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"The Analysis of Discourse Coding Argumentative in Biology Learning at Middle and High School Levels Accredited A"

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Kind regards,
ULICoSS 2023 Committee

The Analysis of Discourse Coding Argumentative in Biology Learning at Junior and Senior High School Levels Accredited A

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abstract — The purpose of this study was to analyze the emergence of argumentative discourse coding in biology lessons at the A-accredited junior and senior high school levels in Lampung Province. This research is a quantitative descriptive study with the determination of the sample carried out using a purposive sampling technique in determining the criteria for schools accredited A at different levels, namely: SMPN 3 Natar and SMAN 15 Bandar Lampung. Data coding of students' argumentative discourse consists of 10 assessment aspects taken through video recordings, observation results, and questionnaire results. Interpretation of the data is then translated into percentage and descriptive forms. The results showed that the average argumentation ability for junior high school (11.93%) and high school (8.72%) was in the low category. For the junior high school level, the acquisition of information seeking discourse coding has a value of 36.63% and the smallest aspect of explanation is 0%. The high school level of coding explanatory discourse has an achievement of 46.4%. Thus, the argumentation abilities of junior and senior high school students are accredited A in the low category with the determining factors for the low student argumentation abilities, namely learning resources, teachers and students.

Keywords—discourse coding argumentative, biology learning, senior and junior high school.

I. INTRODUCTION

Paradigm Study 21st century demands student for own skills, knowledge, and abilities in the field certain For Ready to face new challenges and get success in life as well as his work. Administration of learning directed at comprehensive and holistic education, possible form of education that can integrate knowledge, mind character, creativity, and innovation in something appropriate unit by the 21st century learning paradigm [1]. For that, an ability must be developed is the ability to think critically, break problems, collaborate, and communicate. The ability of critical thinking can be developed with the student's true ability argument method [2].

Ability argument is a process used by someone to analyze information about a topic then the results are analyzed and communicated to others [3]. The utility of ability argument is to see linkages between facts, procedures, and concepts that are mutually exclusive to support each other. The taller the ability of somebody's argument so the more Good in giving reason from something contextual problem settlement [4]. Ability argument is a very important activity for development and integration by teachers in expected schools capable of realizing learning that activates and develops student argumentation skills. Research results previously disclosed that the ability argued student Senior High School (SMA) level in Lampung Province from 12 schools analyzed with different levels of accreditation school including in very less category [5]. The argumentation of the students in it measures the ability to think critically, creatively and collaboratively showing in the low category. Ideally, high school level that has carried out learning with determination curriculum 2013 using the *Scientific Approach* student approach capable of controlling high ability arguments. Otherwise in fact, students from SMA accredited A, B and C are only capable of giving statement *claim* from A problem given and not yet capable of serving reason relevant *grounds*, *warrants* and *backing* with selected *claims* [5].

The ability to communicate orally is the key to the main student being able to collaborate. Good communication skills can help the teacher convey lesson material effectively, clearly and easily understood by student participants [7]. This skill also helps the teacher in managing classes in an effective way, by setting clear rules and managing the interactions between educating participants in the right way. Moreover, communication skills argumentation also helps the teacher in building positive relationships with educating participants, which can help educating participants be more engaged and interested in lessons. Communication skills help the teacher at work The same with colleague colleagues, parents, and other society related to classroom learning development. Therefore, teachers who have good communication skills will be more skilled in managing classes and carrying out other tasks related to their profession.

Activity argument oral own different characteristics compared to with written. Activity argument oral can create a staring process advance possible interactive and participant to respond directly to other people's arguments [7] . The previous research shows that Rebuttal (rebuttal/objection) is only appear in a manner orally [8] . That's because the participant educates capable pushed to submit claims, data and warrants obtained in a direct manner. Oral argument activity Not only must apply knowledge, but also must use different rhetoric, take the right position to convey the argument as well as detect the weakness of something argument so that it can give justification [7].

