Promoting Critical Thinking Skills
in an Online EFL Environment[*]

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This study examined the effects of an approach that promotes EFL
learners' critical thinking in an online EFL setting. Although recent
studies have examined approaches to foster EFL learners' critical
thinking, studies conducted in online settings are under-development.
The participants were 31 Japanese undergraduate students enrolled in an
online EFL course; their degree of critical thinking and resistance
towards critical thinking were examined. First, the students' sense of
classroom community was measured using the Rovai's Classroom
Community Scale. Second, the frequency of using critical thinking in
their English writing was observed adopting with Stapleton's rubric, and
the resistance towards learning critical thinking was measured through a
questionnaire. The results indicated that students could feel a sense of
classroom community in online lessons as well as face-to-face settings,
and improvements in critical thinking were found in students' writing
regardless of the differences in their English proficiency level. A
resistance towards tackling questions that required higher-order thinking
was observed among low English proficiency level students compared to
a face-to-face classroom setting. This study suggests that an online EFL
course aiming to promote critical thinking reduce students' resistance
offering both informal and formal interactive opportunities to answer
questions involving higher-order thinking skills.

Keywords: online EFL classes, critical thinking, classroom community,
resistance, higher-order thinking skills

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1 Introduction

Critical thinking is an essential ability for inquiring, solving difficult and complex problems, and good decision-making (Simpson & Courtney, 2002). Therefore, critical thinking is a major component of learning for undergraduate students (Facione, 2000).

In recent studies, the importance of fostering students' critical thinking skills at a higher education level has been stressed (Atkinson, 1997; Lin, 2018), and a variety of teaching approaches for critical thinking have been considered in practice. For instance, Ozturk, Muslu, and Dicle (2008) suggest that problem-based learning can be effective for fostering critical thinking skills. Paul and Elder (2007a) advocated that asking students essential analytic and evaluative questions can promote students' critical thinking skills. In the EFL field, Lantolf (2006) and Stapleton (2001) suggest that argumentative writing activities can foster EFL learners' critical thinking skills. However, these studies have been conducted in face-to-face environments, whereas research in online settings is still in the primary stage(e.g. Yang, Newby & Bill, 2008), which claims that web-based bulletin board discussions contribute to fostering critical thinking skills. Studies in EFL fields that foster critical thinking skills in online settings are also under-development (e.g. Ebadi & Rahimi, 2018; Hadar & Genser, 2015) and no studies conducted in Japan from the view of fostering critical thinking in online EFL settings can be extracted from Web of Science, Scopus, and CiNii Articles.

Due to the COVID-19 pandemic, most educational institutes in Japan have been compelled to switch from face-to-face to online classes; however, no research has examined the impact of fostering critical thinking skills in Asian EFL contexts in online settings. Furthermore, a previous study conducted by Torigoe et al. (2017) reported that there are some resistance towards learning critical thinking among Japanese undergraduate students in a face-to face setting. Therefore, in this study, the effects of an approach that promotes EFL learners' critical thinking skills are examined from the perspective of students' sense of classroom community, the frequency of using critical thinking in students' writing, and resistance to tackle questions involving higher-order thinking skills levels.

2 Literature Review

2.1 Critical thinking in an online environment

A variety of higher educational institutions have offered online learnings for students in recent years, and a wide variety of studies regarding these learning styles have been conducted (e.g. Broadbent & Poon ,2015; Moore, Dickson-Deane & Galyen, 2011). For instance, Moore et al (2011) clarifies

the characteristics and effects of e-learning, online learning and distance learning, respectively. Furthermore, Broadbent and Poon (2015) clarifies the relationship between self-regulated learning strategies and online learning process, and suggested that online settings can foster learners' self-regulation skills.

