LLT Journal, e-ISSN 2579-9533, p-ISSN 1410-7201, Vol. 27, No. 1, April 2024, pp. 174-197

LLT Journal: A Journal on Language and Language Teaching
http://e-journal.usd.ac.id/index.php/LLT
Sanata Dharma University, Yogyakarta, Indonesia

A DEEP DIVE INTO GRADUATE STUDENTS' SELF-EFFICACY AND ACADEMIC INTERACTION IN ONLINE LEARNING

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https://doi.org/10.24071/llt.v27i1.5548
received 16 December 2022; accepted 5 April 2024

Abstract
Research into self-efficacy has received widespread recognition in the literature. However, little study has been done on students' self-efficacy in asynchronous online academic interactions. This study examined graduate students' self-efficacy in regulating their online interaction strategies. Grounded in the Asynchronous Online Self-Regulated Learning Inventory (AOSRLI), the study employed a virtual case study using an online self-assessment survey and focus group interview. Seventy-eight English education master students from two universities were approached and agreed to participate in the study. As a result, the study highlighted several critical findings: 1) lack of confidence in online interaction with the professors, 2) closed-mindedness to criticism, 3) self-fanaticism, and 4) the need for self-dialoguing and self-navigation. The students were commonly inactive, indifferent, and demotivated in their asynchronous online interactions, thus creating ineffective learning communication among them. Self-regulated learning cannot grow alone and rely on the students' in-person learning initiatives, whereas they need pedagogical imperatives to scaffold their questioning, responding, and critiquing skills. The study suggests improving teachers' scaffolding strategies and building students' online community of practice to promote their activeness, engagement, and participation. The implication of this study calls for the inclusion of asynchronous virtual interaction skills into online learning pedagogy and CALL teacher education.

Keywords: academic interaction, asynchronous learning, high context culture, self-efficacy, self-regulated learning

Introduction
Synchronous and asynchronous online language learning has become options for language teachers in delivering online courses at all levels of education in Indonesia, especially during the pandemic. Emergency remote learning has impacted learners' autonomy in self-regulated learning (henceforth

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SRL), thus making students feel disconnected, unfocused, discordant, and alienated in their virtual learning interaction (Hensley et al., 2022). For example, most students have limited access to the internet, compatible devices, and online learning technologies. In other words, they have limited access to online materials, resources, and online learning strategies (Andriani, 2022; Cahyadi et al., 2022; Hermanto et al., 2022; Juhaidi et al., 2022).

Online academic interaction skills are pivotal for graduate students in building effective communication with professors, supervisors, and other students. In asynchronous online learning (e.g., WhatsApp, Facebook, Telegram, LMS, etc.), learners must have high self-efficacy and self-awareness of effective online participation, thus creating meaning-making interaction. In other words, the higher the students' self-efficacy, the more effective they can improve their learning autonomy and online self-regulated learning. One of the factors hampering the development of students' SRL is their inactiveness in online interactions (e.g., reluctance to share information, ignorant attitude toward learning targets, laziness in giving responses, etc.). Therefore, this study aims to explore graduate students' academic interactions in the asynchronous online learning environment.

Several studies have investigated SRL in asynchronous learning contexts (Kim et al., 2018, 2021; Yoon et al., 2021). However, these studies mainly focused on SRL strategies in online learning, thus giving little attention to the relationship between self-efficacy and academic interaction in asynchronous online environments and online interactional competencies for effective learning communication. The relationship between self-efficacy and online learning engagement has been found to be mediated by various factors, such as academic emotions and regulatory focus (Deng et al., 2021). In other words, the higher the students' self-efficacy, the higher their online engagement and participation, thus lowering their procrastination during online learning (Syapira et al., 2022) and influencing their academic outcomes (Wardani et al., 2023; Yokoyama, 2019). With this in mind, it is important for teachers to have online interactional competencies to carry out meaningful online learning (Moorhouse et al., 2021). Additionally, students must also acquire those competencies as active self-regulated learners that link to their cognitive presence, prominence, and academic achievement (Galikyan & Admiraal, 2019).

Based on the existing research on self-regulated learning (SRL) and its relationship with online engagement and academic outcomes, it becomes evident that understanding the dynamics of teacher-student and student-student interactions in asynchronous online environments is crucial. To delve deeper into this area, the researchers formulated specific inquiries aimed at investigating the nuances of these interactions and their connection to students' self-efficacy and learning outcomes as follows:

1. How is students' self-efficacy reflected in the interaction between students and professors in the asynchronous learning environment?
2. How does students' self-efficacy contribute to the asynchronous online community?
3. How do students interact with one another in the asynchronous online learning environment?

4. What strategies are employed by students in interacting and responding with professors, as reflected in the asynchronous online learning environment?

This study contributes to the body of knowledge by delving into the nuanced dynamics of graduate students' academic interactions within asynchronous online learning environments. By exploring students' self-efficacy and its impact on their online academic interactions, the study offers valuable insights for fostering effective communication and self-regulated learning in virtual educational settings.

Literature Review

Conceptualizing asynchronous online interaction

The online interaction paradigm has been widely acknowledged in the literature, either through synchronous or asynchronous exchanges. However, this literature review focuses on the students' interactional competencies in the asynchronous online learning environment. Moore (1989) introduced three types of interaction: 1) learner-content interaction, 2) learner-teacher interaction, and 3) learner-learner interaction. More than a decade later, Jung (2001) refined the framework for web-based interaction into three: 1) learner-tutor interaction, 2) collaborative peer interaction and 3) interpersonal interaction with teachers and students. In other words, defining interaction is context-based, depending on where the learning is enacted. Today, online learning interaction is mediated through social media platforms (e.g., WhatsApp, Facebook, Instagram, Telegram, etc.), learning management systems (e.g., Moodle, Google Classroom, etc.), and online video conferencing platforms (e.g., Zoom, Google Meet, WebEx, Skype, etc.). Even though students play a dominant role as self-regulated learners in the asynchronous learning environment, they face difficulties interacting with the teacher/professor (e.g., they are unable to communicate with the teacher, ask and respond to questions instantly, etc.) (Lin & Gao, 2020). As a result, most students feel socially isolated from others and unable to perform effective online communication (Lin & Gao, 2020; Öztürk, 2021).

