How Do Prospective Teachers Argue in Focus Group Discussion? Toulmin's Argumentation Study

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Abstract: Students' argumentation ability is necessary for education today, which emphasizes the student-centered learning process. One way to see students' argumentation ability is by having a discussion. Therefore, this study aimed to describe the Toulmin argumentation process for students during focus group discussions (FGD). This research is qualitative. The data collection instrument used was an open-ended questionnaire assisted by Google Form that contained common problems of the distance learning process during a pandemic. The subjects of this study consisted of fifty students from the University of Mataram. The results showed that the argumentation process was divided into three categories. The first category was the one-sentence argument. There were 58 %, or 29 students, who belonged in this category. The second category was the two sentences argument. There are 30 %, or 15 students belonged in this category. Lastly, 12 % or six students belonged to the more than three sentence argument category. The results of this study indicated that many students could not provide complete arguments. Thus, the role of lecturers is significant to improve students' ability in providing complete argumentations. Therefore, the researchers suggest that lecturers should apply learning models that invite students to argue and discuss.

INTRODUCTION

Education is one aspect of developing each individual. Self-development will undoubtedly affect the individual's character to be more independent, creative, knowledgeable, and responsible (Darling-Hammond et al., 2020). This is in line with Wilujeng et al. (2020), who states that the purpose of national education is to develop students' potential to become individuals who believe in God the almighty, have good character, healthy, knowledgeable, creative, independent, and responsible. Therefore, to meet these objectives,

quality education is required to improve the output of each individual. Quality education presents student-centred learning (Casanova et al., 2006; Leary et al., 2016). Changing the educational paradigm of teacher-centred into student-centred is expected to encourage students to be actively involved in developing knowledge. The teacher should not be more active than students in the teaching and learning process. Teachers should only act as facilitators.

The application of student-centred learning is at the elementary and secondary school levels and the tertiary

level (Dessalegn et al., 2016). A student-centred learning environment can provide opportunities for students to play a more active role in learning. Rohendi & Dulpaja (2013) said that student-centred learning is an interactive learning characteristic where students are invited to search, discover, process, build, and interpret the knowledge that they are interested in. In tertiary institutions, students learn independently because they must have frequent discussions, both in the classroom and outside the classroom.

The discussion will positively impact students to increase their knowledge, understanding and train their critical thinking skills. Students often experience difficulties in the discussion because they feel embarrassed and not express their opinions. These kinds of attitudes are one of the destructive effects of teacher-centred learning (Berry et al., 2010). This learning system can turn off students' ability to argue and confidence in expressing opinions (Heitmann et al., 2017).

In line with the research results conducted by Pattanapichet & Wichadee (2015), the discussion method can affect critical thinking ability, communication, and understanding. Therefore, to make the discussion more active and meaningful, students' ability to argue is needed. Arguments made by students will indirectly train their reasoning. Almeida & Malheiro (2018) says that individuals' argument will train them to reason to convince others or themselves, solve problems, and integrate ideas into a coherent unity. The statement was also supported by Boell & Hovorka (2019) that argumentation skills are essential in education, where each individual must maintain a situation that can be proven with correct arguments. The importance of argumentation in education has been widely accepted as a critical social activity for students to engage in reasoning with peers, synchronize various perspectives in the learning community,

and jointly build knowledge (Rahimi et al., 2019).

Students' argumentation ability is one of the main objectives of the learning process. Therefore, a good argument is needed to make a good discussion. Savchuk (2017) says that good arguments must meet empirical, theoretical, and analytical criteria. To find out the quality of argumentation, we need a learning method to accommodate students' arguments. One method that can be used is the focus group discussion (FGD). FGD learning method directs students to submit their arguments about a problem (Chen et al., 2018). FGD contains three main elements, namely discussion (not interview/chat), group (not individual), and focus (Liu et al., 2018). Through this method, students actively argue to solve problems based on their information, following what Rahman (2020) said. The FGD is one of the methods used to obtain information, needs, perspectives, and experience with the facilitator's direction. Learning using the FGD method at the college level certainly requires student arguments to make the discussion meaningful. If in the discussion students don't respond to each other, then it only becomes a discussion.