The low ability argued student is one a problem consequence *learning loss* in field education in line with what was stated Gracia-Mila, et.al. [9], that lack of interaction/communication between teachers and students or arguments between students and other students in the learning process makes it difficult for students to understand the material conveyed by the teacher. Both teacher and student must be able to guard communication. Not only teachers with students but teachers with parents, as well as students with

other students. Learning loss as an impact accompaniment online learning is an open perceived problem to teachers and educators. Learning loss is defined as loss or limited knowledge and abilities of students on academic progress impacting the abilities of the arguments of the educating participants. The results of the research conducted by Evagorou [11] concluded that the participants' abilities to educate participants on learning were categorized enough. Arguments put forward by dominant educating participants only using claims, so No strong Because No be equipped with proof supporters in the form of data, warrants and appropriate backing. Percentage of participant able students declared a claim of 86%, however only 28% presented data, 5% accompanied by a qualifier or not There is none of which gave warrants and rebuttals. The average ability argument participant educates categorized enough. the arguments presented that only contain claims accompanied by insufficient data are accurate or even not yet capable of including data though they appear occasionally to be weak rebuttal, deep learning loss matter ability of student arguments. Learning loss is loss of student knowledge and skills in the field of academic consequence disconnection access education [12]. Student lost knowledge, abilities, and skills. This happened because there was no even infrastructure, differences in teacher teaching ability, prolonged school closures, lacking quality in facilities for running students learning far away, as well as gaps in quality among those with access to technology [13] .

Facts were related to low ability argued student is known through interviews with junior and senior high school science teachers in Lampung stated that student is not active enough in discussion. Student still in doubt state opinion or convey the argument. These situations in accordance with the findings of Prawanti [12] stated that students did not use scientific information in arguing, and when discussing students do not always discuss topics in a wide manner because it seems affected by unclear confirmation.

Argument needed in learning Biology as a science at the Junior High School (SMP) and Senior High School (SMA) activities argument necessary for students can connect IPA Biology concepts and principles to explain phenomena or problems in life [14]. Many students have difficulty understanding concepts and principles of learning biology . It has an impact no regardless of studied material doesn't capable associated with life teacher every day. The connection effect occurs because consequence is something form argumentation because that is, presentation of IPA material with a very good argument pattern needs to develop [14].

Learning biology is closely related to life , real experience related to principle biology has been experienced by students from his life, so ideally students can argue based on experience and results construct natural thinking that has gone through. The students involved in the learning process increase more and more every meeting [15]. The student seen began to bravely convey the argument to or respond to questions from his friend. However, the problems raised by the teacher have not been able to increase the student's ability to develop the ability to think critically. Student of SMA argument limited personal opinion who doesn't demand exists evidence, fact, or support other opinion. Ability argument student the showing part big is at level II, ie disclose a claim accompanied with reason.

Refer to the description above, there is an expected gap from the government to demand the ability of students to face learning 21st century (think critically, creatively, communicate and collaboratively) with the reality that happened. *Learning loss* as indicator Not yet it worked learning during This Good online learning stare advanced limited and or offline learning in class. Because it is necessary research to be disclose incidents of success learning at the junior and senior high school levels is required research . Oral arguments become reject measuring success representative learning achievement learning 21st century and throughout This Not yet Once carried out. Therefore, it is necessary to analyze the ability of verbal argumentation in biology learning at the junior and senior high school levels which are accredited A .

II. METHODS

A. Research Sample

The research design was used survey by study descriptive qualitative. According to Hasnunidah [16] survey is procedure used to describe attitude, opinion, behavior, or characteristics respondents with give questionnaire or questionnaire on the sample. Survey in study This use method Cross Sectional Survey, because can collect data in One time so that method This own excess that is can serve information in short time.

Determination sample in study was done by purposive sampling, with precondition designated school the sample own criteria A accreditation and has carry out learning use approach Scientific Approach. Therefore, SMPN 3 Natar and SMAN 15 Bandar Lampung are subject in study This with amount whole sample were 132 participants. SMPN 3 Natar used 2 classes VIII with 65 students and SMAN 15 used 2 classes XI with 67 students.