It becomes evident that while online interaction paradigms vary across platforms and contexts, students often encounter challenges in effectively engaging with teachers in asynchronous learning environments. Despite these difficulties, social media platforms (e.g., WhatsApp, Facebook, Instagram, Telegram, etc.) have emerged as valuable tools for facilitating outside-class communication and fostering interpersonal connections among learners. For example, using Facebook groups beyond the face-to-face classroom has assisted learners in building interpersonal connections within the asynchronous learning environment (Akcaoglu & Lee, 2018). Another option for asynchronous online learning is non-verbal interaction through WhatsApp-mediated communication (Tragant et al., 2020). In other words, asynchronous online interaction is a type of non-verbal learning communication or text-based online interaction (Tawil, 2019). Non-verbal learning communication involves communicating without a voice, thus mediating interaction through texts (Maloney et al., 2020). Asynchronous learning interactions (e.g., Facebook, WhatsApp, and Telegram groups) are text-based online communication where teachers, professors, and students engage in

online social learning interactions through their social media platforms. With that in mind, accelerating the learners' group autonomy and interaction can foster online collaborative inquiry that helps teachers and students establish a learning community (Zhong, 2021). Students can emotionally, cognitively, and collectively support each other.

Self-efficacy in asynchronous online learning interaction

Self-efficacy, a notion coined by psychologist Albert Bandura, refers to an individual's belief in their ability to carry out the behaviors required to achieve specified performance goals (Bandura, 1997). This concept has evolved and is now extensively used in various fields, including computer science, linguistics, and social science. To put it simply, it is a person's confidence in his capacity to engage in a particular activity, including computer science or instructional technology. Therefore, teachers and students must have Computer Self-Efficacy (CSE) to carry out meaningful online learning interactions. Its definition has changed over time due to rapid advancements in information technology. For example, Gupta and Bostrom (2019) redefined the constructs that make up CSE based on the specificity of the information technology and types of tasks. Changes in learning technology prompt scholars and practitioners worldwide to reconsider the role of self-efficacy in instructional technology settings (Hodges, 2018). Meanwhile, the global pandemic has changed how teachers teach and interact with their students online. Specifically, this has impacted teacher-student and student-student interactions, as they have had to shift from in-person to text-based online interactions.

Although research on self-efficacy has evolved over time and has been widely acknowledged in the literature (Bandura, 1997; Gupta & Bostrom, 2019; Hodges, 2008; Yeşilyurt et al., 2016), self-efficacy in asynchronous online learning interactions should also be well-acknowledged. For example, there is a need to build awareness of student-teacher WhatsApp politeness strategies (Mulyono et al., 2019). In the Indonesian context, students tend to be impolite when writing texts to their teachers or professors (Halil et al., 2021; Permana et al., 2021; Pratiwi & Anindyarini, 2021). These studies illustrate the relevance of self-efficacy in online text-based communication in developing successful learning communication between lecturers and students.

Furthermore, students must also have social self-efficacy in building effective communication within the asynchronous online community. Hrastinski (2009) theorizes online learning as online participation, where all students engaged in online education must actively participate in online learning activities. Student-student interaction in WhatsApp and Facebook-mediated communication is essential in supporting students' online collaborative learning. They must have a sense of belonging in online learning communities to help them stay connected to other students (Peacock & Cowan, 2019). They need social connectedness to encourage online participation, thus promoting the quality of online learning interaction (Diep et al., 2019). To put it simply, teachers, lecturers, academic staff, and students must foster this concept to build effective online interactions. The sense of connectedness in the online community is to maintain social presence in virtual language learning communities (Lomicka, 2020).

Writing, responding, and reflection strategies in online interaction

Writing, responding, and reflection strategies in asynchronous online interactions are associated with students' attitudes in communicating with teachers/professors through texts. Andujar and Salaberri-Ramiro (2019) have examined factors influencing online interaction through the chat-based communication platform. Typing/retyping messages is one of the many factors evaluated in the study. However, the study compared the total number of mobile and computer chat messages, but it does not include writing strategies in text-based communication. Yuliawati et al.(2020) have scrutinized the characteristics of text-based communication via WhatsApp in the Indonesian context. Additionally, writing strategies are essential for students to build online text-based interactions in a multicultural context. They need to communicate effectively in various social and cultural contexts while enrolled in an online course. For instance, they should communicate politely, wisely, and respectfully using text (see Mulyono et al., 2019).

In SRL, reluctance to react or respond to text messages in asynchronous learning is also a significant problem. Gurjar (2020) asserted that students tend to be overwhelmed and reluctant when engaged in networked learning. They need guidance on interacting online productively, thus avoiding ineffective communication in student-driven discussions (Delahunty, 2018). Understanding student-driven discussions in an asynchronous learning context might be helpful for language teachers. Ing et al. (2020) classified asynchronous online learners' interactions into three categories: 1) proactive, 2) progressive, and 3) partisan. They found that students in the proactive cohorts made the most significant quantity of comments, posts, and responses. Meanwhile, students in partisan cohorts were likely to depend on others and were less active in initiating conversation and replying to others' comments. Although this finding is limited to a specific demographic, it has similarities with the Indonesian context, where students seemed to be reluctant to participate and engage in synchronous communication.

