



Social construction of knowledge in synchronous text-based discussion during English language learning

Ira Mutiaraningrum *¹, Arif Nugroho²

¹ *Tourism Business Management Study Program, Department of Agribusiness, State Polytechnic of Sambas, Kalimantan Barat, Indonesia*

² *Department of Sharia Accounting, Faculty of Islamic Economics and Business, State Islamic Institute of Surakarta, Sukoharjo, Jawa Tengah, Indonesia*

* iramutiara@poltesa.ac.id (Corresponding Author)

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Abstract

The uptake of remote learning during the COVID-19 pandemic was indispensable. Classroom activity, including English language learning, was shifted into remote learning. However, remote learning has not escaped the question regarding its role in students' knowledge construction in language learning. Thus, this study explores whether the social construction of knowledge occurs in the same-time synchronous text-based discussion during students' English language learning. It also investigates the phases in which the social construction of knowledge present. Content analysis of the Interaction Analysis Model was used as the method to classify twenty-three Indonesian English as foreign language students' discourses in the synchronous text-based discussion. The transcripts from two threads in Google Classroom were sorted into the Interaction Analysis Model Phases to find out the percentage of each Phase's occurrence. Results indicate that the discourses showed the social construction of knowledge was developed by students and thereby pointed out the process of their cognitive thinking during their synchronous English language learning. This study suggests that the social construction of knowledge exists in synchronous text-based discussion with the most frequent postings categorized in Phase I.

Keywords: social construction of knowledge; synchronous text-based discussion; English language learning

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The end of 2019 marked the spread of the coronavirus COVID-19 outbreak. In just a matter of a few months, it spread around the world. A mandatory lockdown had imposed by some countries; on the same matter, stay-at-home recommendations had been enforced to curb the virus from spreading (France-Presse, 2020). In Indonesia, Work from Home (WFH) and Study from Home (SFH) were encouraged by the government to stem the coronavirus spread. As every country looked after the coronavirus pandemic and fostered the success of WFH and SFH. The schools' and universities' closure was inevitable to prevent the soaring of COVID-19. The classroom activities were shifted into distance learning. The uptake of distance learning during the COVID-19 pandemic was indispensable. The adoption of technology for distance learning as an alternative for the success of physical distancing aims to flatten the curve or slow down the spread of coronavirus. Since all face-to-face (F2F) classes were switched forward to online, the distance learning platform, applications, and resources played a vital role (Atmojo & Nugroho, 2020; Gjelaj et al., 2020; Lee & Dressman, 2018).

This situation urged emergency remote learning. Emergency remote learning itself is defined as a temporary solution to plan, design, and determine an effective learning ecology for a distance learning during the global crisis due to the Coronavirus pandemic (Bozkurt & Sharma, 2020; Cahyono & Mutiaraningrum, 2015). Remote learning is learning moderated remotely by technological advancement (Said et al., 2013). It is in the form of asynchronous and synchronous online teaching and learning process. In asynchronous online learning, the students and instructors learn at different times. They are separated in space and time (Murphy et al., 2011). Perveen (2016a) describes that asynchronous online learning is not time-bound; hence, the students are able to respond at their leisure. Due to its popularity, the learning behavior and process of asynchronous discussion had been studied in many researchers. Radically different, in synchronous learning, the students and instructors are engaging in an online forum to learning together at the same time despite the

distance (Bower et al., 2015; Yamagata-lych, 2020). The students and instructors spontaneously communicate as if they were physically co-present, although, in fact, they are miles apart (Murphy et al., 2011). Synchronous learning enables students and instructors to interact and collaborate in real-time (Brown et al., 2016; Perveen, 2016). Spencer and Hiltz (2003) mentioned Chat rooms and multi-user domains (MUDs) as the platforms in learning that are synchronous. Spencer and Hiltz (2003) described that synchronous learning occurs when the participants, in real-time, use video and audio interact with other participants. However, the term synchronous learning is not restricted to the use of video and audio in a virtual learning environment (Young et al., 2014). All in all, both asynchronous and synchronous learning may produce successful online learning with the appropriate learning platforms and methods.

In facilitating student learning and providing social care and interaction during school closure periods, the UNESCO had released an article on the distance learning solution comprising the list of educational applications, platforms, and resources (UNESCO, 2020). Among them, Learning Management Systems (LMS) gains more acceptance and involvement (Abazi-Bexheti et al., 2018), a vast range of LMS can be utilized for online learning. One of them is Google Classroom. Intended primarily for education, Google Inc. introduced Google Classroom in Google Apps in 2014 (Shaharane et al., 2016). As a web 2.0 tool, Google Classroom is an easy LMS for personalized learning. It can be accessed freely by students and instructors (Clark et al., 2015). It can be accessed through computer and mobile devices such as smartphones and tablets. Google Classroom enables free and versatile class creating, assignment distribution, announcement posting, feedback sending, and course material uploading (Khalil, 2018a). Khalil (2018b) added that Google Classroom provides access to many more Google tools such as Google Slides, Google Sheets, Google Docs, and Google Forms. Google Classroom makes it possible to conduct text-based discussion as it provides a platform to share links, video, and audio. Google Classroom offers rational in-class time management and real-time interaction for compiling nomenclature for the interactive methodic replacing the traditional one (Bondarenko et al., 2018; Heggart & Yoo, 2018; Iftakhar, 2016). One of the forms of real-time interaction activity in online learning is the online discussion forum.