In terms of fostering higher-order thinking skills in a collaborative learning, a number of educational institutions have rapidly adopted an online learning management system (LMS). Most LMSs can promote student-centred environments (Ebadi & Rahimi, 2018). For instance, students can share their ideas and comment on each other via an online bulletin board; in addition, students can participate in peer-review activities in most LMSs. Therefore, an LMS can contribute to enhancing participants' interactions and promoting collaborative learning processes. Some studies such as Şen and Neufeld (2006) and Yang et al. (2008) point out that these characteristics of the LMS could promote students' higher-order thinking levels. However, Rovai (2002) claims that if there is a lack of a sense of a classroom community, a sense of feeling connected to a class, and a sense of feeling accepted by others, students' higher-order thinking do not mature. In other words, if the classroom community is fostered in an EFL online setting, students' critical thinking skills can be promoted. However, the relationship between the classroom community and the promotion of critical thinking skills in an online EFL online environment has not yet been examined.

2.2 Critical thinking in the EFL context in Japan

Critical thinking is multi-dimensional thinking which is required a learner's metacognitive thinking process. (Atkinson, 1997; Ennis, 1962; McPeck, 1990; Paul & Elder, 2007a). The connection between promoting critical thinking skills and acquiring language learning has been studied in recent years. For instance, Stapleton (2001) points out that critical thinking skills can be obtained through writing an argumentative essay in EFL settings. In addition to this study, Davidson and Dunham (1997) and Liaw (2007) state that fostering students' higher-order thinking can be related to promoting students' critical thinking skills and language proficiency. Fostering critical thinking skills in EFL classes is vital for undergraduate students in terms of creating meanings and reconstructing linguistic terms (Lin, 2018); however, studies for an effective approach for promoting critical thinking skills in the Asian context are limited (e.g. Lin, 2018; Stapleton, 2001). Davidson (1998) points out that possessing critical thinking skills may not be encouraged in some cultural contexts, and Stapleton (2001) points out that Japanese undergraduate students are not as good at critical thinking as Western students and lack an effective approach to foster critical thinking skills in Japanese EFL classes. However, Stapleton (2001) also stresses that critical thinking skills are teachable in a Japanese EFL context, and he reports that students are willing to participate in those lessons.

2.3 Resistance to answering questions involving higher-order thinking levels

Bloom (1956) categorised thinking skills into two modes: lower-order thinking skills and higher-order thinking skills, and Anderson and Krathwohl (2001) revised and developed the modes as LOTS: remembering, understanding, and applying; and higher-order thinking: analysing, evaluating, and creating. Elder and Paul (2005) pointed out the relationship between higher-order thinking and critical thinking and claimed that students can promote critical thinking skills by answering higher-order thinking-level questions.

However, some studies point out that Japanese students feel a resistance towards answering higher-order thinking level questions. For instance, Motoyoshi (2011) points out that there are some difficulties offering critical thinking lessons due to a unique aspect of the Japanese cultural background, namely, most students believe that being critical is detrimental to building good relationships with others. Torigoe et al. (2017) also point out the related difficulties, and examined this resistance towards participating in critical thinking lessons; however, they explain this phenomenon as students' resistance to a process of overcoming a cognitive conflict, namely transformation from lower-order thinking levels to higher-order thinking levels.

In the EFL context, Kawano (2016) and Magoku and Erigawa (2019) clarify that authorised EFL textbooks used in Japanese senior high schools have only 0-6% of higher-order thinking questions, therefore students have less or no experience in answering higher-order thinking-level questions before entering university. Due to this lack of experience, some struggle or resistance could be anticipated among EFL students in online EFL classes.

3 Research Method

3.1 Participants

The participants were 46 Japanese undergraduate students from the second to the fourth year enrolled in an online EFL course. The data from 15 participants were excluded from the analysis due to no submissions of questionnaires and lack of submitting pre- or/and post- writing tests. Participants' English proficiency levels varied from CEFR A2 to B2 levels, and their levels were measured before conducting the practice by Computerized Assessment System for English Communication (CASEC) text, a commercially developed English proficiency measurement. The course was not designed for a certain level, and there were a wide of English proficiency levels in the course. There were 10 students at the B2 level, 16 at

the B1 level, and 5 at the A2 level. The aim of this online EFL course was to foster both participants' English expression skills and critical thinking skills. The instruction language of the course is English, and the author conducted the lessons. Participants understood the aims of the course at the beginning of the semester. All lessons were provided online, and students participated in this experiment from their respective homes.

