of each recipe they have compiled and made. The lecturer asked other students to assess the beauty and suitability of dishes with the digestive organs of each animal including *authentic assessment syntax*. The lecturer asked students to explain the difficulties in making video clip projects and how to overcome them including reflection syntax. Then for this first cycle, lecturers do the first cycle post-test.

The planning of the second cycle looks at the results of the reflection of the first cycle. The planning and actions that have been carried out in the first cycle will then be used as a reference for the second cycle. This second cycle is not much different from the first cycle, which is a preliminary activity in the form of lecturers giving greetings and checking student readiness. Informing the material to be discussed and the objectives to be achieved from learning, motivating students to actively participate in the learning process, informing and affirming to students about the types of assessments that will be carried out during the learning process.

The core activities in the respiratory system material include students doing pre-tests, then the lecturer submits a learning concept map, asking students to create groups consisting of a group of 3 students, including the learning community syntax. The lecturer asked students to reveal and tell if they had ever seen birds fly and seen fish swimming in ponds. From the experience above, students were asked to formulate problems about the system of how the two animals breathe when flying and when swimming, including the syntax of questioning. The lecturer asked students per group to compile a model and in pictures how the mechanism and sequence of birds breathing and fish breathing based on their observations directly including inquiry syntax. The lecturer asks students to compile what respiratory organs are involved based on their observations including *constructivistic syntax*. The lecturer asked students to show the results of pictures of the breathing

mechanism of birds and fish that had been drawn including modeling syntax. The lecturer asked other students to rate each other's beauty of the images that had been made, including *authentic assessment syntax*. The lecturer asked students to explain the difficulties in making projects and how to overcome them including reflection syntax.

The core activity in the animal metamorphosis material is that the lecturer asks students to create a group consisting of a group of 2 students including the learning community syntax. The lecturer asked students how caterpillars can change into butterflies, including *questioning* syntax. The lecturer asked students per group to compile an original model of animals that metamorphosed perfectly and imperfectly around their residence, then after the animal metamorphosis section was complete students had to photograph neatly arranged in a photo frame and video the sequence of animal metamorphosis including inquiry syntax . The lecturer asks students to arrange what are the stages of metamorphosis and how are the characteristics per phase so that it is categorized as perfect or imperfect metamorphosis which includes *constructivistic syntax*. The lecturer asked students to show the results of videos and photos of the metamorphosis which included modeling syntax. The lecturer asked other students to rate each other's videos that had been made, including *authentic assessment syntax.* The lecturer asked students to explain the difficulties in making projects and how to overcome them which included reflection syntax. To close the activity in the second cycle, lecturers conduct post-tests to students as final exam scores. The tests used for pre-tests and postes are arranged based on indicators of critical thinking skills. So that the results of pretests and postes show the value of critical thinking skills.

The Relationship of the Daily Activity Based Learning Model with Improved Critical Thinking Skills

Five sub-indicators of critical thinking ability are as follows: focusing questions, analyzing questions, asking and answering questions about an explanation; building basic skills has sub-indicators that consider whether or not sources are reliable; observing and considering an observation report; deducing and considering the results of deduction; inducing and considering induction; making and determining the results of consideration. These five indicators—providing simple explanations, concluding, providing additional explanations, managing strategies and tactics, and building basic skills—have additional sub-indicators of critical thinking abilities. Indicators have sub-indicators, define terms and take into account a definition in three dimensions, specify assumptions, and offer more explanation. According to Ennis (1985) in Muhfahroyin (2009), indications set strategies and tactics have sub-indicators that determine an action and interact with others. All of the DABL's seven syntaxes are important for enhancing critical thinking abilities. Therefore, it is obvious that using this DABL model will have a significant impact on developing critical thinking abilities. Every DABL syntax enhances every measure of critical thinking proficiency. In the description that follows, this will be clarified.

A learning strategy that modifies the Contextual Teaching and Learning (CTL) approach's syntax is called daily activity-based learning (DABL). ensure that the seven CTL requirements are

followed in the learning process of every meeting when implementing Daily Activity Based Learning (DABL). The seven criteria or syntaxes that Daily Activity Based Learning (DABL) has embraced are inquiry, learning communities, modeling, questioning, constructivism, genuine assessment, and reflection. The description of each standard or syntax completed in the animal anatomy and development course will be covered in the following, along with how the syntax might enhance each cycle's critical thinking abilities.