The preliminary studies results show that of the 50 respondents, 36 respondents preferred to group and discuss in solving problems. At the same time, 14 students prefer to complete assignments independently without discussing the theme. This further strengthens the suspicion of researchers that the ability to argue is a must-have requirement for students. But interestingly, at a glance, the results of the arguments given by students so far are simple arguments that are not following the minimum standard of argumentation patterns set by Toulmin. This is where researchers find a contradiction between students' desire to discuss with the arguments put forward by students. So that researchers consider it necessary to

examine the pattern of student argumentation when discussing or FGD.

Reflecting on the preliminary study results, the researchers found one problem; very few students were willing to provide arguments or responses on an issue. Also, the researchers found the argumentation patterns between students who were enthusiastic in arguing and students who were reluctant to give their arguments. Therefore, the purpose of this study is to describe the Toulmin argumentation process for students during focus group discussions (FGD). Researchers hope that these findings can illustrate the pattern of arguments made by students. Furthermore, lecturers can make the findings as a basis for identifying students' argumentation patterns.

METHOD
Participant

The research subjects were 50 students at the University of Mataram. The subject selection criteria were; (1) in the fifth semester in 2020; (2) had experienced online lectures for a minimum of 8 meetings (2 months) using discussion; and (3) had internet access to fill the Google Form instruments.

Design

To achieve the research objectives, the researchers used a qualitative descriptive approach. According to Creswell (2014), qualitative data is a descriptive translation of the field's phenomena. The data collection method used in this study was the open-ended questionnaires. The open-ended questionnaire was assisted by Google Form and contained general problems. The general problems were related to learning during a pandemic. Open-ended questions followed the general problems as an argument. The Google Form platform was selected for the sake of efficiency of data collection.

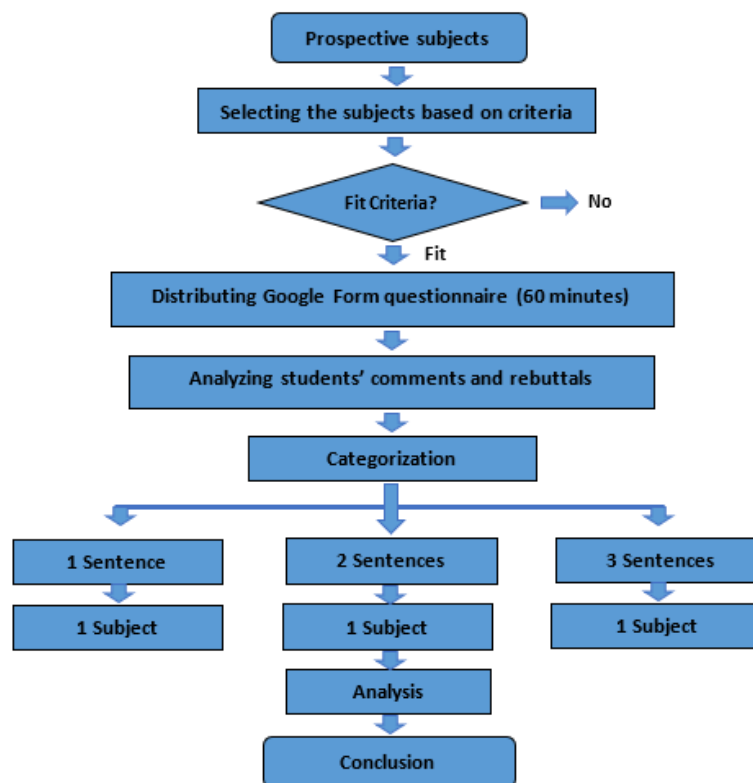### Procedure

The research procedure is depicted in the Figure 1.

Figure 1. Research Procedure.

Data Analysis

The data were analyzed descriptively to describe student argumentation patterns based on the indicators of Toulmin's argumentation elements. Table 1 contains the indicators (Viyanti, 2015).

Table 1. Toulmin's Argumentation Elements.