An online discussion forum is increasingly noticeable in the educational context. It has been used in a large context of education (Hou & Wu, 2011). It is also popular in foreign language learning. The most common online discussion

forum is a text-based discussion. To date, text-based online discussion tools have been widely utilized as instructional media for discussion (Hou & Wu, 2011). It is a form of online learning by means of networking that allows the interactions among students and instructors (Gomez, 2018). Several studies suggested the contributions of the online discussion forum in supporting English language learning. LMS enables content archiving capabilities and user activity tracking to open up online interaction analysis (Gomez, 2018). The exchange of messages indicates the circulation of information and the presence of social construction within the discussion. Besides, the construction of knowledge relies heavily on social interaction. Thus, the questions of whether there is a social construction of knowledge in an online discussion platform are indispensable. The social construction of knowledge was first introduced by (Gunawardena et al., 1997a). It deals with the reciprocal interaction among participants in online discussion through which the knowledge sharing and construction take place (Gomez, 2018).

Due to its importance, myriad studies are examining the social construction of knowledge in online discussion platforms. The first study was conducted by Saritas (2008), exploring knowledge construction through social interaction through Interaction Analysis Model. The study's finding revealed that knowledge construction occurs in the early phases of the Interaction Analysis Model coding scheme. Further, Nor et al. (2010) analyzed the knowledge construction in online discussion forums through collaborative learning. Using the Interaction Analysis Model coding scheme, the students' discourse uncovered the reflected cognitive thinking process, as demonstrated by the participants as indicated by the various knowledge construction phases. In the same vein, Zhu (2012) examined students' knowledge construction through social interaction using the Interaction Analysis Model coding scheme for data analysis. The study aimed to compare the online interaction of Chinese and Flemish students. It was revealed that the majority of responses in both groups were in Phase I, with Flemish students contribute more in Phase II of the Interaction Analysis Model coding scheme. Years later, Gunawardena et al. (2016) took more advanced analysis by deploying learning analytics, interaction analysis, and social network analysis in examining the social construction of knowledge online.

The study took a careful examination of the knowledge construction process in an online asynchronous discussion. Gomez (2018) conducted a more recent study in his Ph.D. dissertation studying the social construction of knowledge in an online discussion forum. The Interaction Analysis Model

coding scheme and social network analysis were applied in Gomez's study in shedding light on the online discussion forum's interaction. The study's findings attested to the occurrence of knowledge construction in three student-centered and open-ended online forums. The most occurrence of knowledge construction fell into Phase I, Phase II, Phase III, and Phase IV with no Phase V found. The previous research was several from limited studies investigating the social construction of knowledge recently in the virtual learning environment. To reiterate, the Interaction Analysis Model coding scheme is the most appropriate model in analyzing the social construction of knowledge by far.

The exploration of the most suitable and most acceptable online learning never fails to attract researchers and educators, especially in teaching a foreign language that emphasizes the interaction to create meaningful learning and practices. College students (Emanuel et al., 2015) and academicians (Ajibade et al, 2017) are among the first to adopt the latest technology in the respective fields. Thus, investment in technology-enhanced learning gains more attention from educational institutions (Raes et al., 2019). Furthermore, there is a general lack of studies on online learning, especially distance education (Murphy et al., 2011) and a paucity on effective online interaction in synchronous nature (Brown et al., 2016). It is because physical distance may create barriers and difficulties in learning the language (Wang & Chen, 2011). Thus, giving evidence that the social construction of knowledge occurs in the text-based discussion is pivotal. Studies on the process of the social construction of knowledge are limited (Hou & Wu, 2011). Little attention was paid to the cognitive process that occurs during students' online, especially synchronous learning. Synchronous interaction is important for distance-based language learning (Wang & Chen, 2011). Despite the large body of research investigating the social construction of knowledge, inadequate literature on the synchronous discussion analysis occurs since the most online text-based discussion is asynchronous. For this reason, this current study intends to explore whether or not the social construction of knowledge occurs in the synchronous English language text-based discussion in Google Classroom.

In light of the previous description, this study's context is emergency online language learning due to Indonesia's sudden coronavirus outbreak. The participants were novice e-learner with no sufficient experience and preparation for distance learning. The setting and condition of learning are crucial since a supportive learning environment contributes to students' academic achievement (Nugroho et al., 2020). Apart from the considerable number of researches exploring various approaches to online course designs

worldwide (Gomez, 2018), this study proffers that synchronous text-based discussion can be a media to prove that students' social construction of knowledge in learning a foreign language exists. It will pave the way for the implementation of synchronous text-based discussion in generating students' social construction of knowledge, making sure that leveraging synchronous text-based discussion is fruitful for students in learning a foreign language. Hence, this study seeks to explore whether the social construction of knowledge occurs in the synchronous English language text-based discussion and in what phases the knowledge construction occurs. In addition, this study also examines in what phases the presences of the social construction of knowledge fall into.

METHOD

Research Design

The online discourses from students' excerpts were explored through the content analysis. The content analysis research methodology was employed to gain valid inferences from texts investigated (Li & Huang, 2008). The transcripts from the text-based discussion in Google Classroom were coded and analyzed. The scripts analyzed for this study comes from two text-based discussion threads in Google Classroom. The two threads were chosen since they were the very first discussion made by students. Thus, this study intends to reveal the social construction of knowledge constructed by novice learners of remote learning. In addition, both threads discussed the same topic, namely the Hotel Department. Hence, this study only revealed the Interaction Analysis Model coding scheme's phases constructed by students from two threads in the same topics.

The content analysis applied in this study follows the coding scheme constructed by Gunawardena et al. (1997a). It assists with the comprehension of the online discussion forum content by giving information on frequency and percentage (Ajibade et al., 2017). For the analysis, the interaction analysis model comprises five phases, as seen in Table 1. Each stage of the Interaction Analysis Model is gradually moved forward to the more sophisticated phase from the first to the last phase. In phase I, the indicator only deals with the statements of sharing and comparing information. Phase II is indicated by the statement and test of disagreement and position restatement as well as argument advancement. Phase III deals with meaning negotiation and clarification as well as the use of metaphors or analogies. Phase IV deals with statements testing the construction by incorporating information shared, existing knowledge, personal

experience, data, and literature. Finally, Phase V deals with summarization and the application of newly constructed meaning obtained from the discussion.