Data in study This in the form of qualitative data consisting of from; (1) Component data argument emerging verbal, activity of students and teachers in argue, and (2) influencing factors ability s argumentation oral students.

B. Data collection technique

Data collection techniques for obtain argumentation data in study This done with :

Audio Visual Recording

Activity record discourse argumentation students and teachers do with use tool such as: camera, tripod, and tape recorder. Taking video recordings helped by observer. Next , record the activity learning Then translated become transcript discourse argumentation students and teachers. Transcript results analyzed the ability argumentation oral student with indicators [17] which refer to Table I.

Observation

Activity observation done with use sheet observation Coding discourse used to take notes indicator arguments that arose during activity argumentation students and teachers walking. Observation assisted by the observer to simplify and minimize happen error in the data collection process. Results data observation furthermore analyzed the activity argumentation students and teachers during learning biology.

Data on influencing factor the ability argument obtained verbally through the giving instrument questionnaire to

teachers and students through Google Form that contains question open and closed. Researcher share the Google Form link through WhatsApp Group to filled by students and teachers. Questionnaire This shared at the end meeting learning. After the questionnaire data collected, next analyzed the influencing factors an ability oral argumentation students.

TABLE I. INDICATORS OF THE EMERGENCE OF DISCOURSE CODING

No	Argumentative Discourse Coding	Indicators
1	Information seeking	Saying For request to others: a. For share view b. For clarify comment before c. information about task
2	Exposition	explain your own ideas in respond other people's comments
3	Opposition	a. No agree with others. b. No agree and offer alternative c. No agree and give criticism
4	support	a. elaborate on other people's ideas. b. paraphrase the previous one spoken by other people or without explanation more continue c. combine ideas, separate one idea becomes two different ideas, or modify the idea in a number argue d. justify other people's ideas or corner look e. direct or arrange discussion or participate in discussion
5	Explanation	Give explanation about What law that gives information satisfying about connection between characteristic features from systems and roles that create its structure
6	Clarification	Give purposeful explanation _ For help understanding about the Main Material
7	Open question	Give information form clearing, explaining and returning to what 's real
8	Closed question	Something question answered with variation very many answers
9	Short answer	Something question must answered yes or no; agree or not agree; know or unknown, and soon
10	Instructions	Answer short in the form of words, phrases, names places, names figure, symbol, or already sentence sure

C. Data analysis technique

Study This using two kinds of data, namely quantitative data, namely data results tests, and qualitative data, namely results data video recording, results observations, and results questionnaire. The technique done through: stage making transcript, stage reduction and determining the level of argumentation. Amount argumentation oral students at every level of argumentation furthermore will count in form percentage with use as following.

$$P = {}^f/_n \text{x } 100\%$$

Description :
P = Percentage
f = Frequency from every answer

n = Number respondents

III. RESULTS AND DISCUSSION

Research results this represented in the capability data argument oral participant educate obtained from emergence coding discourse and participation they in activity argued oral in learning biology. Influencing factors the ability argument oral obtained from teacher and participant questionnaire data educate through spread questionnaire. Questionnaire data that has been obtained then analyzed for getting percentage from each description. Data representation can be can be seen in Table II and Table III.

A. Students' Oral Argumentation Ability

Based on Table II it is known that ability argument oral participant students at the junior high school (junior high school) level of 11.93% and senior high school (8.72 %). Second level school This is at in very low category ($\leq$ 20%). At the junior high school level, ability most arguments appear that is *information seeking* (36.63%) *with* low criteria. Meanwhile, ability argument oral participant students who don't appear during learning is clarification (0%). Percentage of high school level emergence coding discourse students who have highest percentage is explanation (46.4%) and questions open (38%), whereas ability look for information and support is lowest percentage.