Furthermore, students' reluctance can be anticipated through a self-reflection strategy that encourages learners to be more independent, active, and autonomous in asynchronous learning. Yan (2020) defines it as self-directed feedback-seeking behavior in which individuals gather information about their achievements from a myriad of perspectives, which may be internal or external. They can learn from others' postings and comments by critically reviewing and analyzing the information. However, self-reflection in online academic interaction should be clearly defined. In the online learning encounter, for example, teachers play a crucial role in fostering reflective and critical thinking through online interaction (Cortázar et al., 2021; Tathahira, 2020). Reflective thinking is a cornerstone of critical thinking, essential for challenging the status quo and promoting intellectual growth (Anthonysamy, 2021). Students who do not participate in this kind of thinking may not be able to alter the status quo. Besides that, feedback dialogue in online interaction can be seen from three dimensions: cognitive, social-affective, and structural (Ajjawi & Boud, 2018). In other words, students can engage in discussions with other students and use the information to improve their metacognitive skills. They can also use others' postings to comprehend certain information.

All in all, the literature review explores the evolving landscape of asynchronous online interaction, emphasizing the pivotal role of social media and learning management systems in student self-regulated learning. It underscores challenges such as social isolation and communication difficulties, highlighting students' predominant role as self-regulated learners. The relevance of self-efficacy in the Indonesian context is discussed, emphasizing the need for politeness awareness. The importance of social self-efficacy and a sense of belonging in fostering collaborative learning is emphasized. The review also delves into writing, responding, and reflection strategies in asynchronous interaction, addressing the complexities of effective communication in diverse cultural contexts. These insights inform the study's focus on self-efficacy's impact on student-teacher communication, students' contribution to the online community, student-student interaction, and the role of reflection in asynchronous online learning.

Method

Research design

The current study was conducted in two state universities in Indonesia, where asynchronous online language learning was enacted. The students were from graduate schools of English language education, attending their courses online asynchronously. The study used the Asynchronous Online Self-Regulated Learning Inventory (AOSRLI) (Cho & Jonassen, 2009) as its foundation, and employed a virtual case study using an online self-assessment survey and focus group interview (FGI). There are two main reasons for using this method: 1) the research involved two public universities in Indonesia that are geographically distant from each other, and, 2) the study focused on asynchronous learning interaction that took place in a virtual environment. The self-assessment survey aimed to capture the students' reflective practices of online text-based interaction during asynchronous online learning. Meanwhile, the FGI facilitated online discussions with the students' cohorts from the two universities, with the goal of understanding their self-efficacy and strategies for asynchronous online text-based interaction. The researchers developed a set of questions for the FGI to guide the interview. In the beginning of the FGI, the researchers provided a brief review of the survey results to initiate the discussion. According to Rabiee (2004), focus group participants are able to express their thoughts and emotions on various topics and reveal differences in viewpoints among different groups.

Participants

A total of 78 graduate students, consisting of 52 females and 26 males, from two state universities in Indonesia were purposively recruited for the study. They all agreed and consented to participate by clicking "yes, I agree" on the consent agreement (available on the survey form). The selection of these institutions was based on various factors, including similarities in academic settings, cultural sensitivity, and context-specific learning environments. All graduate students in the English language education programs engaged in asynchronous online learning interactions. The participants were partially recruited from the two learning settings in south and north Sulawesi. The researchers approached the professors from both universities to mediate access to their students. These

professors served as mediators between the researchers and the students, facilitating dialogue and collaboration for data collection.

Table 1. The characteristics of participants

Variable	Classification	N (Frequency %)
Gender	Male	26 (33.3%)
	Female	52 (66.7%)
Age	20-25	44 (56.4%)
	26-30	22 (28.2%)
	>30	12 (15.4%)
Educational background	In-service teachers	27 (34.6%)
	Fresh graduate	45 (57.7%)
	Professionals	6 (7.7%)

Data collection

The study used two instruments: 1) an online self-assessment survey and 2) a focus group interview (FGI). Firstly, the participants were invited to complete the online survey at https://forms.gle/icpEadjsqmRKzTpj7. Adapted from (Cho & Jonassen, 2009), the survey consists of eight sections: 1) biographical information, 2) self-efficacy for interactions with professor/supervisor, 3) self-efficacy for contributing to the online community, 4) enjoyment of human interactions, 5) concern for interactions with other students, 6) writing strategies, 7) responding strategies, and 8) reflection strategies. Secondly, the researchers developed and simulated the FGI questions through a panel session involving two experts in the field of educational research methodology. Then a Zoom-mediated FGI was organized, involving representatives from the two universities: eight from Makassar and seven from Manado. The researchers approached the FGI participants purposively via WhatsApp private chat, and fifteen students agreed to participate. The FGI was recorded and mediated in both Indonesian and English to allow the participants to express their opinion openly and flexibly.

Data analysis

Firstly, the researchers collected, visualized, analyzed, and reported the data from the online self-assessment survey based on participants' responses to the questionnaire. As the survey generated many tables and figures, the researchers followed de Rycker's (2001) four steps of analyzing tables, graphs, and charts: 1) orientation, 2) generalization, 3) explanation, and 4) exploration. The descriptions of the steps are as follows:

1. Step 1. *Orientation*: the researchers read the tables and figures several times and checked their properties to see if something was missing, such as table titles, headings, labels, legends, displays, and numeric information.
2. Step 2. *Generalization*: this step was the analytical process to interpret the information in the tables and figures as clearly as possible. The analysis focused on reading the patterns and trends of the tables and graphs, and identifying their similarities and differences.
3. Step 3. *Explanation*: the researchers used all generalizations and descriptive statements to explain the information in the tables and graphs.

4. Step 4. *Exploration*: the researchers discussed possible implications, exciting findings, and speculation and linked them to previous studies and relevant theories.

Secondly, the researchers downloaded and analyzed the interview recording from the Zoom repository. The interview video generated a lot of data as texts. Therefore, the researchers used thematic analysis to sort out themes, sub-themes, and categories (Braun & Clarke, 2006). The examples of the theme development are illustrated in Table 3.