Table 1. The interaction analysis model

PHASE I: SHARING/COMPARING OF INFORMATION. Stage one operations include:	
A. A statement of observation or opinion	[PhI/A]
B. A statement of agreement from one or more other participants	[PhI/B]
C. Corroborating examples provided by one or more participants	[PhI/C]
D. Asking and answering questions to clarify details of statements	[PhI/D]
E. Definition, description, or identification of a problem	[PhI/E]
PHASE II: THE DISCOVERY AND EXPLORATION OF DISSONANCE OR INCONSISTENCY AMONG IDEAS, CONCEPTS, OR STATEMENTS. (This is the operation at the group level of what Festinger calls cognitive dissonance, defined as an inconsistency between a new observation and the learner's existing framework of knowledge and thinking skills.) Operations which occur at this stage include:	
A. Identifying and stating areas of disagreement	[PhII/A]
B. Asking and answering questions to clarify the source and extent of disagreement	[PhII/B]
C. Restating the participant's position, and possibly advancing arguments or considerations in its support by references to the participant's experience, literature, formal data collected, or proposal of relevant metaphor or analogy to illustrate the point of view	[PhII/C]
PHASE III: NEGOTIATION OF MEANING/CO-CONSTRUCTION OF KNOWLEDGE	
A. Negotiation or clarification of the meaning of terms	[PhIII/A]
B. Negotiation of the relative weight to be assigned to types of argument	[PhIII/B]
C. Identification of areas of agreement or overlap among conflicting concepts	[PhIII/C]
D. Proposal and negotiation of new statements embodying compromise, co-construction	[PhIII/D]
E. Proposal for integrating or accommodating metaphors or analogies	[PhIII/E]
PHASE IV: TESTING AND MODIFICATION OF PROPOSED SYNTHESIS OR CO-CONSTRUCTION	
A. Testing the proposed synthesis against "received fact" as shared by the participants and/or their culture	[PhIV/A]
B. Testing against an existing cognitive schema	[PhIV/B]
C. Testing against personal experience	[PhIV/C]
D. Testing against formal data collected	[PhIV/D]
E. Testing against contradictory testimony in the literature	[PhIV/E]
PHASE V: AGREEMENT STATEMENT(S)/APPLICATIONS OF NEWLY CONSTRUCTED MEANING	
A. Summarization of agreement(s)	[PhV/A]
B. Applications of new knowledge	[PhV/B]

C. Metacognitive statements by the participants illustrating their understanding that their knowledge or ways of thinking (cognitive schema) have changed as a result of the conference interaction [PhV/C]

(Source: Gunawardena et al., 1997, p. 414)

Participants

The students involved in this study were from the Tourism Business Management study program. The 23 higher vocational students were enrolled in the English-2 course, a compulsory course to attain the next English course in the next semester. Their age ranged from 18-20 years old. They were novice learners in terms of distance learning and blended learning. Thus, they have no experience using web-based learning platforms or applications as part of classroom English learning.

Research Procedure

Distance learning in this study utilized Google Classroom as an online learning platform. A class in Google Classroom was created to accommodate student's online language learning. The majority of students accessed Google Classroom through their mobile phones since online learning was designed to reduce obstacles in terms the lecturer was in the form of links, documents, and videos. The online discussion was constructed in the form of a text-only discussion forum. Text-based discussion is considered the easiest way for novice learners to use technology for distance learning in their first trial.

The online learning was intended to replace the F2F classroom to prevent the coronavirus COVID-19 outbreak in Indonesia. The online discussion forum was in the form of synchronous learning by incorporated real-time discussion. Thus, the students only participated in the discussion in the assigned time according to their schedule. The two-credit course was scheduled for Tuesday at 7 am – 9.15 am. Therefore, except for project-based tasks and assignments, the discussion lasted for two hours and fifteen minutes each week.

The English-2 course mostly focused on English for Hotel. The material provided in Google Classroom was in the form of links (to quizzes and articles), documents, and videos. The lecturer also made quizzes using the features provided by Google Classroom. In each thread specified by the lecturer, there was no limitation on how many students' responses can make; the discussion was assigned to flow naturally. The number of posts was not the criterion for a good contribution; instead, the quality of postings determines students' active

involvement. It is expected that students got much opportunity to demonstrate their social construction of knowledge.

In Thread 1, the students were asked to try the quiz, which mainly discussed the Hotel's facilities. In Thread 2, the students were provided a quiz on Hotel Departments and their functions. The materials and quizzes were taken from the websites and quizzes related to Hotel departments. The consideration of taking the quiz from the website is the convenience and ease the students may get when they try the quiz by themselves without submitting the result to the lecturer. After all, the course's main focus was discussion, in which the students describe their experience and information obtained from the quiz.

FINDINGS

Identifying discourses in the postings through content analysis of the Interaction Analysis Model coding scheme shows that the social construction of knowledge occurs in the synchronous English language text-based discussion. The findings are presented in three parts. They are divided into the analysis of Thread 1, the analysis of Thread 2, and the analysis of all threads to show the detailed phases of the social construction of knowledge in English language learning portrayed by students. It is worth noting that the percentage does not represent all posts written by students since some postings were not categorized into any phase in the Interaction Analysis Model coding scheme. These out-of-topic postings were discarded from the analysis. They were not included since they did not reflect any of the social construction of knowledge pointed out by Gunawardena et al. (1997). Thus, these postings were part of the percentage presented. Converting the original script for coding was done to analyze the social construction of knowledge using the Interaction Analysis Model coding scheme.

