

## NAVIGATING TEACHING DURING PANDEMIC: THE USE OF DISCUSSION FORUM IN BUSINESS ENGLISH WRITING CLASS

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### Abstract

To respond to the spread of Covid-19, almost all offline education institutes are shut down and e-learning is conducted almost abruptly, including in a Business English writing class for university students. The discussion forum in the LMS ‘Moodle’ is used a lot to help the discussion of this class alive. To widen the knowledge of the use of discussion forum, especially during an emergency time like this Covid-19 pandemic, this qualitative descriptive qualitative research aims to explore how discussion forum is used in the LMS ‘Moodle’ for university students in e-learning during a pandemic, especially concerning optimization of the questions, the arrangement of the topics of discussion, and the assignments. By analyzing the patterns of how the discussion forum was used and interviewing the students, this research found that what determines the student's response to the discussion in the forum is the question words and the keywords in the discussion sentences in the forum. These two things will determine students’ answers in terms of the keywords used by students, the length and shortness of student answers, and the type and depth of student answers, which in turn show how students interact in the discussion forum.

**Keywords:** Bloom’s taxonomy, discussion forum, e-learning, pandemic

### Introduction

Ever since the Covid-19 outbreak, many schools and universities around the world are shut down to slow down the spread of the virus. All learning activities have to be conducted remotely to keep the learning activity alive during the pandemic. Within such a short time, E-learning, or some may refer to it as an emergency remote teaching, has been forced mandatory to many schools and universities (Bozkurt & Sharma, 2020; Won, Bailey, & Yi, 2020). The learning activities that are usually conducted face-to-face have to be converted immediately into their online version.

In their systematic review, Rodrigues, Almeida, Figueiredo, & Lopes (2019) defines e-learning as “an innovative web-based system based on digital technologies and other forms of educational materials whose primary goal is to provide students with a personalized, learner-centered, open, enjoyable and interactive learning environment supporting and enhancing the learning processes” (p.95). In particular, Valverde-Berrocoso, Garrido-Arroyo, Burgos-Videla, &

Morales-Cevallos (2020) noted that e-learning should not be confused with blended learning, which is a learning model that combines integrates online learning with face-to-face learning to benefit the best practices from both of them (see Wulandari & Pasaribu, 2020). Hence, it is safe to say that e-learning is done 100% online without any classical meeting, which more or less is what is currently happening now.

In the context of this study, a writing class for university students in Indonesia focusing on business letters, the traditional face-to-face learning is also converted almost instantly to e-learning via ‘Moodle’ – a Learning Management System (LMS) designed for educators to carry out e-learning in which the students can have collaborative interaction (Brandl, 2005). The lecturer has to convert what initially was face-to-face class discussion design into a complete online course with the available source and limited time to prepare.

Therefore, to still achieve the learning outcomes and accommodate all challenges in an emergency remote teaching, the discussion forum in LMS “Moodle” is chosen as one of the main tools for the e-learning to take place. In the discussion forum, the lecturer and the students can “meet” virtually and discuss the materials. The lecturer can provide questions as a guide for the students to learn and the students too can ask questions about the topics that they have not comprehended. In a discussion forum, the lecturer can also give assignments to the students.

Looking at the literature, the use of discussion forum in learning has been well-studied and documented in various research in many contexts (e.g. Bye, Smith, & Rallis, 2009; Hussin & Kebangsaan, 2008; Kin, Paré, Collimore, & Joordens, 2011; Nandi, Hamilton, & Harland, 2012; Yukselturk, 2010), including in the area of the writing-related course (e.g. Ismail, Singh, & Abu, 2013; Mabrito, 2010). Nevertheless, to the best of our knowledge, only a little or even none has been done to document how discussion forums are used in e-learning in a writing course during the pandemic. Hence, to extend the literature and to fill the gap, this research is aimed to provide a description of how discussion forum in LMS in a Business English writing class is used in e-learning during the pandemic, especially in relation to the optimization of the questions, the arrangement of the topics of discussion, and the assignments.