The first standard is contructivism. Constructivism is a theory that is constructive, building in terms of ability, understanding, in the learning process. Because by having a constructive nature, it can be expected that the activeness of students will increase their intelligence (Suparlan, 2019). In this learning, constructivism is associated with how students answer problems by relating to their knowledge. For example, students are asked to arrange the digestive tract starting from the beginning of food entry to food out, students will associate with what they usually do when eating. After relating the incident when students eat with animal organs, they can arrange the sequence of animal digestive organs very easily in a picture or video. Students will be inspired and motivated to think more deeply if the content and activities they typically engage in are related. the use of constructivist-based CTL (Contextual Teaching and Learning) methodology. Students' everyday experiences serve as a visual representation of the content they will learn through their learning medium. Students will comprehend the content more actively and responsively as a result of these everyday experiences. Students are more interested in critical thinking when they are exposed to material that is directly relevant to their everyday life. Students can develop their critical thinking skills, which include evaluating the reliability of sources, observing and analyzing a report of observations, deducing and evaluating the results of deduction, inducing and evaluating induction, and making and determining the results of consideration, if they adhere to this constructivism standard in all of their activities.

The second standard is questioning. While answering questions shows one's capacity for thought, asking questions can be seen as a reflection of each person's interest (Sanjaya, 2010). Questions will be submitted by lecturers every time they open a lesson, for example, students are asked how the development of butterflies from zygotes to adults. So to answer the question. Such questions will provoke students to relate learning to daily events they usually encounter, for example how butterfly development. If they rarely see butterflies, this question will lead students to be able to find answers using their cellphones or gadgets. If this questioning standard is carried out by students in all activities, indicators of critical thinking skills including the ability to focus questions, analyze questions, ask and answer questions about an explanation can be well trained through this standard. In learning through CTL, teachers do not convey information casually, but provoke so that students can find it for themselves. Therefore, the role of asking questions is very important, because through questions the teacher can guide and direct students to find every material they learn. Sharp questions can refine beliefs and explain events. By answering questions or even being able to ask questions again, students will be able to find the meaning of a material. According to Brooks (Johnson, 2009) to find a meaning students must have the opportunity and ask questions. The questions they make help to find connections between the material in class and

the situations they experience both on campus, at home, and community members. They see the meaning of academic lessons and thus want to achieve superior achievement (Johnson, 2009).

The next third standard is learning community. Students will be asked to form a group to explore what students have and build through group study. In every activity at meetings in animal anatomy and development courses, they are always asked to learn in groups, starting from doing assignments or presentation activities. Although there are times when learning is not face-to-face, students can do it in groups using the Teams application which can be set to make group groups able to conduct video meetings with the Microsoft Teams application. So even if there is learning that is face-to-face and not face-to-face, it will not be an obstacle in this standard learning community. Students in groups are required to express their ideas related to the practicum to be carried out. For example, with practicum making food recipes, students are asked to see which respiratory or digestive organs can be used for food recipes, after seeing which organs are suitable, then they use the name of the food and the seasoning composite. Working on recipes together will force students to access various information from anywhere to compile a good food recipe. Cooperation with friends, other individuals, groups, and other sources not just teachers is how the idea of a learning community is achieved (Sanjaya, 2010). According to Muslich (2009: 46), the idea of learning communities in CTL implies that collaboration with others is necessary to achieve learning objectives. This implies that both within and outside of the classroom, sharing among friends, groups, and those who know and those who don't can provide learning effects.

Many ideas can be generated to finish reports or practicum assignments when learning in groups, as exemplified in the learning scenario above. Members of the group must be able to think critically in order to accept ideas that are necessary and reject those that are inappropriate. They must ponder when working on reports or finishing practicum assignments during their group talks. They learn how to think critically through deliberation exercises, which help them choose which ideas or thoughts to use while creating assignments or reports. The activity of receiving and filtering an idea will greatly train students to be able to think critically. In this learning community activity, students can practice critical thinking skills related to defining terms and considering a definition in three dimensions, identifying assumptions, determining an action, interacting with others. Activities in the learning community standard make students improve critical thinking skills which can be seen in the results of postes in each cycle whose scores increase compared to the previous test.