Tabel 3. Examples of codes categorization

Open coding	Category	Sub-category	Corresponding codes
- Less confident - Slow response - Flexibility - Lazy to write lengthy messages	Challenges in utilizing the platform	- Accessibility - Effectiveness - Procrastination - Flexibility	- Easy to access - access my online courses flexibly wherever I am - give comments and responses quickly
- Inferior - Accessibility - Wait for a long time	Challenges in building online interaction	- Slow response - Wait for a long time	- professors are slow in giving responses - We had to wait for a long time
- Mute - Quiet - Effectiveness - Ignorant - Procrastination	Activeness in online community	- Less confident - Awkward - Inferior - Quiet - Mute	- I feel less confident and awkward - I feel inferior to my own abilities
- Awkward - Criticism	Students' reactions and responses	- Ignorant - Criticism - Lazy to write lengthy messages	- I am ignorant and seldom reply - not all critiques are acceptable

The qualitative software analysis, *Atlas.ti version 9*, was used to perform coding and axial coding. This process went through several stages: 1) get familiar with the data by watching the video several times, 2) coding, 3) axial coding (categories), and 4) writing up.

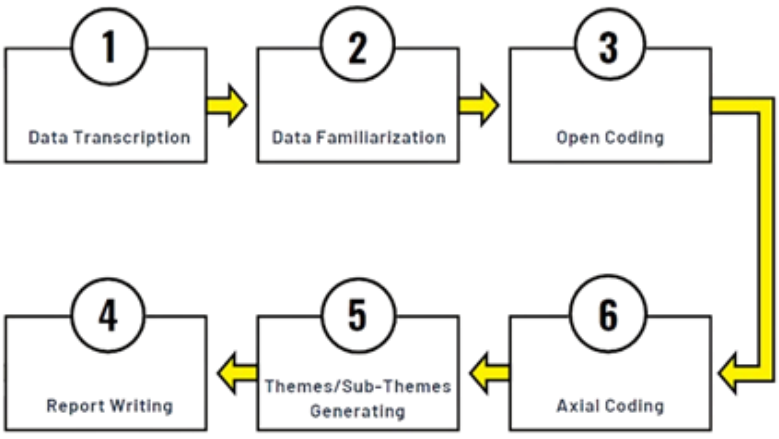


Figure 1. Procedure of thematic analysis (Braun & Clarke, 2006)

Figure 1 illustrates the process of thematic analysis which consists of six consecutive stages. The process involves several key steps as follows:

1. Data Transcription: This initial step involved converting the raw data, including the interview data
2. Data Familiarization: the researchers immersed themselves in the data by reading and re-reading it to gain a thorough understanding of its content.
3. Open Coding: In this phase, the researchers systematically identified and labelled meaningful segments of the data, known as codes. This was done without any preconceived categories, allowing for a flexible and exploratory approach.
4. Axial Coding: Once initial codes were identified, the researchers organized and connected them into broader categories or themes. Axial coding involved making connections between codes, exploring relationships, and identifying underlying concepts or dimensions within the data.
5. Themes/Sub-themes Generating: Based on the connections made during the axial coding, the researchers developed overarching themes or patterns that captured the essence of the data.
6. Writing Report: Finally, the researchers documented and presented their findings in a coherent and meaningful way. This involved writing a report or manuscript that outlined the research process, described the identified themes, and provided illustrative examples from the data.

Findings and Discussion

Findings

This section presents the students' self-efficacy and academic interaction in the asynchronous online learning environment (WhatsApp, Facebook, Google Classroom, and LMS). A total of 57 students (73.1%) preferred to engage in WhatsApp-mediated interaction compared to interacting with Facebook (5.1%), Google Meet (33.3%), and LMS (55.1%) (see Figure 2). Most participants stated that they preferred WhatsApp because it was more adaptable and convenient. At the same time, Facebook, Google Meet, and LMS required login and were less friendly to users with low digital literacy skills.

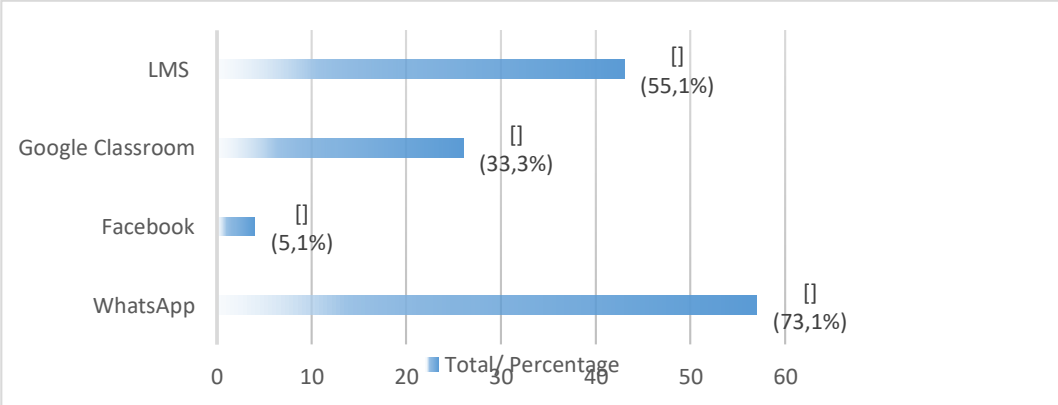


Figure 2. Learners' online interaction preferences across the asynchronous platforms

In the FGI, the researchers asked about the significant challenges in utilizing asynchronous platforms in their online academic interaction. The students' responses were in the following excerpts (all the names are pseudonyms).

> Elda#
> *I will conclude my answer in three critical aspects: accessibility, flexibility, and effectiveness. WhatsApp is easy to access, and it has quick notifications. I can access my online courses flexibly wherever I am. I can also give comments and responses quickly without needing to log in.*

> Selvi#
> *I think my points are the students' online learning behavior relating to procrastination, involvement, and performance in text-based communication activities. Some students, including myself, tend to delay replying to comments and questions. The professors did the same thing, and they took a somewhat long time to respond to students' inquiries. Consequently, the learning progress was slow and sluggish.*

The excerpts highlight the students' views on their interactional preferences and behaviors across asynchronous platforms. Most of the time, they utilized WhatsApp as a flexible, user-friendly, and accessible platform for learning. However, students' procrastination, participation, and performance in asynchronous online learning were also factors hampering them from building effective online text-based interaction in the virtual environment.