### ***‘Instant’ e-learning: advantages and challenges***

E-learning has been around since the last 1960s, yet there is no single agreed definition for it (Nicholson, 2007). Many educators and researchers even use different terminology to describe the learning that is conducted over the internet: e-learning, distance education, online learning, and web-based education (see Rodrigues et al., 2019). In the context of this research, however, the term e-learning will be used to refer to the activities of learning that are conducted over the internet with the help of technology.

The growth of e-learning has brought many advantages the traditional face-to-face class does not possess. The obvious one is being more flexible in terms of place and time to access and learn the materials (Hu, Huang, & Deng, 2018; Mohamad & Shaharuddin, 2014; Wijanarko, Murad, Heryadi, Toba, & Budiharto, 2018). Conducting teaching-learning activities over the internet alleviates some practical challenges for some students that find it troublesome to be physically present in a

traditional class because of work schedules, transportation problems, or else (Griffin & Minter, 2013).

As for teaching writing, an online learning writing platform also provides free space and time for writing due to its asynchronous nature. The online platform enables students to collaborate with peer and their teachers both in the classroom and also outside the classroom. They can learn and communicate with their teacher and friends every time and everywhere (Alka & Umamah, 2020). In addition, Subandoro & Sulindra (2018) also conclude that an online writing platform can support collaborative learning which brings many benefits for students. Additionally, a review conducted by Dobao, (2015) on Storch's (2013) work shows that collaborative writing tasks in L2 classes have been proven to promote 'languaging' – learning to use a target language appropriately both in terms of contents and grammar – and, in fact, compared to speaking tasks, may provide more preferable conditions for languaging.

With its various advantages, it is just fair that one can also experience challenges in implementing e-learning. A case in point, limited knowledge to use the technology and internet and access to reliable gadgets for some students become prevalent challenges in e-learning (Griffin & Minter, 2013). In addition, lacking prompt responses, efficiency, interactivity, and communication, which are offered in face-to-face learning, becomes another prevalent challenge in e-learning (cf. Wang & Woo, 2007)

Moreover, in the context of this study where the schools and universities are being shut down to respond to the pandemic and all learning activities are conducted online almost instantly, the implementation of e-learning can bring even more challenges. Some experts, such as Bozkurt & Sharma (2020) even propose the idea that what most schools and universities are currently doing now is just a temporary solution – that we are conducting 'emergency remote teaching' rather than 'online learning'. This is especially true as educators around the world have to convert their offline-designed learning activities into e-learning in such a short period and a possibly limited resource and knowledge. Educators are forced to be able to find a solution for them to interact with students remotely to discuss the learning materials.

### ***Discussion forum as an online teaching media***

One of the prevalent tools that naturally can be utilized as a 'room' for the students and educators to meet during e-learning is the discussion forum. The existence of a discussion forum in LMS 'Moodle' makes learning conducted in an LMS different from learning from doing a Google search as it offers a place where students can get engaged to discuss the various topic of interest that can support their learning (Dooga, 2010). Discussion forum has become an integral part of online classes as students can "interact, reflect, exchange ideas, and expand their knowledge base" (Craig, 2015, p. 1) and eventually help learners to enhance the learning outcome (Liu, Cheng, & Lin, 2013; Yukselturk, 2010). In other words, for a writing class, discussion forums are a form of asynchronous written communication in online learning (which has similar characteristics to an e-mail) that can be used by students to transfer and receive ideas.

Research has documented the benefits of using discussion forum both in online learning and blended. Kisaka (2017), for example, has proved that discussion

forum is a powerful resource to improve students' engagement, whereas Palenque & DeCosta (2015) suggest that discussion forum is a "channel to active learning, as well as a useful critical thinking tool (p.83)". Discussion forum has also been used to promote the sense of learning community between learners (Mohamad & Shaharuddin, 2014), become a medium for peer feedback (Ekahitanond, 2013), and a tool to help improve learners' critical thinking skills (Szabo & Schwartz, 2011).

In the context of this research, the discussion forum is used for the lecturer to initiate discussions in the e-learning activity during the Covid-19 pandemics in almost every meeting in the semester. The lecturer asks several questions in discussion forum available in LMS and the students are required to give their responses to the questions. The students are also given chance to ask questions and to reply to other friends' responses. Furthermore, the lecturer can also give the student some assignments using the discussion forum. The students can answer their lecturer's questions or write a piece of writing based on their lecturer's instruction in the discussion forums.