The next fourth standard is inquiry. Inquiry is the process of finding a concept. In this standard, what students do is to make a song and lyrics that will sing the anatomical organs and the reproductive and excretory systems of animals. This causes students to think more deeply and construct the experiences that students have related to songs and material anatomy, the excretory system and the reproductive system. Students will be asked to compose organ lyrics, adjust the tone to the lyrics, find the right song, and arrange music so that the tempo fits the lyrics. Song projects made by students that will be carried out and learn from their group mates about what concepts are being studied.

The process of finding concepts is called inquiry. In this practicum, students will be required to identify motion system concepts, such as the short, flat appearance of pipe bones, the

appearance of hard and cartilage bone structures, and the relationship between shape and structure and bone function. Let's say that pupils wish to relate the shape and function of bones. Long, strong bones are invariably linked to the body's support role. To understand whether the pipe bone supports the body and the flat bones shield the organs, they need to apply critical thinking abilities. To gain an understanding of bone function, they will relate the facts about shape and structure. Inquiry teaching is presenting students with content-related concerns that serve as the basis for the class's research activities. When working with problems, students develop hypotheses or potential solutions, collect data relevant to these hypotheses, then assess this evidence to reach a conclusion. Working with this method teaches students not only problem-related material but also procedures for future problem-solving (Jacobsen, 1989). This standard inquiry is important for improving critical thinking skills, particularly deducing and considering the results of deduction, inducing and considering induction, making and determining the results of consideration, defining terms and considering a definition in three dimensions, and identifying assumptions. When they do projects in the DABL model, for example in making animal motion system videos, this inquiry process is very instrumental in developing critical thinking skills. Without critical thinking skills, students will find it difficult to work on animal motion video system projects. The ability to gather information from reference books and compare with real material in animal motion systems will require a high critical thinking process.

The fifth standard is authentic assessment. Authentic assessment evaluates what students do. In this study, authentic evaluation was accomplished by taking scores at each encounter. The assessment takes the form of an assessment of the practicum interim report, a song project report, an assessment of the culinary recipe presentation process, and a result sheet from working on the motion and network system anatomo practicum. Authentic evaluation demands students to create products in the form of reports on their activities at each meeting. Making reports will need students to collaborate, exchange ideas, and be willing to communicate their viewpoints. When creating reports, students will unite many opinions and find the ideal notion. Making reports will get a lot of input opinions and ideas, so students must be able to unite opinions and equalize perceptions so that reports can be compiled properly. The process of sorting out ideas and equalizing opinions requires critical thinking by honing this thinking, so students' grades in each cycle can increase and students' understanding of the material also increases.

This authentic assesment requires students to submit practicum results and reports to their peers in front of the class. For example, create animal development movies and cattle surgery practicums. Students who have constructed a project are expected to be able to explain to their peers what it means and how it operates. Students must be able to explain in front of the class without reading and using their own words. During their presentation, their peers will spontaneously submit questions that the presenting pupils must adequately answer. When answering questions directly and quickly, pupils will hunt for material to answer them. Therefore, with the authentic assessment process, students' understanding of the material will also increase.

Authentic assessment activities play an important role in improving critical thinking indicators in considering whether sources can be trusted or not, observing and considering an observation report, and determining an action. With activities on authentic assessment standards,

students will be trained in the ability to assess the work of others thoroughly and thoroughly. They are also required to judge the work of others compared to their own work. At this standard critical thinking skills are always used.

The sixth standard is Reflection. Reflection is the process of deposition of learnt experiences by re-sequencing previous events or learning events (Sanjaya, 2010). At the end of each DABL learning process, lecturers give students the opportunity to reflect or recall what they have learnt. According to the preceding opinion, students will recognize that the knowledge they have just received is an enrichment or review of the knowledge they have previously had by reflecting on what they have just learned or the experience that occurs during the process. In this animal anatomy and development course, reflection is carried out at the end of the meeting after midtem exam and after final exam. Reflection contains whether the disadvantages and advantages in learning 8 meetings in cycle one. Reflection is also asked to provide messages and comments so that learning is better and in accordance with what students want. Reflection is done at the end after the postetst takes place. The results of this reflection will be analyzed and used as input in the preparation of lesson plan planning in the next cycle. The results of reflection will also be taken into consideration for the stages of class action research, the evaluation stage, and making conclusions about the results of cycle I or cycle II.