Ability argumentation oral participant educate High school level only has 4 abilities indicator argumentation appears, meanwhile There are 8 indicators at the junior high school level arguments that emerge. Although criteria every indicators at the emerging junior high school level in category low, will but there are 8 indicators that appear. On learning biology in junior high school skills arguments on the most indicators appear found on the indicator look for information (Table II). Student argument skills in look for infomation showed when request clarification regarding the claims submitted and discussed about method work or mandatory task was done. Activity looks for information visible in the activity process food test practicum and discussion. Representation arguments put forward by students showing ability argumentation oral participant educate Still including level 1. Appropriate with Ginanjar's statement [18] which explains that ability argumentation in look for information to students level medium in included category low. Student argument skills only consists from a simple claim and get appear when participant educate discuss about step Work or task.

Observation results and transcripts discourse argumentation, during learning process through activity presentation results observation, participants educate capable convey consisting argument on claims and data/evidence without accompanied theory or strong reason to support the argument. Claims submitted by participants, for example in expresses "Foods that contain glucose is oranges, guavas and mangoes". Then participant educate presents data for supports his claim with stated "There is a change color on the material food before and after benedict 's indicator dripped, then heated until looked change color become color brick red". The participants ' arguments educate submit the show that verbal claim ability at a low level at level 2.

Level 2 arguments contain simple claims accompanied by data, without exists rebuttal [17] this in line with results Noer's research [18] concluded that part big participant educate Still is at level 2. Arguments put forward Still simple and evidence/data is facts that happened so that easy to the participant educate submit. Ability level 2 argument Still including low or weak so that need developed again . Research results This show that clarification is ability argument verbal no appear on the participants student at SMP Negeri 3 Natar. Clarification is activity give information for doing explanation or accuracy the original material faint become more clear. For do activity the participant educate can with state argument with complete structure like provide claims that are accompanied by data, warrants, backing and the emergence of rebuttals. Same thing with results research by Taufik [20] that no here is participant students who argue levels 3, 4, and 5, namely consisting argument on rebuttal or strengthening, caused by a lack of understanding participant educate to material for strengthen arguments you have. According to Erduran [17] argumentation including level 3 if argument contain a series of claims or counterclaims with data, warrants or backing and accompanied by weak objection , level 4 is containing arguments _ something clear rebuttal _ as well as containing a series of claims with data, guarantors , or supporting , and level 5 arguments contain a number of argument expanded with more from One rebuttal .

Research results show that low ability argument oral participant educate in state clarification can affected by the lack of stimulation participant educate For give statement form explanation For give accuracy information . According to Moto [21] the learning process will going on with Good if use appropriate media with material . it _ because of the learning media role as available means _ used For help stimulate motivation participant educate in activity Study For seek and find information and can utilized For create environment conducive and active learning . _ source factor Study namely learning media used by teachers and participants educate during online learning only in the form of videos and PowerPoint. Videos used originate from Youtube and PowerPoint only contains related articles theory accompanied picture . Temporary that , as long as learning stare advance lasts teacher only using learning media form image , then matter This can influence the learning process and abilities argument participant educate . In line with results research by Herlansyah and Fauziah [22] which concluded that the learning process with assisted by participant media educate become more active and capable there are also more arguments develop compared to with learning conventional no media.

TABLE II. CODING ARGUMENTATION

No	Discourse Coding Argumentative	Senior High School	Junior High School
1	Information seeking	0	36,63
2	Exposition	1.4	18.62
3	Opposition	1.4	7.35
4	support	0	3,15
5	Explanation	46,4	0.25
6	Clarification	0	0
7	Open question	38	10.88
8	Closed questions	0	16.75
9	Short answers	0	25,37
10	Instructions	0	0.3
	Average	**8.72**	**11.93**

Ability argumentation Oral speech at the high school level appears in discourse argumentation component explanation (46.4%) and questions open (38%). Activity arguments raised ie at the time student answer questions given for during presentation on the argument reveals "sour tendon in blood issued from body through kidney. Kidney disorders caused by reaction sour tendon disturbed so that rate his in blood increase. If sour veins in the network increased, sour tendon can settles and will cause disease said, "explained students who express. Form arguments on indicators question open stated in statement " Is someone who is experience dehydration own different colored urine with healthy people , and how many times is normal for healthy people excretes urine internally a day ". this _ show that student capable give *claim* his learning biology .