### ***Crafting the correct discussion forum: asking the right questions***

Educators need to manage and structure the discussion forum in a certain way in order to make the most use of discussion forum (Yukselturk, 2010). Palenque & DeCosta (2015) note active learning will only take place when the educators are able to thoughtfully craft and guide the discussion forum. Correspondingly, Gilbert & Dabbagh (2005) has found that the guidelines provided by the facilitator can increase the number and posting types in the online discussion forums. In addition, the discussion forum should also correlate with the topics and learning outcomes in order to be meaningful (Ekahitanond, 2013).

One of the prevalent tools to initiate discussions is asking good and right questions. It is one of the oldest teaching tools used by educators to "assess students' knowledge, promote comprehension, and stimulate critical thinking" (Tofade, Elsner, & Haines, 2013, p. 1). When effective questions are used in an online discussion, they can act not only as a catalyst for better understanding and achieving the instructional goals for adult learners (Berge & Muilenburg, 2002) but also as a booster for engagement and higher-order thinking (Milman, 2014). In the same light, (Tofade et al., 2013) also confirm that well-crafted questions will encourage new insight, boost discussion, and promote further exploration of the topic of the study. On the other hand, poorly constructed questions will only create confusion, make students feel intimidated, or even stunt their creative thinking.

Some studies have revealed that through specific questioning techniques, students' critical thinking can be triggered and nurtured in a continuous attempt of classrooms activities (Li, 2016; Wilson, 2016). These studies show that flexible questioning techniques can help students gain the ability to grasp the concepts and skills related to critical thinking. Furthermore, with the appropriate ways of questioning, a teacher can increase the level of participation and learning engagement (see Nashruddin & Ningtyas, 2020). They found that the adjusted questioning techniques had improved the students-teachers' interaction and their engagement in learning activities.

Talking about questions, Berge and Muilenburg, (2002) suggests that Bloom's Taxonomy can become the basis of making the right questions to ask for students. This taxonomy assists educators to "to create, from more basic goals, through the

use of lower-level verbs, to more complex goals, making the student acquire the skills of the higher level” (Farias, Sales, & Gonçalves, 2017, p. 698). In his seminal work, Bloom, Engelhart, Furst, Hill, & Krathwohl (1956) introduced ‘six’ major classes (key-terms) of cognitive domains, which then interpreted by many educators and educational sciences as the six levels of learners’ understanding or mastery towards a learning concept. This concept then is revised by Anderson et al., (2001) which can be summarized in the following figure:

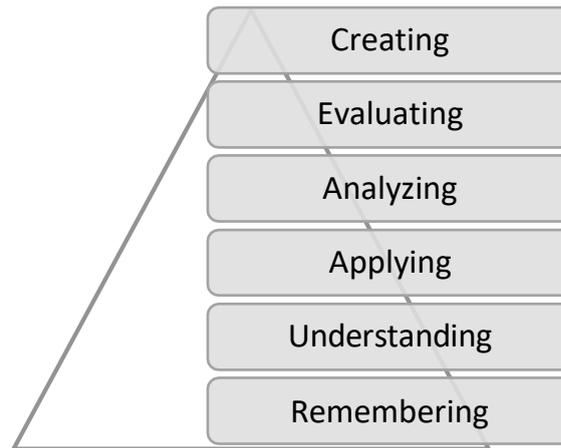


Figure 1. Bloom’s Taxonomy Pyramid (Revised)

At the ‘remembering’ level, learning participants are expected to be able to remember a concept and to remember it in a conversation or discussion regarding the topic. Then, at the ‘understanding’ level, learning participants are expected to be able to describe the concepts which they have memorized in words and to explain them in verbal and abstract terms. At the ‘applying’ level, learning participants are expected to be able to apply information on the concepts they have received and use it to solve problems that occur within the context of the concept. At the ‘analyzing’ level, learning participants are able to provide an objective opinion on a case or event related to the concept they have learned. Meanwhile, at a higher level, at the ‘evaluating’ level, learning participants are expected to be able to provide a critical view of a concept and suggest an improvement on the concept. At the highest level, namely ‘creating’, learning participants are able to create a new system, theory, or concept based on previously accepted concepts (see Anderson et al., 2001; Bloom et al., 1956).