Social Construction of Knowledge Demonstrated in Thread 1

Students' postings dominated the synchronous discussion. The instructor did not participate in the discussion since the text-based discussion was directed for learner-centered discussion. There were 85 postings made by students in Thread 1. However, only 60 postings were able to be categorized using the Interaction Analysis Model coding scheme. The rest 25 postings were excluded since they were off-topic. Table 2 presents students' discourse that represents students' learning behavior coded through content analysis. Those lead to the social construction of knowledge indicated the cognitive process

during synchronous learning. The coding results of Thread 1 showed the number of postings categorized in the Interaction Analysis Model coding scheme. Table 2 presents the results of the coding.

Table 2. Number of postings in Thread 1

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total
Postings	59	0	1	0	0	60
Percentage	98.33%	0%	1.67%	0%	0%	100%

Table 3 detailed the phases found in thread 1 that consisted of Phase I and Phase III. All categories in Phase I were found in Thread 1. However, online one category was found in Phase III.

Table 3. Detail of the postings in Thread 1

Phase		Number of postings	Total
Phase I	[PhI/A]	17	59
	[PhI/B]	5	
	[PhI/C]	26	
	[PhI/D]	11	
Phase III	[PhI/C]	1	1
			60

To ease the understanding of phases occurred in the first thread. A pie chart was made to picture the percentage of the five phases of the Interaction Analysis Model coding scheme. Figure 2 delineates the pie chart of the phases of the Interaction Analysis Model coding scheme in Thread 1.

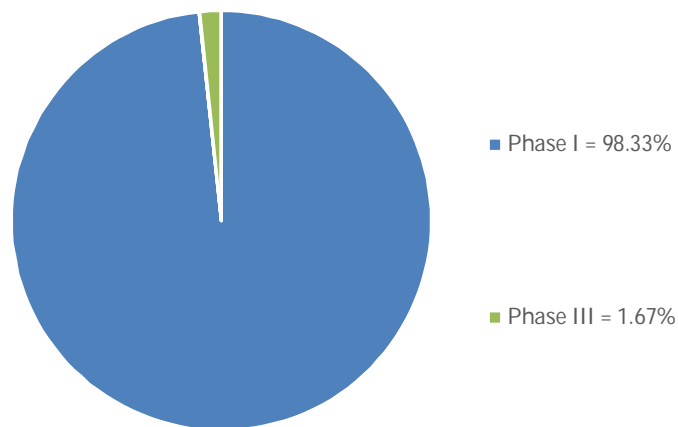


Figure 1. Phases in Thread 1

Out of five phases in the Interaction Analysis Model coding scheme, only two phases were found in the students' script. They were Phase I and Phase III. According to the Interaction Analysis Model coding scheme, the examples of excerpts signaling the social construction of knowledge are summarized in Table 4.

Table 4. The phases found in Thread 1

Phase	Example
[PhI] [PhI/A]	"It turns out that the guest chooses a hotel with more ten facilities."
[PhI/B]	"Yes, I agree with (student x)'s examples of a good facility in the hotel."
[PhI/C]	"Yes, They are the best hotels. I know the best hotels with complete facilities since they are in Television and Promotion."
[PhI/D]	"Why do you choose a room in a hotel with a beautiful view?"
[PhIII] [PhIII/C]	"Yes, I agree with you. In addition, complete facilities in the Hotel may increase visitor satisfaction."

Phase I deals with sharing/comparing of information, and Phase III deals with the negotiation co-construction of knowledge. In Phase I, students script disclosed PhI/A, PhI/B, PhI/C, and PhI/D reflecting the social construction of knowledge during the text-based discussion. Thread 1 exposed PhI/A in terms of the observation' statements (PhI/A), statements of agreement toward others' postings (PhI/B), supporting examples (PhI/C), and question and answer for detail clarification (PhI/D). In Phase III, the postings were signaling the finding of overlap among conflicting concepts or identification of areas of agreement (PhIII/C).

Social Construction of Knowledge Demonstrated in Thread 2

From 192 postings in Thread 2, there were 112 postings taken further for content analysis. Table 4 provided the number of postings as well as percentages of phases in the Interaction Analysis Model coding scheme found in Thread 2. The Interaction Analysis Model coding scheme categorizing the social construction of knowledge demonstrated by students in text-based discussion indicated the second thread's cognitive process.

Table 5. Number of postings in Thread 2

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total
Postings	101	6	3	0	2	112
Percentage	90.18%	5.36%	2.68%	0%	1.79%	100%

Table 5 detailed the phases found in Thread 2 that consisted of Phases I, II, III, and V. Meanwhile, Table 6 provides the detail of the postings in Thread 2.

Table 6. Detail of the postings in Thread 2

	Phase	Number of postings	Total
Phase I	[PhI/A]	15	101
	[PhI/B]	50	
	[PhI/D]	36	
Phase II	[PhII/A]	2	6
	[PhII/B]	3	
	[PhII/C]	1	
Phase III	[PhIII/C]	3	3
Phase V	[PhV/A]	2	2
			112

Figure 2 presented the pie chart on the Interaction Analysis Model phases of the social construction of knowledge in Thread 2. Blue represents PhI, red represents PhII, green represents PhIII, and cyan represents PhV.