Element of Argumentation	Description of Argumentation	Element Identification Questions
Position Statement (PP)	A Position Statement is a statement that contains a person's opinion or position on an issue.	• What is claimed? • What is supported? • Where is the position in this issue or topic?
Data or Facts (D)	An argument can be in the form of experimental observations, general knowledge, statistical data, and a person's testimony.	• What is the basis for the argument?
Guarantees (J)	A bridge that determines position with data or facts.	• What basis is used to reason relevant and factual?
Support (P)	Supporting data or statements to strengthen the argument.	• What can support and strengthen the proposed guarantee?
Modality (M)	Disclosure of the speaker's attitude that shows the degree of certainty of an argument.	• What words or phrases indicate certainty in the proposed position statement?
Exceptions (PC)	Conditions that allow for the emergence of rejection or refutation in the arguments given.	• What factors can drop this argument? • What possibilities might oppose this argument?

RESULT AND DISCUSSION

The results of the questionnaire were then divided into several categories according to the level of subject argumentation. From 50 research subjects, the category of students' argumentations was divided into three namely; (1) the category of the subject which gives an argument in only one sentence; (2) the category of a subject which gives an argument in 2 sentences; and (3) a category of subjects which provides more than three sentence arguments. The results of data tabulation can be seen in Figure 2.
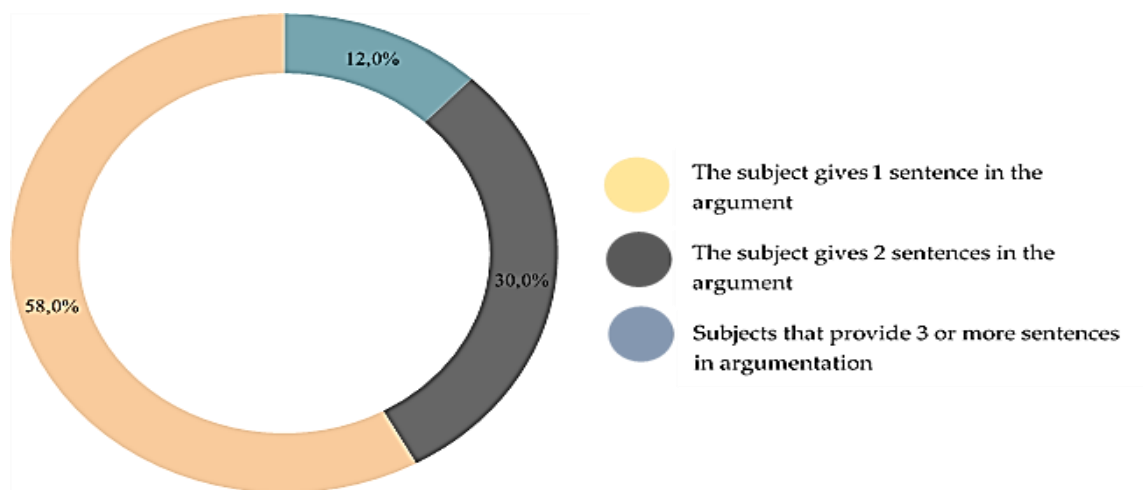

Figure 2. The Results of Tabulated Research Data

Based on Figure 2, the numbers of students who gave arguments to the problem were very small. Out of 50 students, only 12 % or six students gave arguments of more than two sentences. Students in this group gave their arguments and the basis of their arguments, although the arguments were not strong enough and had no solid foundation. Nevertheless, the results showed that students had the will to argue. In the next group, 30 % or 15 students gave arguments of less than two sentences. The students in this group tended to only give brief arguments without any basis or reason. Students in this group were less serious in arguing about a problem. The last group was 58 % or 29 students who gave an argument in 1 sentence.

The Category of Subject Who Gave an Argument in Only One Sentence

There were 29 students in this category. Subjects in this category only provided arguments in one sentence. It means that the element used in the subject's argumentation pattern was a position statement (PP). The subjects in this category only had a standpoint without strong foundations because they did not look for scientific literature to support them. It can also be assumed that the subject did not read many references. There was not even a guarantee for the truth of the argument given. According to Toulmin in Erduran et al. (2018), a statement is referred to as an argumentation if it has at least two elements, namely a statement of position (PP) and data or facts (D).

> In my opinion, online learning is a solution during the COVID-19 Pandemic because the appeal for social distancing has been announced; learning in schools should be paused. Students should learn from their homes (PP).

Figure 3. The Category of One Argumentation Patterns.