This reflection activity is almost the same as authentic assessment in improving critical thinking skills. This reflection activity is almost the same as authentic assessment in improving critical thinking skills. According to Brookfield (2017), critical thinking involves identifying and challenging assumptions, considering different viewpoints, and making informed decisions—all of which are cultivated through reflective practices. Indicators that can develop by reflection are deducing and considering the results of deduction, inducing and considering induction, making and determining the results of consideration, and determining an action. This reflection activity will require us to determine what appropriate action must be taken when already experiencing an activity. This reflection stage will greatly support students to think critically linking previous and subsequent activities. Things that are not right in the previous activity should not be repeated in the next activity.

The seventh standard that is no less important is modeling. Modeling is an important principle because it helps students avoid theoretical (abstract) learning, which can lead to verbalism (Sanjaya, 2010). The concept of modeling implies that students learn certain skills and knowledge and then create a model that they can repeat. The model in question can take the form of providing examples of how to operate something, displaying work results, or demonstrating performance. This kind of learning will be more easily grasped by pupils than simply delivering stories or explaining things without showing them models or examples (Muslich, 2009). Modeling entails expressing well-thought-out concepts, demonstrating how teachers want their pupils to learn, and having students perform what teachers desire. Modeling might take the form of demonstrations, providing examples of topics, or conducting learning activities. The teacher provides a model of how to learn. Teachers are not the sole models in contextual learning; models can be created by students or acquired from outside sources (Hosnan, 2014: 268).

Modeling activities carried out in this class research, for example, students are asked to make tissue images, students are asked to make videos of animal digestive organ sequences, students are asked to make videos of animal development starting from eggs to adult phases along with behavior in each phase. By structuring a modeling activity like this. It is hoped that students can get an impression in learning, memorable material will not be easily forgotten by students. The material will be remembered over time, material that is not easily forgotten will make the understanding of the material better. In addition, this modeling activity can also improve critical thinking skills, especially in indicators considering whether sources can be trusted or not, observing and considering a report of observations, deducing and considering the results of deductions, inducing and considering inductions, making and determining the results of consideration. This modeling activity will be realized if students have observed something and will apply it in the project that the lecturer requested. For example, when students are asked to make a sequence of animal metamorphosis, they will first observe the stages of metamorphosis, after that they look for individual parts that enter the metamorphosis phase. This modeling activity greatly develops students' critical thinking skills. They are required to do induction and deduction thinking and then will be used as an audio-visual product to be assessed. The critical thinking process at this stage is very important to produce a good product.

Critical thinking skills are closely related to the Sustainable Development Goals (SDGs) because they allow individuals to analyze, evaluate, and find solutions to various global challenges. In the SDGs, many complex issues such as poverty, quality education, climate change, and gender equality require a critical thinking approach so that the solutions taken can be effective and sustainable. For example, in achieving SDG 4 (Quality Education), critical thinking helps in creating innovative learning methods such as Daily Activity Based Learning to encourage students to understand and overcome real problems in society that occur in daily life.

The Daily Activity Based Learning learning model is closely related to the Sustainable Development Goals (SDGs) because it emphasizes learning that is relevant to real life, thus helping learners understand and overcome the global challenges reflected in the SDGs. This model encourages students to relate subject matter to the social, cultural, economic, and environmental context around them, which is in line with the principles of sustainable education in SDG 4 (Education Quality). For example, in understanding SDG 6 (Clean Water and Proper Sanitation), students can undertake field projects to research the availability of clean water in their communities and find locally-based solutions. By implementing Daily Activity Based Learning, learning becomes more meaningful, motivates students to actively contribute to the achievement of sustainable development goals, and forms individuals who are more caring and ready to face global challenges.

4. Conclusion

Daily activity based learning (DABL) is carried out into 2 cycles in animal anatomy and development courses. Each cycle consists of preparation, planning, action, observation and monitoring, reflection, evaluation and conclusion of results.

Daily activity based learning (DABL) can improve critical thinking skills based on postests in each cycle. Student scores increased from pretest to posttest cycle I, and from posttest cycle I to posttest cycle II.

The suggestion for further research is that the DABL model be further developed in other courses or in a broader learning context, as well as examine its relationship with other aspects such as creativity, collaboration, or environmental literacy. In-depth research using a mixed-method approach is also recommended to explore students' internal processes during learning.

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