RQ 1: Self-efficacy in students' interactions with the professor

One of the essential skills in SRL and online academic interaction is the students' confidence to build effective interactions and communication with the professors. Fourteen students (17.9%) felt reluctant to ask for help from the professors, while only 4 (5.1%) students were utterly confident. This evidence shows that most students tended not to be optimistic in approaching professors for assistance, potentially triggering the emergence of communication gaps between students and professors. Most students also did not have close emotional relationships with professors, so they are not confident in conveying criticism, suggestions, or input on the effectiveness of the course. This is shown by the distribution of data, which demonstrates disparities in students' beliefs and low levels of confidence (11.5%, 10.3%, and 20.5%). A similar tendency is also seen in student attitudes, which tended to be less critical of teachers' faults, mistakes, or inaccuracies in conveying information during the asynchronous online course.

Table 4. Self-efficacy as reflected in the interactions with the professor

No	Interaction with the professor	1	2	3	4	5	6	7
1	Asking for help from the professor whenever it is necessary (e.g., ask for feedback, look for books/ resources)	0 0%	2 2.6%	14 17.9%	12 15.4%	26 33.3%	20 25.6%	4 5.1%

No	Interaction with the professor	1	2	3	4	5	6	7
2	Asking a question to the professor regarding the course, tasks, or project.	0 0%	2 2.6%	5 6.4%	14 17.9%	21 26.9%	29 37.2%	7 9%
3	Discussing learning progress and challenges with the professors and ask them for suggestions or feedback.	0 0%	0 0%	4 5.1%	22 28.2%	23 29.5%	18 23.1%	11 14.1%
4	Sharing honest feelings with the professor about the course.	9 11,5%	8 10.3%	16 20.5%	14 17.9%	13 16.7%	14 17.9%	4 5.1%
5	Asking and clarifying when the professor makes a mistake in conveying information	5 6.4%	9 11.5%	10 12.8%	18 23.1%	16 20.5%	17 21.8%	3 3.8%

Note:1=Not confident at all, 2=little confident, 3=somewhat confident, 4=fairly confidence, 5=much confident, 6=very much confident, and 7=completely confident

In the FGI, the researchers asked the participants about the challenges in building asynchronous online interaction with the professors. Enggar and Cristin gave similar responses echoed by other participants, as shown in the following excerpts.

> Enggar#
> *When I asked a question, I expected to get a quick response from the professor or other classmates. However, I frequently found it unanswered. Many questions were raised, thus causing an overlap in the flow of information. Consequently, past postings tend to be disregarded.*

> Cristin#
> *I think some professors are slow in giving responses to questions, comments, ideas, or suggestions. We had to wait for a long time, which made the chat room freeze.*

A common complaint from students was that professors took too long to respond, which delayed their ability to communicate and learn from one another. This condition results in a backlog of unanswered post queries. Additionally, students were less likely to initiate a discussion room without instruction from the professor. Yet, it created an impression of a passive and uncommunicative learning environment.

RQ 2: Self-efficacy for contributing to the online community

The effectiveness of an asynchronous online class depends on students' engagement in discussions and sharing of information and experiences. Table 5

presents the students' confidence in contributing to the online community. Overall, some students lacked confidence in initiating actions for building active group interactions, thus triggering passive learning communication behavior. In other words, some students were engaged in contributing to online discussions, while others were not. For example, initiating a debate topic seemed daunting for some students, where two students (2,6%) were not confident at all, and twenty-one students (26,9%) were reasonably secure. Between this interval, a total of 34 students (43,5%) were considered less active in contributing to the online community.

Table 5. Self-efficacy for contributing to the online community

No	Contribution to the online community	1	2	3	4	5	6	7
1	Contributing to the development of an online community	1 1.3%	3 3.8%	10 12.8%	20 25.6%	15 19.2%	20 25.6%	9 11.5%
2	Initiating a topic for discussion (e.g., post in LMS, WhatsApp Group, Facebook Group, etc.)	2 2.6%	3 3.8%	8 10.3%	21 26.9%	15 19.2%	19 24.4%	10 12.8%
3	Posting a relevant question	0 0%	5 6.4%	9 11.5%	11 14.1%	24 30.8%	18 23.1%	11 14.1%
4	Giving responses to questions, opinions, or ideas posted in online community (e.g., WhatsApp Group, Facebook Group, or Google Classroom)	2 2.6%	3 3.8%	4 5.1%	14 17.9%	22 28.2%	17 21.8%	16 20.5%

Note:1=Not confident at all, 2=little confident, 3=somewhat confident, 4=fairly confidence, 5=much confident, 6=very much confident, and 7=completely confident

In the FGI, the researchers asked about their activeness in the online community, including their hesitation to post and respond to questions, as well as their reasons or justifications regarding the phenomenon. The following excerpts show their responses.

> Egy#
> *I feel less confident and awkward when asking or responding to other friends' questions because I think that other friends can respond better. In other words, I feel inferior to my own abilities.*

> Aisyah#
> *I am simply trying to act like a student and follow the professor's directions. I also noted that the dialogue was quiet and controlled by a few individuals. Consequently, other students will remain mute rather than seem foolish in front of their peers.*

Some other similar responses confirm that they lacked the initiative to participate in the discussions. They tended to feel inferior and less confident to

engage in every conversation, which allowed active students dominate the forum, while the weaker students stayed silent and disengaged.

RQ 2: Enjoyment of human interaction

Despite the limitations of asynchronous online learning interactions, student responses showed that they had no issues with text-based communication. However, some students were less willing to share experiences, read and respond to comments, and share best practices or obstacles encountered in learning. This evidence revealed practical gaps in their asynchronous interactions. For example, they enjoyed reading other students' responses to their posts but found it less appealing to contribute comments to other students' postings. Reluctance to reply to comments was an example of closed-mindedness and selfish behavior in learning interactions.