The subjects in this category only gave a statement of the problem given. There was no theoretical basis or factual data to ensure that the statements were true. According to Myklebust & Høisæter (2018), the subjects' statements in this category cannot be viewed as arguments. An argument is a person's statement resulting from the synthesis of information possessed by someone (Goldstein et al., 2017). The statements in this category did not come from valid information. Most of these arguments are very subjective and based only on someone's opinion. If dissected deeper, in the second sentence, the subject stated, "because the appeal for social distancing has been announced, learning in schools should be paused", the subject stated without strong data. The subject also did not mention who launched social distancing. This unanswered question indicates the loss of factual aspects in the subject's statement (Miller & Brown, 2018). The loss of factual aspects is a sign that the statement given cannot be justified.

The Category of Subject Who Gave an Argument in Two Sentences

There were fifteen students in this category. Subjects in the category gave arguments in 2 sentences or statements. According to Toulmin Liu (2019), an argument should have at least two elements, namely a position statement (PP) and data or facts (D). Furthermore, according to Vidaillet (2011), the PP element is a statement to show position, while element D is a basis that shows that the argument given is valid and correct. Although theoretically, according to Boell & Hovorka (2019), the arguments given by subjects in this category are relatively weak, they are already qualified to be called arguments. A good argument must meet the six elements that Toulmin has explained. If one of the elements is not met, the subject's argument cannot be said to be optimum.
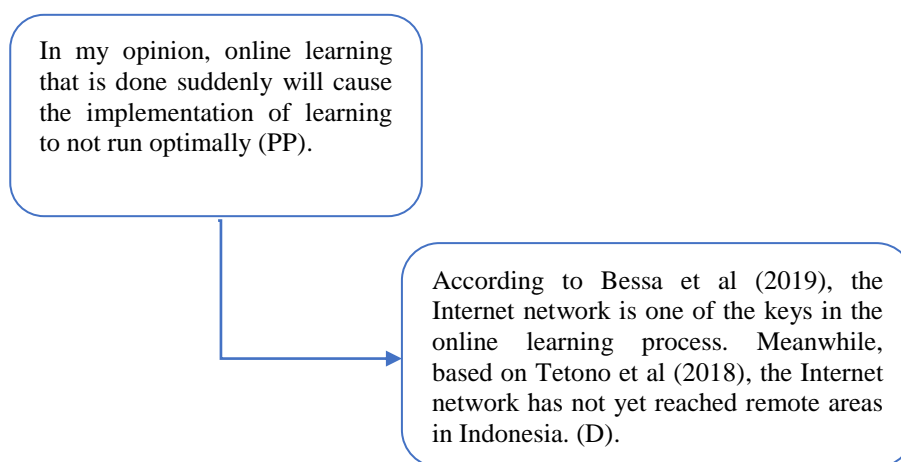
In my opinion, online learning that is done suddenly will cause the implementation of learning to not run optimally (PP).

According to Bessa et al (2019), the Internet network is one of the keys in the online learning process. Meanwhile, based on Tetono et al (2018), the Internet network has not yet reached remote areas in Indonesia. (D).

Figure 4. Category Two Argumentation Patterns.

The subjects in this category gave two statements. The first statement showed the position of the subject's argument, while the second statement was the data or facts underlying the statement. The argumentation pattern construction in this category is sufficient (Gutama et al., 2014). However, the correlation between the position statement and the data provided by the subject is weak. The PP statement given by the subject stated that the limitations of online learning did not run optimally.

In contrast, the subject's data to validate the position statement is related to the internet network. Yet, in implementing online learning, the readiness of teachers, students, and teaching materials can also be used as a foundation (Hewison & Kuras, 2015). The Internet network is also one of the foundations, but the use of theoretical basis related to Internet network data is very weak to support the PP.