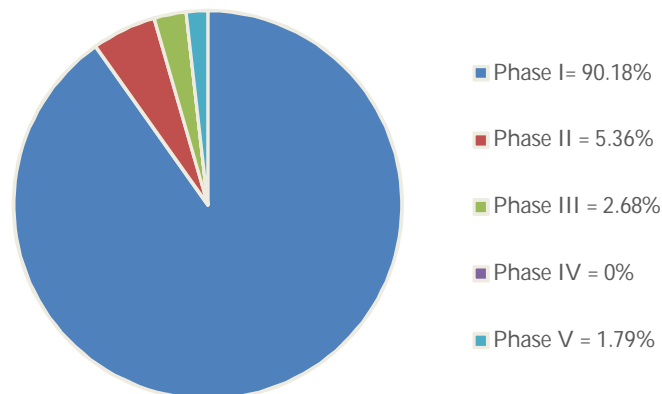


Figure 2. Phases in Thread 2

Students' postings fell into Phases I, II, and III in the second Thread. The discourse in Phase I involves sharing/comparing of information. PhI/A, PhI/B, and PhI/D were found in the script. They deal with students' postings of expressing their opinion as the observation toward the topics, the expression of agreements from the previous postings, and question and answer section to clarify their friends' postings. The discourses in Phase II deals with the expression of disagreement towards other's statements. The postings in Phase II fall into PhII/A, PhII/B, and PhII/C. They are the expression of disagreement, clarifying others' statement, and position restatement with more prove or examples. The last phase that occurred in Thread 2 was Phase III. Phase III

statements discourses related to the co-construct of knowledge or meaning negotiation. PhIII/C was shown in students' posting. It deals with students posting that putting forward agreement from other students. Some experts were made examples of phases in Thread 2 in the following Table 7.

Table 7. The phases found in Thread 2

Phase		Example
[PhI]	[PhI/A]	"Front office has the greatest amount of guest contact, guest registered, assigned rooms, and check out."
	[PhI/B]	"Yes, that makes a perfect sense."
	[PhI/D]	"Well, guests are guests, there is no way they expel their own guests from the hotel."
[PhII]	[PhII/A]	"I don't think that hotel will accept a drunken guest."
	[PhII/B]	"I don't think so, (student y); we can see from the quiz that hotel still accepts the drunken guests."
	[PhII/C]	"Yes, I know we should be professional at work. But after work, I can ask her to date."
[PhIII]	[PhIII/C]	"Yes, more, If we drive them out, we will violate the department's rule."

There were 101 statements indicating Phase I that are categorized into three phases, namely PhI/A: statements expressing an opinion, PhI/B: statements of agreement from one or more other participants, and PhI/D: asking and answering questions to clarify details of statements. There were 6 statements categorized as Phase II consisting PhII/A: stating disagreement, PhII/B: asking and answering questions to clarify the extent of disagreement, and PhII/C: restating the participant's position advancing arguments. In Phase III, there was only the identification of areas of agreement or overlap among conflicting concepts found. Lastly, there were two statements categorized as the final phase, where the students summarize the agreement obtained from the test-based conversation.

Social Construction of Knowledge Demonstrated in All Threads

The Interaction Analysis Model's phases from all postings from two threads were also examined to see the distribution of phases regardless of the threads they were originated. Table 8 portrays the distributions of phases in all threads.

Table 8. Overall postings from all Threads

	Phase I	Phase II	Phase III	Phase IV	Phase V	Total
Postings	160	6	4	0	2	172
Percentage	93.02%	3.49%	2.33%	0%	1.16%	100%

The majority of statements were categorized as Phase I. There were 6, 4, and 2 statements of Phases II, III, and V respectively found. This shows that most students exposed their ability in sharing and comparing of information obtained from the discussion. The detailed posting of all threads is presented in Table 9.

Table 9. Detail of the postings in all Threads

	Phase	Number of Postings	Total
Phase I	[PhI/A]	32	160
	[PhI/B]	55	
	[PhI/C]	26	
	[PhI/D]	47	
Phase II	[PhII/A]	2	6
	[PhII/B]	3	
	[PhII/C]	1	
Phase III	[PhIII/C]	4	4
Phase V	[PhV/A]	2	2
			172

The percentages of each phase from all threads are illustrated in Figure 3. Figure 3 presents four colors: blue represents Phase I, red represents Phase II, green represents Phase III, and cyan represents Phase V. Meanwhile, purple representing Phase IV is not presented since there was no statement indicating Phase IV found.

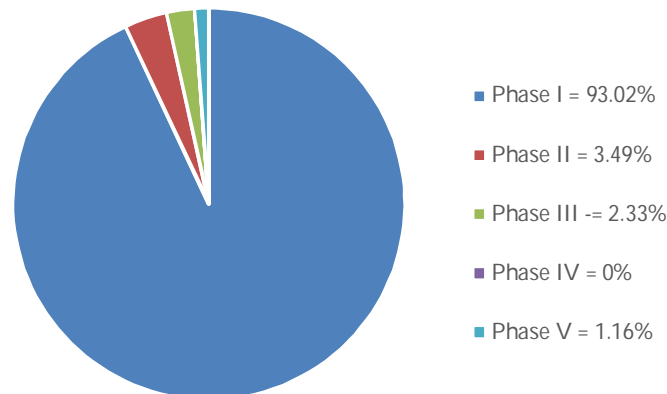


Figure 3. Phases in all Threads

From a total of 277 postings made by students in two threads, 172 postings were analyzed. Overall, postings reveal the presence of social construction of knowledge from all phases except for Phase IV: testing and modification of proposed synthesis or co-construction (PhIV).