Empirical studies have documented how Bloom’s taxonomy can be utilized to encourage learners to give a ‘higher’ level of students’ responses. For instance, analyzing the online discussion taking place in 10 different asynchronous courses, Ertmer, Sadaf, & Ertmer (2011) find that questions formulated using the higher level of Bloom’s generate higher-level responses from students. Similarly, Meyer (2004), who analyses 17 online discussions, finds that it is the initial questions in the discussion forum that influence the students’ responses level. In the same light is Szabo & Schwartz (2017) who suggest that “only by asking students “higher” questions we will receive “higher” responses” (p. 138).

Going further, the questioning technique, which is reflected in different selections of question words, then, in turn, gives impact to the types of assignments given to the students. Different question words mean a different level of assignment (e.g. ‘what’ and ‘why’ imply different answers for each). It has been well documented for quite a long time by (Kraus-Srebric, Brakus, & Kentric, 1981) who revealed that different selections of tasks by learners reflect the different levels of the cognitive domain, which means different levels of critical thinking. Correspondingly, when the teachers or lecturers use different question words for assignments continuously, they are actually attempting to upgrade and scaffold the critical thinking levels.

### **Method**

This research utilized a descriptive-qualitative method as it aimed to study and understand the object of the research in order to describe it (see Ary, Jacobs, Sorensen, & Razavieh, 2010), which is a Business English course in general and the use of the ‘Moodle’ discussion forum in particular.

To provide a vivid and holistic description of the research object, the researchers examined two data sources. First, the researchers examined the discussions that take place in LMS, ‘Moodle’. Specifically, the researchers noted the interactions between the lecturer and the students meeting by meeting. Fifty students participated in the forum discussion conducted throughout the semester. Second, to gain an understanding of the topic under study, the researchers also conducted semi-structured interviews with 6 students chosen with purposeful random sampling method (see Emmel, 2013; Patton, 2002, 2015), in which two students were chosen randomly from three categories determined previously based on their academic scores: high achiever, middle, and low-achiever. This was to ensure that the data represent a whole picture of the course.

All the gathered data were analyzed inductively where the researchers built “the patterns, categories, and themes from the bottom up by organizing the data into increasingly more abstract units of information” (Creswell, 2007 p. 38). Three steps of coding: open coding, axial coding, and selective coding (see Ary et al., 2010) were utilized to analyze the data. Three emerged themes are discussed in the following section.

### **Findings and Discussion**

The discussion forum in Learning Management System (LMS) “Moodle” for student learning in Business English courses can be optimized to achieve their learning objectives. The optimization process somewhat can be related to the interaction between lecturers and students in particular classes. This interaction pattern is reflected in the sentences used by lecturers and students.

To begin, it is found that the more vocabulary and the richer the use of vocabulary in a discussion forum, the better the quality of interaction in the forum will be. The use of fewer words and short answers of course shows lower quality than discussion forums that use relatively longer answers and vocabulary that is richer in meaning. In a similar context with the interaction between students and lecturers, Li (2016) and Wilson (2016) also found that good questioning techniques can improve the learning engagement of the learners.

In addition, the results of the editorial analysis in the Business English class discussion forum show that the question words used by the lecturer in the discussion and the keywords in the discussion sentences in the forum determine the quality of student responses. It is found that the question words and keywords in the discussion questions determine the students' interpretation of the question and how the response is given. Table 1 shows the recapitulation of the results of the discussion forum editorial research.