The Category of Subject Who Gave an Argument in More Than Three Sentences

This grouping is based on a pattern of arguments consisting of five elements: claim, ground, warrant, backing, and capital qualifier. The D-PP-J-D-Pc pattern is a PP-D-P-J pattern strengthened with an exception. The pattern starts from a statement of position (claim) supported by data or facts (ground). Claims and ground are connected to the warrant, which has been attached by backing. To confirm this argument or show the availability of evidence and support that has been shown, the writer states with certain words or phrases called modals qualifier (Abduh et al., 2019). The modal qualifier is a marker of the degree of strength of an argument from strong to weak (Hewison & Kuras, 2015). However, in the case of the subject's arguments, the subject does not use the Capital qualifier but uses an exception. The following arguments consist of five basic elements of argumentation, namely ground (data or facts), claim (position statement), warrant (backing), backing (support), and possible rebuttal (exception). The following is the scheme of the subject's argumentation pattern towards the problem of online learning in schools during the COVID-19 Pandemic in this category.
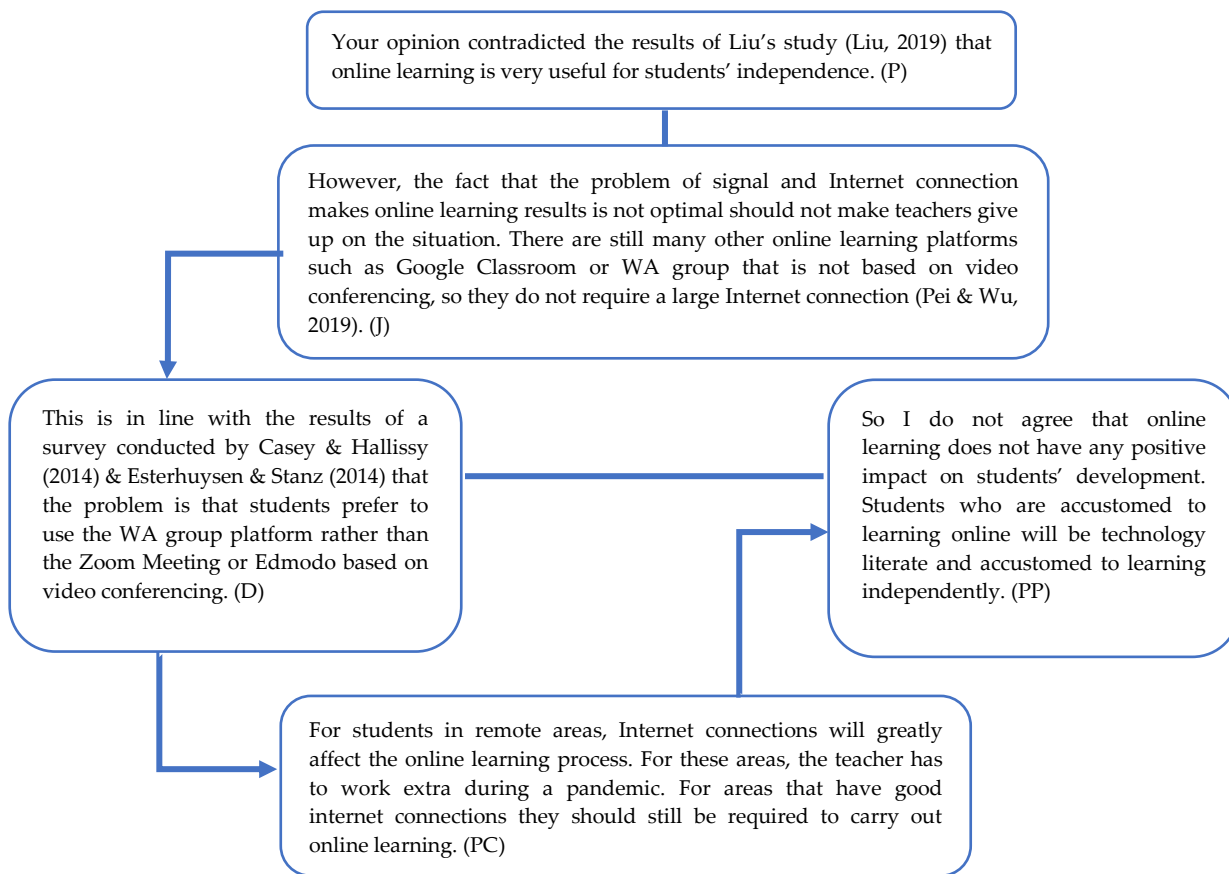
Your opinion contradicted the results of Liu's study (Liu, 2019) that online learning is very useful for students' independence. (P)