Table 6. Enjoyment of human interaction

No	Enjoyment of human interaction	1	2	3	4	5	6	7
1	I enjoy interacting online with other students either via WhatsApp, LMS, Google Classroom, or Facebook.	0 0%	1 1.3%	1 1.3%	15 19.2%	16 20.5%	26 33.3%	19 24.4%
2	I enjoy reading other students' comments about my postings (e.g., Facebook group posts, WhatsApp Group posts, Google Classroom Comments, etc.)	0 0%	0 0%	2 2.6%	12 15.4%	18 23.1%	27 34.6%	19 24.4%
3	I enjoy sharing my knowledge in my online interactions	0 0%	3 3.8%	1 1.3%	14 17.9%	23 29.5%	20 25.6%	17 21.8%
4	I enjoy providing help to other students via my online interactions (e.g., sharing valuable resources, links, videos, software, images, etc.)	0 0%	0 0%	2 2.6%	11 14.1%	24 30.8%	27 34.6%	14 17.9%
5	I enjoy replying to other students' postings about the course (e.g., WhatsApp, Facebook, Instagram, LMS, etc.)	0 0%	0 0%	4 5.1%	22 28.2%	14 17.9%	24 30.8%	14 17.9%
6	I enjoy sharing relevant personal experiences with other students (e.g., best practices, learning difficulties, current trends in the field, etc.)	0 0%	3 3.8%	3 3.8%	14 17.9%	25 32.1%	21 26.9%	12 15.4%
7	I enjoy seeing discussions develop due to my posting (e.g., FB posts, WhatsApp comments, Google Classroom comments, etc.)	0 0%	1 1.3%	3 3.8%	15 19.2%	25 32.1%	21 26.9%	13 16.7%

No	Enjoyment of human interaction	1	2	3	4	5	6	7
8	I enjoy contacting other students personally (not in the group) whenever I need to ask, discuss, clarify, or collaborate with them	0 0%	1 1.3%	4 5.1%	5 6.4%	17 21.8%	35 44.9%	16 20.5%

Note:1=completely untrue, 2=mostly untrue, 3=slightly untrue, 4=neutral, 5=slightly true, 6=mostly true, and 7=completely true

RQ 3: Concerns about interactions with other students

This section provides information about how students interacted asynchronously online. It focuses on their text-based interaction with other students. Table 6 shows that most students were concerned about how other students reacted to their posts and comments. The degree of close-mindedness was reflected in the data, where fifty-two students (66.6%) were concerned about being misinterpreted by other students. There was a tendency for students to not be open-minded in opening a room for discussion, where they were not open to refutation and criticism. They often believed that their point of view was the only valid one, which caused some students to feel insulted or humiliated when their point of view was refuted or ignored.

Table 7. Concern for interactions with other students

No	Concern for interactions with other students	1	2	3	4	5	6	7
1	I am concerned about being misinterpreted by other students in the online learning community (e.g., WA, FB, GC, and LMS)	3 3.8%	2 2.6%	3 3.8%	18 23.1%	16 20.5%	21 26.9%	15 19.2%
2	I am concerned that other students might disregard my posting (e.g., very few comments, questions not replied, etc.)	3 3.8%	5 6.4%	5 6.4%	13 16.7%	17 21.8%	23 29.5%	12 15.4%
3	I am concerned about being negatively judged by other students in the online learning community.	1 1.3%	9 11.5%	9 11.5%	13 16.7%	20 25.6%	15 19.2%	11 14.1%
4	I am concerned about hurting others' feelings in my online interactions	3 3.8%	7 9%	4 5.1%	10 12.8%	10 12.8%	22 28.2%	22 28.2%

Note:1=completely untrue, 2=mostly untrue, 3=slightly untrue, 4=neutral, 5=slightly true, 6=mostly true, and 7=completely true

In the FGI, the researchers asked about the students' reactions and responses to other students' criticisms, objections, and refutations, such as disagreements on

their opinions and contradictions to their beliefs. Here are some excerpts that have been translated into English.

> Reski#
> *I think (mumbling)…I am ignorant and seldom reply (delay), mainly when the criticism is thoughtless and has insufficient scientific foundation.*
>
> Mia#
> *Criticism is ok for me (delay), but not all critiques are acceptable. However, I try to avoid any arguments or debates with my friends since I am too lazy to write lengthy messages or record any type of audio. The most crucial part is that I've already stated my viewpoint, and occasionally I will simply sit back and see the conversation grow.*

These interview snippets indicate that they were less responsive to criticism and objections regarding their posts. They were more likely to be silent than to encourage conducive learning behavior, such as creating a mutual discussion and building a critical learning culture. However, some participants also echoed and confirmed their agreement with the statements. Individualism and self-fanaticism were two distinctive elements of belief that emerge from their interaction pattern.

RQ 4: Interaction strategies

This section provides information about the three types of interaction strategies: 1) writing, 2) responding, and 3) reflection strategies. Overall, the student's writing and responding strategies show a decent trend, while they lacked awareness of their reflection strategy to build mutual learning interaction with peers. Individualism and self-fanatism also seemed to be significant challenges for collective learning and reflection. They rarely used other students' posts to cross-check and evaluate their comprehension of a particular topic. To put it more simply, we highlight two essential aspects: students' self-dialoguing and self-navigation in the asynchronous online learning interactions (see discussion section).