Student bring up coding discourse opposition (1.4%) and exposition (1.4%), ie student bring up disclaimer , however statement rebuttal This Still weak once . this _ proven at the time student respond considered answer _ No in accordance with what is being asked (opposition), i.e. "What I ask the organ No his muscles ". It shows that student Already capable For give disclaimer , however objection given _ Still weak Because student No give reason from rebuttal that . According to Noviyanti et al [23] argument student Still need developed, because objection given still weak. Weak rebuttal _ is objection made _ without use proof whatever . Discussion process according to Driver et al [24] can facilitate student for build argumentation scientific with method give chance other students to think and give rejection to considered opinion _ No in accordance with draft knowledge knowledge. Discourse lowest argument _ lies in the components look for information, supportive, clarification, questions closed, answer short, and directive classified as very low. This situation happend because the students didn't come up component the during the learning process on. Students who haven't understand draft No capable differentiate correct statement or wrong so difficulty prove the claim [26].

B. Factors That Influence Argumentation Ability

Analysis results to factor reason low ability argumentation student during carry out learning biology represented in Table III. There are 3 descriptors main factor reason low ability argumentation student in carry out learning, namely: sources learning, teachers and students. Data shows that convenience and availability source study at school Good high school and middle school levels fulfil standard criteria carried out learning (Table III). However, availability source Study No accompanied with enhancement results learning and ability argument students. this fact showing source Study No works in increase quality learning

. Other influencing factors low skills argument is a less learning process maximizing student in argued [19]. With So , source study at school need optimized function so that in the learning process student can excavated ability argued that had an impact on improvement understanding students .

TABLE III.   THE EMERGENCE OF DISCOURSE CODING IN ORAL ARGUMENTATION

Descriptor	Question	Junior High School (%)		Senior High School (%)	
		Yes	No	Yes	No
Learning Resources	1. Teachers use learning media	100	0	10 0	0
	2. Look for other learning resources to understand the material during learning	44.6	55,4	88, 7	11.3
Teacher	3. Teachers use *online applications* during learning	72.3	27.7	0	100
	4. The teacher invites discussion during the lesson	22.7	77.3	67,6	32,4
	5. The teacher provides the opportunity to ask questions or express opinions verbally	63,6	34,4	63,3	36,7
Student	6. Experiencing difficulties during learning	60	40	39.5	60.5
	7. Get support from parents in participating in learning	92.3	7,7	100	0
	8. Have *a Smartphone* that is used during learning	98.5	1.5	95.7	4.3
	9. Experiencing signal problems during learning	45.5	54.5	54.9	45,1
	10. Experiencing internet quota problems during learning	69,7	30,3	69	31
	11. Using *online applications* during learning	72,3	27,7	83	17

The results of the analysis (Table III) show that teachers do not using learning models based scientific, argument scientific student influenced by the learning strategy chosen by the teacher, if learning use method only teacher centred, there is no will increase trust the student in argued so that ability argument scientific student tend low matter. The learning model used by the teacher is not make student more active in discuss, in matter this teacher is lacking invite student discuss during online learning that causes argument student is not growing. With exists activity discussion will practice student convey argument in a manner free, so if activity discussion seldom done so will make ability

argument student low. Activity discussion group train habituation student in argue and convey orally inside group so that produce impact positive in accept material learning [25].

Participant factors education also influences low ability argumentation oral during implementation learning biology . Based on results study as in Table III, shows that during learning biology participant educate experience difficulty in understand material especially bring up argument his mouth. It was be one factor low ability argued because participant educate difficult to focus and understand material during learning stare face. In line with results Osborne's research [26] that online learning during the Covid-19 pandemic provides negative impact because the student is not follow learning stare face.

IV. CONCLUSION

Research results showing that ability of argument oral participant educate on the level junior and senior high school included criteria low, though school in level accreditation A. Capability argument oral participant educate at school influenced by 3 factor, there are: 1) factor source of study that is the use of media in the learning process not optimal; 2) teacher factor namely use of learning models and teaching materials used not optimal yet empowering ability argument participant educate; and 3) student factors.

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