However, the fact that the problem of signal and Internet connection makes online learning results is not optimal should not make teachers give up on the situation. There are still many other online learning platforms such as Google Classroom or WA group that is not based on video conferencing, so they do not require a large Internet connection (Pei & Wu, 2019). (J)

This is in line with the results of a survey conducted by Casey & Hallissy (2014) & Esterhuysen & Stanz (2014) that the problem is that students prefer to use the WA group platform rather than the Zoom Meeting or Edmodo based on video conferencing. (D)

So I do not agree that online learning does not have any positive impact on students' development. Students who are accustomed to learning online will be technology literate and accustomed to learning independently. (PP)

For students in remote areas, Internet connections will greatly affect the online learning process. For these areas, the teacher has to work extra during a pandemic. For areas that have good internet connections they should still be required to carry out online learning. (PC)

Figure 5. Category Three Argumentation Patterns.

The chart in Figure 5 only consists of five elements, namely data or fact elements (grounds), position statements (claims), guarantees (warrant), support (backing), and exceptions (possible rebuttal). Identifying the position statement elements can be asked through questions such as "what is the author's position statement?" and the answer is ", So I disagree with the opinion that online learning cannot have a positive impact on student development. Students who are accustomed to learning online will be technology literate and accustomed to learning independently". The position statement (claim) has been determined, the next step is to determine the data or facts (ground), namely by asking questions such as "what is the evidence or basis that supports the position statement?" and the answer is "This is in line with the results of a survey conducted by Casey & Hallissy (2014) that students

prefer to use the WA group platform rather than the Zoom meeting platform or Edmodo based on video conferencing". Whatsapp Group is considered quite effective as a means of discussion and interaction between teachers and students. This application's nature is very mobile so that students can be flexible in using this application for learning and teaching activities. Video conferencing is considered very rigid because psychologically, it makes students quickly bored.

Data or facts (ground) and position statement (claim) is found, then the next step is to connect them using a guarantee (warrant). Guarantees are determined through a question, which is "what is the guarantee that corroborates claims and connects claims with the ground?" and the answer is "Even though the problem of signal and internet connection makes the results of learning done online are not

optimal should not make teachers give up on the situation". There are still many other online learning platforms such as Google classroom or WA that are not based on video conferencing, so they do not require a large internet connection (Pei & Wu, 2019). More specifically, in Indonesia, many students are in areas with insufficient internet connections. Students in certain areas tend not to use video conferencing platforms because the connections required are quite a lot. Based on the research results, Apsari et al. (2020) also revealed that students prefer to use the WA Group rather than the Zoom platform. A guarantee will be strong when accompanied by backing. And to determine support (backing), asked a question, "what is the background of the warrant?", And the answer is "Your opinion is contrary to the results of the study (Liu et al., 2018). Online learning is very useful to train students' independence. Related to this, the study results show that there are still many students who do not have grounded arguments. This is an indication that students do not read enough and gain insight during learning at home. This reinforces the assumption that the distance learning process will train students to be more independent in learning.

Argument elements such as position statement have been found, data or facts, warrant, backing have been found to get possible rebuttals, namely; "What factors or conditions can drop a position statement (claim)?" Indeed, for students in remote areas, an internet connection will greatly affect the learning process online. So maybe for these areas, the teacher has to work extra during a pandemic. But for areas that have good internet connections, they should still be required to carry out online learning." The chart above is the pattern of the D-PP-J-D-Pc argument. Following Toulmin's opinion, in Pangestika et al. (2017), there are five patterns of argument used. The

pattern of argument used as in the chart above consists of data or facts (grounds), position statements (claims), then as a bridge connecting data or facts (grounds) with a statement of position (claims) is a guarantee (warrant), support (backing) as a supporter of warranties, and possible rebuttals used to disprove a position statement.