DISCUSSION

The current research state discusses whether the social construction of knowledge happens in the synchronous English language text-based discussion forum. Using the Interaction Analysis Model coding scheme for content analysis, evidenced by the excerpts, corroborated by the literature, the discourses found in discussion indicated the learning behavior demonstrated by students during their synchronous text-based discussion. This analysis helps to prove that online synchronous learning may yield a promising result in higher vocational students' English language learning interaction. It shows that English language teaching as a foreign language in Indonesia is undergoing a revolution that emphasizes students' roles, especially during the pandemic that forces educational institution closure shifting to distance learning.

The reflection of students' cognitive thinking skills was seen from their discourses, indicating the processing of topics in the form of discussion (Nor et al., 2010). Salam (2012) probed that computer-mediated communication can alter the knowledge construction process. Higher-order thinking skills were occupied in online learning scenarios (Mutiaraningrum & Cahyono, 2015; Saritas, 2008). The learning behavior coded the cognitive process during students' synchronous discussion using a foreign language, English and led to the social construction of knowledge across the five phases of the Interaction Analysis Model coding scheme. The discourses in students' synchronous text-based discussion show that most students' postings fell into Phase I that is sharing/ comparing of information using English. The postings categorized in Phase I deals with statements of observation or opinion, asking and answering questions to clarify details of statements, and statement of agreement from one or more other participants. Most of the students in this study posted their opinion or agreements toward the topic discussed. The discussion ran straightforwardly in which the students response to certain postings given by other students instead of drawing a conclusion or applying new information in their own words. This finding is not surprising since it is in line with the previous research conducted by Zhu (2012) and Saritas (2008), which revealed the same result that knowledge construction took place in the Interaction Analysis Model's early phases. Zhu (2012) described that Phase I is used more frequently as a prerequisite of the text-based discussion and maintaining interaction flow. Further, Zhu (2012) contended that first-year students tend to use level I of knowledge construction and do not use some phases yet, such as testing syntheses (Phase IV) and applying newly constructed knowledge (Phase V).

The reasons behind the dominance of the initial phase of the Interaction Analysis Model were discussed in previous researches. Various phases of knowledge construction might be influenced by structuring support as well as the types of discussion given by the instructor (Zhu, 2012). The little presence of higher phases of the Interaction Analysis Model coding scheme might occur due to no establishment of the discussion's guidance and structure (Saritas, 2008). Hence, every online educator is encouraged to predefine and prepare the scenario for online learning (Osipov & Prasikova, 2015). Suppose there are no scenarios provided by the instructor. In that case, Students may think that others already expressed their voices and were not obligated to give further an explanation (Mutiaraningrum & Cahyono, 2015).

Further, Saritas (2008) added that the facilitator or a moderator's minimum role became a barrier for students to make critical reflection and promptly provide thoughtful comments. The absence of an instructor role in discussion confuses the online learning environment (Mutiaraningrum & Cahyono, 2015). Besides, the prevalent technical issues with Internet connections, such as low speed and non-connectivity, may also contribute to students' confusion in which they were left behind in the discussion. The confusion was seen from the off-topic postings, which were discarded for analysis in this study. There were a great number of discarded postings that could not be taken for further analysis. This is in line with a study by Saritas (2008) that also showed that more than half postings were out of topic in the synchronous discussion. However, despite the off-topics postings, there was still the knowledge sequence of knowledge construction (Hou & Wu, 2011). Hence, regardless of the little existence of higher phases of the Interaction Analysis Model, knowledge construction may exist.

The present study also highlighted the merit of real-time coordination in synchronous learning provided by Google classroom in synchronous English language learning. Since the students had the discussion together at the same time, they were time-bound. Thus, the discussion flowed without time-distraction, which fosters interaction. The synchronous scenario in a debate is beneficial in providing real-time coordination during language learning. The synchronous activity engages students in fostering their social interaction and coordination (Hou & Wu, 2011). Social interaction provides changes in knowledge construction. Luckily, interaction occurs, albeit the minimum participation (Kanuka & Anderson, 2007). It occurred through a learning media scaffolding collaborative learning environment. This study used Google Classroom as one of Google Applications supporting teacher-teacher

interactions to create collaborative learning (Khalil, 2018a). It provided real-time interaction (Bondarenko et al., 2018). The interaction fostered social presence which provides the social connectedness resulting in students' persistence (Shaharane et al., 2016). The real-time negotiation of linguistics issues helps scaffold the interactive function of text-based discussion for language learning (Wang & Chen, 2011). More so, the social construction of knowledge was developed in synchronous online English language learning nonetheless.

The phenomena' comprehensive elaboration occurs in the synchronous text-based discussion, and mere content analysis is not sufficient. Despite providing data's percentage through frequency, the content analysis does not provide social knowledge construction in students' overall behavioral patterns (Ajibade et al., 2017). It does not disclose the depth of knowledge construction and the diversity of discourses in the discussion (Hou & Wu, 2011). Hence, a deeper examination of the social construction of knowledge is required to unearthing the topics that remain under-study in foreign language learning.

All in all, this study's results suggest the importance of text-based English language learning in an online platform. E-language learning is beneficial for English language learning (Perveen, 2016b). Hence, it is the instructor's responsibility to be qualified to arrange better online English language learning instruction without underrating the importance of feedback to replace the instructor's physical presence. It is also to foster students to meet the requirement to be capable enough to maximize online English language learning during the pandemic and their future studies.

CONCLUSION

This present study has shown that the social construction of knowledge occurs in the synchronous English language text-based discussion, as portrayed from the discourses found in students' discussion. Although the most frequent postings were categorized in the initial Phase I, this study suggests that engaging students in a virtual environment for social interaction using English as a foreign language develops students' knowledge construction. To summarize, the presence of the social construction of knowledge marks the existence of the cognitive process during the synchronous text-based discussion during English language learning. In conclusion, this study suggests that the social construction of knowledge exists in synchronous English language text-based discussion. Thus, this study encourages the sustainability of synchronous text-based learning in fully online or blended learning even after the pandemic is over. Further analysis pertains to analyze the social construction of

knowledge in English language learning by incorporating the students' point of view may display a more holistic picture and pave the way most advantageous online scenarios for igniting students' social construction of knowledge for meaningful learning.