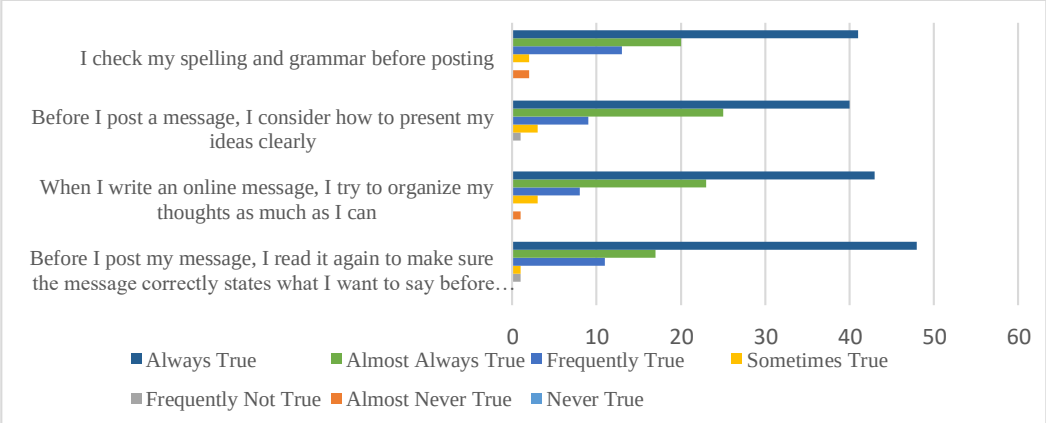


Figure 3. Writing strategies

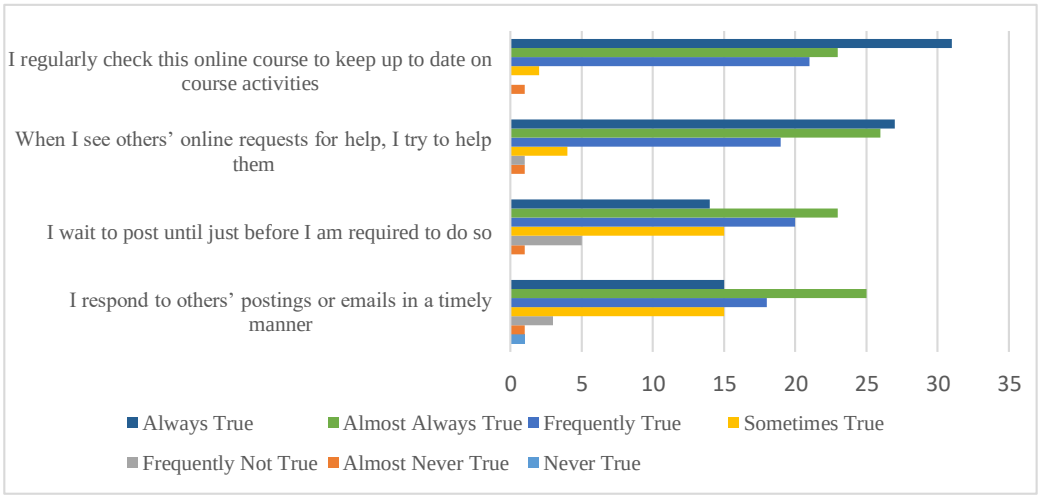


Figure 4. Responding strategies

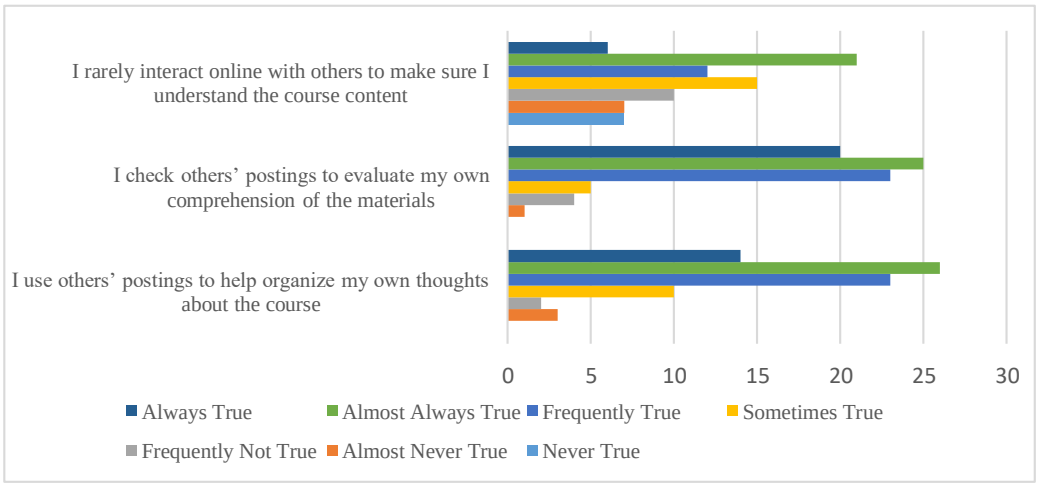


Figure 5. Reflection strategies

Discussion

This section discusses several issues that emerged in the findings, namely students' less-critical behavior, close-mindedness (individualism), self-fanaticism, self-dialoguing, and self-navigation in their online text-based interaction. These findings are discussed through two theoretical lenses, namely self-efficacy (Bandura, 1997) and self-determination (Ryan & Deci, 2020).

The study found that the students were less confident in conveying critiques, suggestions, and inaccuracies to the professors, thus triggering inactive interaction and creating gaps in online text-based communication. According to Larson and Lovelace (2013), the use of classroom questions to engage and elicit students' critical thinking has the potential to be an effective interactional strategy. Likewise, Ma'rufah (2021) stressed four imperatives to encourage students' active participation and questioning strategies: (1) setting opportunities for students to ask questions; (2) providing scaffolding, such as objects or topics of conversation; (3) creating an atmosphere in the classroom where students feel comfortable asking questions; and (4) providing clear instructions. The lecturers must be the learning catalysts, activators, motivators, facilitators, and accelerators in the

asynchronous learning environment. In other words, they must have self-efficacy to create an SRL environment (Gan et al., 2020). Therefore, digital literacy, online self-efficacy, and SRL are essential predictors of students' achievement and satisfaction in the virtual learning setting (Puzziferro, 2008; Sharma & Nasa, 2018). At this point, SRL entails students' self-questioning skills: however, they cannot grow alone as they need teachers' scaffolding strategies (van de Pol et al., 2010; Zhang & Quintana, 2012). SRL cannot immediately rely on students' self-efficacy and self-initiatives, whereas the students need prompts and guidance to scaffold the students' questioning and critiquing.