Table 1. Summary of Wording Analysis in Discussion Forum

Discussion Topic	Main Questions	Features Triggering Question Words	Key Terms of Students' Answers	Common Patterns (%)			
				S	D	A	L
Message Structure of a Routine Claim Letter	How is the message structure of a Routine Claim Letter?	how, message structure	main, explanation, details, future	100	100	37.5	0
Message Structure of a Routine Request Letter	What is the subject of a routine request reply letter? Put your opinion here.	what, put opinion, request reply	opinion, subject, providing information,	0	100	100	100
Message Structure of Routine Claim Adjustment	Please share your idea about the message structure of a routine claim adjustment	share idea, message structure	main, acknowledgement, necessary, details, services, future, rectification	0	100	100	100
Major Parts of Curriculum Vitae	1. What are the main parts in a CV (in your opinion); 2. See how the styles of the language in each part (phrases, complete sentence, or what?); 3. Look at the format; is there any specific or ideal format for resume or CV?	what, main parts, how, look, is there any, in your opinion	personal data, interest, education, experiences, skills, think, depends, references, vacancies, career accomplishment, include, professionals, profiles	0	100	100	100

Important points of application letters	Please provide the important points of an application letter based on the example in your textbook.	provide, points, based on example	mention, willingness, dates, signatures, where, job vacancies, find, resume, supporting, skills	100	100	0	0
Candidate requirement for job recruitment	What is the main consideration (in your opinion) of a company to accept a candidate for an employee?	what, consideration, opinion,	think, experiences, candidates, applicant, hardworking, communication skills, backgrounds, education level, interview, accept, personality	0	100	100	100

*Note: S: short; D: descriptive; A: analytical; L: long.*

It is seen in table 1 that certain question words and certain keywords in discussion forums tend to encourage students to produce certain words in discussion forums. These answers, if examined and analyzed, reflect the level of understanding in learning that can be described using Bloom's Taxonomy. Of course, logically, students' ability to respond can be improved (short, long, descriptive, analytical answers—bloom taxonomy short answer (remember), long answer (understand-describe), analytical (to analyze) using question words and keywords that are 'conditioned' to stimulate students' answers according to the desired level of understanding according to the learning objectives. The results show that certain keywords trigger discussion in Business English courses.

Table 1 shows that the keywords: 'what', 'main parts', 'how', 'look at',...' is there any'..., 'in your opinion', lead to 100% long, descriptive and analytical answer. There are absolutely no short answers in the discussion forum of this section. It is clear that the keyword 'how' is supported by 'in your opinion', making students give relatively long and analytical answers. Moreover, it also can be seen in table 1, the keywords such as what, consideration, opinion, will get a response with the following description: descriptive (100%); analytical (100%); long answer (100%), and short answer (0%) which means that 100% of student answers are long, descriptive (gives the characteristics of a thing) and 100% of student answers are analytical. Overall, there are no relatively short answers on discussion forums with these keywords.

The results of this study resonate well with what has been documented in the previous literature. This present study points out the same thing Meyer (2004) has proposed that it is the initial questions in the discussion forum that will affect the students' responses level. Therefore, when we asked the students "higher" questions, students will be encouraged to deliver more complex and analytical answers (cf. Ertmer et al., 2011; Szabo & Schwartz, 2017).

Interestingly, as seen in Table 1, keywords such as 'how', 'message structure' receive responses with the following descriptions: short, descriptive (100%); analytical (37.5%); long answer (0%) which means 100% of student answers are short, but descriptive (gives the characteristics of a thing). However, there are still

only 37.5% of students' answers that are analytical and there are no long answers on discussion forums with these keywords. This phenomenon is interesting considering that the keyword 'how' is usually assumed to get a relatively longer answer than what is actually found in the class discussion forum of research participants. Apparently, the word 'how' is neutralized by the word 'structure' which tends to invite answers in the form of points (short and descriptive answers).

Consequently, as illustrated in table 1, if a teacher wants an analytical and descriptive answer, it is advisable to use keywords such as: 'how', 'share your idea', 'in your opinion', 'consideration'. These words invite the response of learning participants which would further describe a concept and analyze the concept. Figure 2 shows the relationship between keywords, question words, and expected results.