CONCLUSION

Based on the results and discussion, it can be concluded that the students' argumentation process can be categorized into three categories, namely: (1) The subject category that gives an argument in only one sentence; (2) the category of a subject that gives an argument in 2 sentences; and (3) a category of students that provides more than three sentence arguments. The pattern starts from a statement of position (claim) supported by data or facts (ground). Claims and ground are connected. In this research, the discussion activities should be carried out directly. However, due to the pandemic era, discussion activities had to be carried out virtually through WA Group. This causes many aspects of analysis, such as facial expression, word choice, oral communication, and skills, cannot be observed. For further research, researchers should continue the research with direct discussion treatment so that the research results related to the argumentation patterns of prospective teachers (students) can be described more broadly and deeply.

REFERENCES

Abduh, N. K., Sastromiharjo, A., & Anshori, D. S. (2019). Pola argumentasi pada genre teks eksposisi karangan siswa SMA. *Retorika: Jurnal Bahasa, Sastra, Dan Pengajarannya*, *12*(1), 71. https://doi.org/10.26858/retorika.v12i1.7372

Almeida, W. N. C., & Malheiro, J. M. da S. (2018). Argumentation and

investigative experimentation in teaching mathematics. In *Alexandria: Revista de Educação em Ciência e Tecnologia* (Vol. 11, Issue 2, pp. 57–83). https://doi.org/10.5007/1982-5153.2018v11n2p57

Apsari, R. A., Sripatmi, Sariyasa, Maulyda, M. A., & Salsabila, N. H. (2020). Pembelajaran matematika dengan media obrolan kelompok multi-arah sebagai alternatif kelas jarak jauh. *Jurnal Elemen*, *6*(2), 318–332. https://doi.org/10.29408/jel.v6i2.2179

Berry, B., Daughtrey, A., & Wieder, A. (2010). Teacher leadership: Leading the way to effective teaching and learning. *Center for Teaching Quality*, *6*(5), 433–456.

Boell, S. K., & Hovorka, D. S. (2019). Writing, arguing, contributing - A cogent argumentation framework for identifying, specifying, and evaluating research contribution. *Australasian Journal of Information Systems*, *23*(1), 1–16. https://doi.org/10.3127/ajis.v23i0.1857

Casanova, R. S., Civelli, J. L., Kimbrough, D. R., Heath, B. P., & Reeves, J. H. (2006). Distance learning: A viable alternative to the conventional lecture-lab format in general chemistry. *Journal of Chemical Education*, *83*(3), 501–507. https://doi.org/10.1021/ed083p501

Casey, L., & Hallissy, M. (2014). Live learning : Online teaching, digital literacy and the practice of inquiry. *Irish Journal of Technology Enhanced Learning*, *1*(1), 1–7.

Chen, B., Chang, Y. H., Ouyang, F., & Zhou, W. (2018). Fostering student engagement in online discussion through social learning analytics. *Internet and Higher Education*, *4*(2), 23–35. https://doi.org/10.1016/j.iheduc.2017.12.002

Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches (4th ed.)*. SAGE.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, *24*(2), 97–140. https://doi.org/10.1080/10888691.2018.1537791

Dessalegn, F., Bekalu, F., & Frew, A. (2016). Principals perceived leadership effectiveness and its relationship with academic achievement among secondary school students: The Ethiopian experience. *Educational Research and Reviews*, *11*(12), 1129–1137. https://doi.org/10.5897/ERR2015.2617

Erduran, S., Simon, S., & Osborne, J. (2018). Tapping into argumentation: Developments in the application of Toulmin's argument pattern for studying science discourse. *Science Education*, *88*(6), 915–933. https://doi.org/10.1002/sce.20012

Goldstein, M., Crowell, A., & Kuhn, D. (2017). What constitutes skilled argumentation and how does it develop? *Informal Logic*, *29*(4), 379. https://doi.org/10.22329/il.v29i4.2905

Gutama, H. K., Narto, & Sudarso, I. (2014). Upaya peningkatan penjualan dengan pendekatan metode quality dan focus group discussion pada kafe house of Padmaning Surabaya. *Prosiding SNST Ke-5 Tahun 2014 Fakultas Teknik Universitas Wahid Hasyim Semarang 17*, *2011*, 17–22.