REFERENCES

- Abazi-Bexheti, L., Kadriu, A., Apostolova-Trpkovska, M., Jajaga, E., & Abazi-Alili, H. (2018). LMS solution: Evidence of Google Classroom usage in higher education. *Business Systems Research Journal*, 9(1), 31–43. <https://doi.org/10.2478/bsrj-2018-0003>
- Ajibade, S. S. M., Shamsuddin, S. M., & Bahiah, N. (2017). Analysis of social network collaborative learning on knowledge construction and social interaction of students. In *ASIA International Multidisciplinary Conference (AIMC-2017)*. Malaysia.
- Atmojo, A. E. P., & Nugroho, A. (2020). EFL classes must go online! Teaching activities and challenges during covid-19 pandemic in Indonesia. *Register Journal*, 13(1), 49–76. <https://doi.org/10.18326/rgt.v13i1.49-76>
- Bondarenko, O., V., Mantulenko, S., V., & Pikilnyak, A., V. (2018). *Google classroom as a tool of support of blended learning for geography students* (Unpublished thesis). Kryvyi Rih State Pedagogical University, Ukraine. Retrieved from <https://arXiv preprint arXiv:1902.00775>
- Bower, M., Dalgarno, B., Kennedy, G. E., Lee, M. J. W., & Kenney, J. (2015). Design and implementation factors in blended synchronous learning environments: outcomes from a cross-case analysis. *Computers & Education*, 86, 1–17. <https://doi.org/10.1016/j.compedu.2015.03.006>
- Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), 1-4. <https://doi.org/10.5281/zenodo.3778083>
- Brown, B., Schroeder, M., & Eaton, S. E. (2016). Designing synchronous online interactions and Discussion. In *Proceeding of the IDEAS: Designing for Innovation (pp. 51-60)*. Canada: University of Calgary. Retrieved from <https://files.eric.ed.gov/fulltext/ED573166.pdf>
- Cahyono, B. Y., & Mutiaraningrum, I. (2015). Indonesian EFL teachers' familiarity with and opinion on the internet-based teaching of writing. *English Language Teaching*, 9(1), 199-208. <https://doi.org/10.5539/elt.v9n1p199>
- Clark, C., Strudler, N., & Grove, K. (2015). Comparing asynchronous and synchronous video vs. text based discussions in an online teacher

- education course. *Online Learning*, 19(3), 48-69.
<http://dx.doi.org/10.24059/olj.v19i3.668>
- Emanuel, R., Bell, R., Cotton, C., Craig, J., Drummond, D., Gibson, S., Harris, A., Harris, M., Hatcher-Vance, C., Jones, S., Lewis, J., Longmire, T., Nash, B., Ryans, T., Tyre, E., Walters, D., & Williams, A. (2015). The truth about smartphone addiction. *College Student Journal*, 49(2), 291-299. Retrieved from <https://psycnet.apa.org/record/2015-40646-014>
- France-Press, A. (2020). More than 1 billion told to stay home worldwide over virus. *The New York Times*. Retrieved from <https://www.thejakartapost.com/news/2020/03/23/more-than-1-billion-told-to-stay-home-worldwide-over-virus.html>
- Gjelaj, M., Buza, K., Shatri, K., & Zabeli, N. (2020). Digital technologies in early childhood: Attitudes and practices of parents and teachers in kosovo. *International Journal of Instruction*, 13(1), 165–184.
<https://doi.org/10.29333/iji.2020.13111a>
- Gomez, D. R. (2018). *Analyzing social construction of knowledge and social networks in online discussion forums in Spanish* (Unpublished thesis). University of New Mexico, Mexico. Retrieved from https://digitalrepository.unm.edu/oils_etds/52
- Gunawardena, C. N., Lowe, C. A., & Anderson, T. (1997). Analysis of a global online debate and the development of an interaction analysis model for examining social construction of knowledge in computer conferencing. *Journal of Educational Computing Research*, 17(4), 397–431.
<https://doi.org/10.2190/7mqv-x9uj-c7q3-nrag>
- Gunawardena, C. N., Flor, N. V., Gómez, D., & Sánchez, D. (2016). Analyzing social construction of knowledge online by employing interaction analysis, learning analytics, and social network analysis. *Quarterly Review of Distance Education*, 17(3), 35-47. <https://doi.org/10.1007/s40299-016-0317-y>
- Heggart, K. R., & Yoo, J. (2018). Getting the most from google classroom: A pedagogical framework for tertiary educators. *Australian Journal of Teacher Education*, 43(3), 140-153.
<https://dx.doi.org/10.14221/1jte.2018v43n3.9>
- Hou, H.-T., & Wu, S.-Y. (2011). Analyzing the social knowledge construction behavioral patterns of an online synchronous collaborative discussion instructional activity using an instant messaging tool: A case study. *Computers & Education*, 57(2), 1459–1468.
<https://doi.org/10.1016/j.compedu.2011.02.012>
- Iftakhar, S. (2016). Google classroom: What works and how. *Journal of Education*