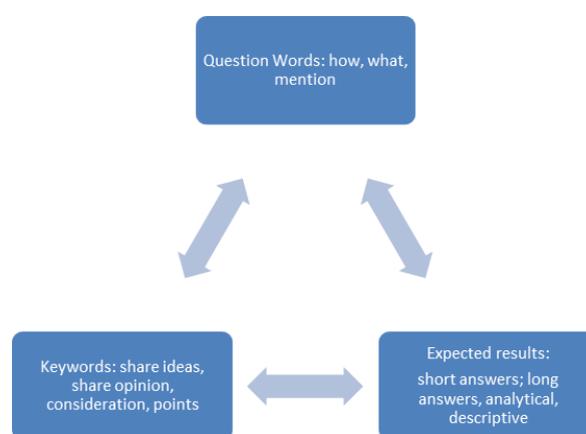


Figure 2. Relationship among Question-Words, Keywords, and Expected Responses

### ***Suggestions of How Discussion Topics Are Arranged in the LMS***

The research findings also show students' preference on how the topics are arranged to accommodate the achievement of the learning objectives of the Business English course. The topics are usually arranged according to the syllabus. However, the findings suggest that the topics are better arranged according to the level of ability that is expected to increase – referring to the six cognitive domains of the revised Bloom's Taxonomy (see Anderson et al., 2001; Bloom et al., 1956)

Assuming that the level of understanding of learning participants increases over time and following the exposure to learning materials, the discussion forum topics can be arranged in such a way that there is an increase in the level of understanding from simple to the more complex ones. Simpler discussion topics are placed at the beginning of the lesson while more complex topics are placed at a later stage.

This is also supported by the results of interviews, where almost all interview participants, 83% (from high, medium, and low academic backgrounds) agree that topics in discussion forums should be arranged in order from light and general topics then over time learning becomes a topic which is more specific and more complex. Only 17% of participants said that the arrangement of discussion topics in the forum should be randomized. The following is a diagram showing the arrangement of topics according to the opinion of the respondents.

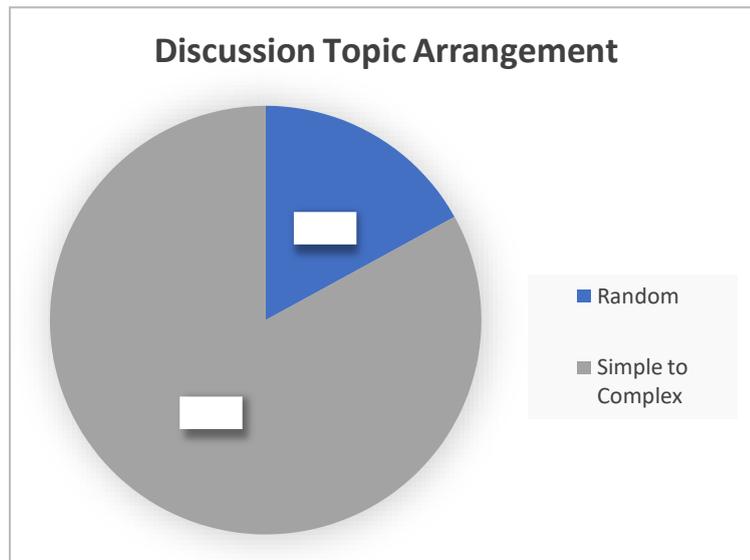


Figure 3. Number of Respondents and Discussion Topics Arrangement

This finding supports the previous research on a similar matter. A case in point, Soleimani & Kheiri, (2016) has found out that there is a systematic pattern in the postgraduate activities and assignments in relation to the order of thinking skills distribution. They found that the post-graduate students' activities and assignments are also arranged from lower, medium, to finally the higher-order thinking skills. This is specifically true as Bloom's Taxonomy is considered as a hierarchical question classification system that has sequential and cumulative features (see Sanders (1966) in Frager (1979). For example, a student has to be able to 'remember' before they can 'understand'; they have to be able to 'remember' and 'understand' before they are able to 'apply', and so on. That is why it is very logical that the discussion forum is arranged by starting with 'lower' simple questions which then progressively lead to more 'higher' complex questions. (cf. Lajis, Nasir, & Aziz, 2018; Zapalska, McCarty, Young-McLear, & White, 2018)

#### ***Effective Assignment Form in Business English Discussion Forum***

When viewing at the Bloom's Taxonomy level, (see Anderson et al., 2001; Bloom et al., 1956) words such as 'define', 'mention', 'state' are at the 'remember' level while words such as 'describe', 'discuss', 'explain' are at the 'apply' level. Furthermore, the words 'share your opinion', 'what do you think about', 'what is your consideration', are at the 'analyze' level, a higher level of understanding. In addition, to get responses according to the desired level, and also considering the level of intellectual maturity of the learning participants, it is necessary to consider the use of question words and keywords in the discussion in accordance with the desired learning outcomes.