On the other hand, close-mindedness, individualism, and self-fanaticism were also influential factors in asynchronous online learning interactions. The researchers found that the students were unaware of the impact of online learning on the development of their cognitive abilities. Consequently, they were less attentive to the needs of others and the critical role of solidarity in fostering positive connections amongst them. From the self-determination theory perspective (Ryan & Deci, 2020), these findings relate to amotivation as a powerful indicator of disengagement, poor academic performance, and general well-being. It refers to lacking intentionality, values, and interests. Close-mindedness in this study also relates to students' attitudes that tended to resist, refuse, or ignore information inconsistent with their current beliefs (Kemmelmeier, 2015). As a result, the students became uncritical and less responsive to other students' opinions. Thus, it triggered the students to be individualistic, negatively impacting students' interpersonal communication and interaction (Ogihara & Uchida, 2014). Therefore, asynchronous online learning should encourage collectivism which encompasses the role of the online learning community. The online community of practice is an example of collectivism (Kirschner & Lai, 2007). Peeters and Pretorius (2020) argued that OCoP encouraged the development of students' agency in online learning interactions. With this in mind, the lecturers can reduce the students' self-fanaticism, inferior attitudes and promote the development of online collaborative learning and mutual interactions among the students.

Last, students' self-dialoguing and self-navigation were the factors hampering their online interaction strategies. Self-dialoguing skill entails the students' ability to perform internal dialogues and self-talk, thus engaging an individual in performing inner monologues (Oles et al., 2020). Psychologically, this skill will help the students manage their thoughts and increase their open-mindedness. The students with adequate self-dialoguing skills will likely respond to, accept, and respect other students' ideas. Thus, creating interactive text-based discussions, such as a web-enabled SRL, is one of the alternatives to enhance the students' thoughts and navigation in online learning (Tsai et al., 2011). In addition, using a mobile-enabled educational tool can also be an option for online SRL (Mwandosya et al., 2019). Meanwhile, self-navigation in asynchronous online interactions is associated with students' ability to navigate their own learning. For example, they can guide themselves to the online community of practice or connect with peers to discuss a particular topic. The students with inadequate self-navigation skills tended to be inactive and indifferent. They did not have the initiatives to ask and respond to questions or navigate themselves to find the answers on the internet or by reading books and other relevant resources.

Therefore, they need navigation skills as they interact with the display or text-based information (Liang & Sedig, 2009).

The findings also relate to Pintrich's (1995) study that students with a higher level of self-regulated learning actively participated in learning. Previous studies have shown empirical evidence that self-regulated learners were more autonomous, proactive, and explorative (e.g., Holzer et al., 2021; Papamitsiou & Economides, 2019). However, the findings of the current study show different results. Students' communication and interaction behavior (synchronously and asynchronously) were presumably influenced by the sociocultural and social-psychological conditions where learning was enacted. These elements will continuously operate as barriers to the development of SRL concept in nations with rich cultural contexts, such as in Indonesia and possibly some other Asian countries. In other words, the SRL concept will work effectively in specific contexts, especially in countries with low cultural contexts. Yet, students' reluctance to express opinions, ideas, criticisms, or objections to professors was not due to a lack of critical thinking but rather a form of respect for their teachers. Li (2019) found that students from high context cultures were less satisfactory than those from low context cultures. Li's work is also relevant to the Indonesian sociocultural background as a high-context culture, in which the students are constrained by cultural norms and patterns of social interaction, thus resulting in gaps in verbal and nonverbal communication.

The study suggests that teaching professors should employ effective interactional strategies and provide clear instructions to foster students' active participation and critical thinking. For example, the TPD program should focus on enhancing teachers' facilitation strategies (Dewi & Santosa, 2022), such as conducting workshops for students on online text-based learning interactions, and encouraging students to actively participate in the online community of practice (OCoP) where they can work collaboratively, actively, and autonomously. Additionally, addressing close-mindedness, individualism, and self-fanaticism requires promoting collectivism within the online community of practice, enhancing collaborative learning, and influencing positive interpersonal communication. Challenges related to self-dialoguing and self-navigation skills suggest the need for interventions using web-enabled SRL or mobile-enabled tools to support students in managing their thoughts and navigating their learning effectively. These implications emphasize the pivotal role of professors in creating a conducive online learning environment, promoting collaborative engagement, and addressing psychological and navigational aspects crucial for successful asynchronous language learning interactions. Overall, future research should focus on practical solutions and interventions that can be implemented in real-world educational settings to optimize the quality of asynchronous online language learning.

Conclusion

Students' self-regulated learning in the Indonesian high context culture was found to be ineffective and unsuccessful. As reflected in the students' interaction with the professors and peers during the asynchronous online learning, the researchers conclude that students lacked readiness for online learning as self-regulated learners. They were commonly inactive, indifferent, and demotivated in

their asynchronous online interaction, thus creating ineffective learning communication among them. They were less critical, close-minded, self-fanatic, inferior, and disengaged in asking and responding to questions, sharing opinions, and replying to messages/comments. They also lacked self-dialoguing and self-navigation skills that call for innovative strategies and approaches to activate them. Therefore, this study recommends further research to touch on two essential aspects: (1) teachers' scaffolding strategies in promoting students' questioning and critiquing skills and (2) collective learning strategies in asynchronous online interaction (e.g., an online community of practice, inquiry-based learning, and self-navigation awareness in online learning). Teachers' scaffolding strategies are essential to helping students engage in text-based interaction and support novice online learners' self-regulated learning (Song & Kim, 2020). More importantly, this issue also warrants further investigation to see whether the findings are driven by sociocultural and social psychology variables or the problematic nature of student learning. These recommendations aim to activate student engagement and address sociocultural variables influencing learning challenges, paving the way for more effective and culturally sensitive asynchronous online language learning experiences in Indonesia.

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