Heitmann, P., Hecht, M., Scherer, R., & Schwanewedel, J. (2017). "Learning science is about facts and language

learning is about being discursive"-An empirical investigation of students' disciplinary beliefs in the context of argumentation. *Frontiers in Psychology*, *8*(946), 1–16. https://doi.org/10.3389/fpsyg.2017.00946

Hewison, D., & Kuras, M. (2015). Handbook of argumentation theory: A critical survey of classical backgrounds and modern studies. *Journal of Analytical Psychology*, *50*(3), 395–403. https://doi.org/10.1111/j.0021-8774.2005.00541.x

Leary, H., Severance, S., Penuel, W. R., Quigley, D., Sumner, T., & Devaul, H. (2016). Designing a deeply digital science curriculum: Supporting teacher learning and implementation with organizing technologies. *Journal of Science Teacher Education*, *27*(1), 61–77. https://doi.org/10.1007/s10972-016-9452-9

Liu, Y. (2019). Using reflections and questioning to engage and challenge online graduate learners in education. *Research and Practice in Technology Enhanced Learning*, *14*(3), 1–10. https://doi.org/https://doi.org/10.1186/s41039-019-0098-z

Mao, L, Liu, O., Roohr, K, B., V, Mulholland, M., Lee, H., & Pallant. (2018). Validation of automated scoring for a formative assessment that employs scientific argumentation. *Educational Assessment*, *23*(2), 121–138.

Miller, D. D., & Brown, E. W. (2018). Artificial intelligence in medical practice: The question to the answer? *The American Journal of Medicine*, *131*(2), 129–133. https://doi.org/10.1016/j.amjmed.2017.10.035

Myklebust, H., & Høisæter, S. (2018). Written argumentation for different audiences. A study of addressivity and the uses of arguments in argumentative student texts. *Acta Didactica Norge*, *12*(3), 10. https://doi.org/10.5617/adno.4727

Pangestika, I. W., Ramli, M., & Nurmiyati, N. (2017). The changing of oral argumentation process of grade XI students through Socratic dialogue. *International Journal of Science and Applied Science: Conference Series*, *2*(1), 198. https://doi.org/10.20961/ijsascs.v2i1.16710

Pattanapichet, F., & Wichadee, S. (2015). Using space in social media to promote undergraduate students' critical thinking skills. *Turkish Online Journal of Distance Education*, *16*(4), 38–49. https://doi.org/10.17718/tojde.94170

Pei, L., & Wu, H. (2019). Does online learning work better than offline learning in undergraduate medical education ? A systematic review and meta-analysis. *Medical Education Online*, *24*(1), 1–14. https://doi.org/10.1080/10872981.2019.1666538

Rahimi, H., Kalantari, A., Rafiee, N., & Khosravi, S. (2019). Social trends affecting the future of Iran's health system: A qualitative study using focus group discussion. *International Journal of Preventive Medicine*, *10*(1), 115. https://doi.org/10.4103/ijpvm.IJPVM_322_18

Rahman, I. K. (2020). The development of e-counseling gestalt prophetic to help students cope with academic procrastination in indonesian islamic higher education. *Islamic Guidance and Counseling Journal*, *3*(1), 46–53. https://doi.org/10.25217/igcj.v3i1.614

Rohendi, D., & Dulpaja, J. (2013). Connected mathematics project (CMP) model based on presentation media to junior high school student's

mathematical connection ability. *Journal of Education and Practice*, *4*(4), 17–22.

Savchuk, T. (2017). Classification schemes of argumentation in the humanities discourse. *Vestnik Volgogradskogo Gosudarstvennogo Universiteta. Serija 2. Jazykoznanije*, *16*(1), 97–108. https://doi.org/10.15688/jvolsu2.2017.1.10

Vidaillet, B. (2011). Charles willard's a theory of argumentation. *Informal Logic*, *32*(5), 705–707. https://doi.org/10.1177/0170840611408546

Viyanti. (2015). The argumentation skill profile using "Toulmin argumentation pattern" analysis in the archimedes principal on the students of SMA kota Bandar lampung. *Jurnal Pendidikan IPA Indonesia*, *4*(1), 86–89. https://doi.org/10.15294/jpii.v4i1.3506

Wilujeng, I., Tadeko, N., & Dwandaru, W. S. B. (2020). Website-based technological pedagogical and content knowledge for learning preparation of science teachers. *Cakrawala Pendidikan*, *39*(3), 545–559. https://doi.org/10.21831/cp.v39i3.31228