- and Social Sciences*, 3(1), 12–18. Retrieved from http://jesoc.com/wp-content/uploads/2016/03/KC3_35.pdf
- Kanuka, H., & Anderson, T. (2007). Online social interchange, discord, and knowledge construction. *Journal of Distance Education*, 13(1), 1-8. Retrieved from <http://www.ijede.ca/index.php/jde/article/download/137/412?inline=1>
- Khalil, Z. M. (2018). EFL students' perceptions towards using Google Docs and Google Classroom as online collaborative tools in learning grammar. *Applied Linguistics Research Journal*, 2(2), 33-48. <https://doi.org/10.14744/alrj.2018.47955>
- Lee, J. S., & Dressman, M. (2018). When IDLE hands make an English workshop: Informal digital learning of English and language proficiency. *Tesol Quarterly*, 52(2), 435–445. <https://doi.org/10.1002/tesq.422>
- Murphy, E., Rodríguez-Manzanares, M. A., & Barbour, M. (2011). Asynchronous and synchronous online teaching: Perspectives of Canadian high school distance education teachers: Asynchronous and synchronous. *British Journal of Educational Technology*, 42(4), 583–591. <https://doi.org/10.1111/j.1467-8535.2010.01112.x>
- Mutiaraningrum, I., & Cahyono, B. Y. (2015). Online debate in argumentative writing course: potentials and challenges. *International Journal of Language and Linguistics*, 2(4), 43-54. Retrieved from http://ijllnet.com/journals/Vol_2_No_4_October_2015/6.pdf
- Nor, N. F. M., Razak, N. A., & Aziz, J. (2010b). E-learning: Analysis of online discussion forums in promoting knowledge construction through collaborative learning. *WSEAS Transactions on Communications*, 9(1), 53-62.
- Nugroho, A., Zamzami, M. R. A., & Ukhrowiyah, N. F. (2020). Language input, learning environment, and motivation of a successful EFL learner. *Journal on English as a Foreign Language*, 10(1), 46–69. <https://doi.org/10.23971/jefl.v10i1.1511>
- Osipov, I. V., & Prasikova, A. Y. (2015). Real time collaborative platform for learning and teaching foreign languages. *Human Computer Interaction*, 15(1), 7-13. Retrieved from <https://arxiv.org/abs/1501.04155>
- Perveen, A. (2016). Synchronous and asynchronous e-language learning: A case study of virtual university of Pakistan. *Open Praxis*, 8(1), 21-39. Retrieved from <https://files.eric.ed.gov/fulltext/EJ1093436.pdf>
- Raes, A., Detienne, L., Windey, I., & Depaepe, F. (2019). A systematic literature review on synchronous hybrid learning: Gaps identified. *Learning*

- Environments Research*, 23, 269-290. <https://doi.org/10.1007/s10984-019-09303-z>
- Said, N. E. M., Yunus, M., Doring, L. K., Asmi, A., Aqilah, F., & Li, L. K. S. (2013). Blogging to enhance writing skills: A survey of students' perception and attitude. *Asian Social Science*, 9(16), 95–101. <https://doi.org/10.5539/ass.v9n16p95>
- Salam, U. (2012.). The students' participation in WebCT: An activity theory perspective on online collaboration of knowledge construction. In Kelsey, S., & Amant, K. (Eds.), *Computer-Mediated Communication: Issues and Approaches in Education* (pp. 16). IGI Global. Retrieved from <https://www.igi-global.com/chapter/students-participation-webct/60025>
- Saritas, T. (2008). The construction of knowledge through social interaction via computer-mediated communication. *Quarterly Review of Distance Education*, 9(1), 35-49. Retrieved from <https://eric.ed.gov/?id=EJ875087>
- Shaharane, I. N. M., Jamil, J. M., & Rodzi, S. S. M. (2016). The application of Google classroom as a tool for teaching and learning. *Journal of Telecommunication. Electronic and Computer Engineering*, 8(10), 5-8. Retrieved from <https://journal.utem.edu.my/index.php/jtec/article/view/1357>
- Spencer, D. H., & Hiltz, S. R. (2003). A field study of use of synchronous chat in online courses. In *36th Annual Hawaii International Conference on System Sciences*. <https://doi.org/10.1109/HICSS.2003.1173742>
- UNESCO. (2020). *Distance learning solutions*. Retrieved from <https://en.unesco.org/covid19/educationresponse/solutions>
- Wang, Y., & Chen, N.-S. (2011). Online synchronous language learning: SLMS over the internet. *Journal of Online Education*, 3(3), 8-15. Retrieved from <https://core.ac.uk/download/pdf/51073459.pdf>
- WHO Director-General's opening remarks at the media briefing on COVID-19—11 March 2020. (2020). Retrieved from <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
- Yamagata-lynch, L. C. (2020). View of blending online asynchronous and synchronous learning, *The International Review of Research in Open and Distributed Learning*. 15(2). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1778/2837>
- Young, T. P., Bailey, C. J., Guptill, M., Thorp, A. W., & Thomas, T. L. (2014). The flipped classroom: A modality for mixed asynchronous and synchronous learning in a residency program. *Western Journal of Emergency Medicine*, 15(7), 938-944. <https://doi.org/10.5811/westjem.2014.10.23515>

Zhu, C. (2012). Student satisfaction, performance, and knowledge construction in online collaborative learning. *Educational Technology & Society*, 15(1), 127–136. Retrieved from https://www.jstor.org/stable/jeductechsoci.15.1.127?seq=1#metadata_info_tab_contents

Authors' Brief CV

Ira Mutiaraningrum is a lecturer at State Polytechnic of Sambas, West Kalimantan, Indonesia. Her research is situated in ELT and ESP technology, especially mobile learning and its transformation to the current trends of English teaching and learning.

Arif Nugroho is an English lecturer at the State Islamic Institute of Surakarta, Indonesia. He earned his master's degree in English language teaching from Universitas Negeri Malang in 2017. His research interest areas include teaching English for Specific Purposes, Digital Learning of English, and Linguistics in English language teaching.