Certain question words and keywords in the assignment will make the students increase the level of understanding of learning participants towards a concept through exercises (giving discussion questions) and conditioning for learning participants to find answers to these discussion questions. For example, as shown

in table 1, discussion question keywords such as ‘consideration’ and ‘opinion’ will trigger students to search for analytical answers which are relatively longer than ‘mention’ keyword.

Setting keywords in a discussion forum will produce answers according to the expected level of understanding, as shown in Figure 4. If the process of the following diagram in Figure 4 is repeated in optimal learning conditions, then the level of understanding of the learning participants will also gradually increase.



Figure 4. The Chain-Reaction of Question Words, Keywords, and Level of Understanding

Therefore, the form of assignment in this discussion forum must contain keywords such as ‘explain’, ‘share opinion’, ‘what is your consideration’, and other keywords having similar meanings. The form of assignment that fits this category is essay writing (may consist of one or more paragraphs) which contains elements of the learning level in the form of analysis, evaluation, or at least application. This was also expressed by all interview participants who came from various academic backgrounds, that they preferred the form of assignment in the form of essay writing on related discussion topics.

Related to the finding of this present study, Nurita, Anwar, & Ma’rifah (2013) and Jones, Harland, & Bartlett, (2009) have previously suggested that educators have to design questions and assignments that can match the difficulty level, the learners’ capability, and the required cognitive level. In relation to writing tasks, Anthony (2007) who studies the effect of scaffolding using Bloom’s taxonomy on students’ writing found that when the instructions are given using “higher-order” questions, students’ writing improves greatly. That is why it is suggested for the educators to design classes that can promote higher-order thinking skills (Gul, Kanwal, & Khan, 2020), including in making the assignments for students.

## Conclusion

In analyzing the sentences in the discussion forums as well as the results of interviews with respondents, this study has found that what determines the student's response to the discussion in the forum is the question words used in the discussion and the keywords in the discussion sentences in the forum. These two things will later determine the students’ answers in terms of the keywords used by students, the length and shortness of student answers, and the type and depth of student answers, which in turn show how students interact in the discussion forum. Furthermore, it was found that certain words in the responses of the learning participants (students) showed a certain level of understanding. When the keywords in the discussion forum questions are adjusted to get the response according to the desired level, the keywords in the student responses are also increased according to

the desired level of learning outcomes. The order of arrangement of discussion topics and assignments can also be arranged in such a way as to achieve optimal learning objectives. In general, the students like the arrangement of discussion topics from general to specific, which also paralleled the increasing level of difficulty, from relatively low to higher. The assignment that students like also turns out to be in the form of writing opinions in essay writing, which means showing 'higher-order thinking'.

In accordance with the results found, it is suggested that the form of interaction in the discussion forum considers the selection of the lecturer's keywords in triggering discussions so that student responses can be in accordance with learning objectives and of course increase students' understanding of related topics in the future. It is also recommended that the selection of the form of assignment through the forum also considers the aspect of students' freedom of opinion and develops their level of understanding. The form of assignment in the form of an essay will encourage students to develop their level of understanding of a learning topic.

Some limitations are still present in this study. First, this study is only conducted in a limited context, which is in a Business English Writing class in one of the universities in Indonesia. Therefore, the result of this study cannot be used for generalization to other contexts. Secondly, the data used in this study is only limitedly supported by the view of the educators about the subject matter, which should have added more value to the description of this study. Therefore, it is suggested for future research to conduct more research in a bigger context with more data sources to support the analysis. In the end, the researchers hope that this research can provide further literature on how to optimize the use of forum discussion on LMS 'Moodle' especially in e-learning.

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