3.2 Materials and instruments

The practice was conducted in the first semester of the 2020 academic year, from May 2020 to August 2020. The EFL course was organised in 13 lessons (one lesson hour = 90 minutes). All classes were offered on demand. In this practice, the author attempted to foster students' critical thinking skills by presenting text materials. In addition, the author posed a variety of essential questions to students, as Paul and Elder (2007b) advocated. Then, the author provided students with the opportunity to answer their questions in the web-based bulletin board discussions, as Ozturk et al. (2008) claimed, and students were required to write argumentative essays, per Lantolf (2006) and Stapleton (2001). The detailed procedures are shown in Table 1 below.

Table 1. The Lesson Procedures for Fostering critical thinking in EFL

In every lesson:	
1	A lecturer provided students with some original text materials. Each text included 400 to 800 words (one example of the teaching materials is shown in Appendix B).
2	After students read each text, a lecturer listed three to five LOTS-level questions and four to five higher-order thinking-level questions and asked students to answer them.
3	A lecturer asked students to post their answers on an online bulletin board in more than 60 words. Subsequently, students were required to respond to other participants' opinions in more than 40 words.
In every three lesson:	
1	A lecturer provided a writing topic that referred to Paul and Elder's (2016) essential questions.
2	a lecturer asked students to post their writing to LMS in more than 150 words.
3	students read other participants' essays and evaluated them with scores from 1 to 6, referring to the Educational Testing Service writing rubric, and offered comments.

3.3 Research questions

An online learning environment is different from face-to-face EFL settings. For instance, students had no opportunities to interact with each other exactly as in a face-to-face classroom, and so they would be forced to engage on a virtual platform. This difference may affect the sense of students' classroom community, frequency of using critical thinking skills in students' writing, and their resistance toward answering higher-order thinking-level questions. Accordingly, the following are the research questions:

1) Can an online EFL environment foster students' sense of classroom community?

2) How much had students' writing changed in terms of the frequency of using critical thinking? in pre- (May, 2020, 1st period) and post-test? (August, 2020, 13th period)

3) How does students' resistance to answering higher-order thinking-level questions differ in each English proficiency level?

3.4 Procedures

According to Lee (2014), social presence, namely, the ability to establish and engage in purposeful relationships with peers, is strongly related to promoting learners' higher-order thinking, and having social presence is an important factor in an online environment. Rovai (2002) states that social presence and a sense of classroom community are related. Therefore, in this study, to measure the students' sense of classroom community in an online environment, the Classroom Community Scale developed by Rovai (2002) was administered.

Classrooms are generally defined as places where learning and teaching occur. Wragg (1987) points out that the classroom environment at school could have a major impact on students' learning outcomes because they spend many hours with a teacher and peers. However, given that this classroom was set in an online environment, no precise definitions were found at the Web of Science and Scopus for what 'classroom' means in an online setting. Therefore, in this study, it is defined as a virtual platform with students enrolled in the same course.

The scale consists of 8 items, and responses are scored from 0 to 4 for each item. The least choice is a value of 0, and the most favourable choice is a value of 4. Higher scores close to 4 therefore mean students have a sense of classroom community. The scale measures two dimensions: a subscale for a sense of students' connectedness, measuring the sense of interpersonal integration within classes (4 items), and the other is a sense of learning, measuring mutual support within classes (4 items).

Table 2. The Questions Listed in Classroom Community Scale Short Form

Items	Subscale
1. I feel that students in this course care about each other.	Connectedness
2. I feel connected to others in this course.	Connectedness
3. I feel that it is hard to get help when I have a question.*	Learning
4. I feel uneasy exposing gaps in my understanding.*	Learning
5. I feel reluctant to speak openly.*	Learning
6. I feel that I can rely on others in this course.	Connectedness
7. I feel that I am given ample opportunities to learn.	Learning
8. I feel confident that others will support me.	Connectedness

*reversed items

In addition, to measure the degree of their English proficiency level, the CASEC test was used, and the frequency of using critical thinking in their writing pre- and post-test (Appendix A and B) were examined using Stapleton's (2001) model in terms of whether the online EFL environment can also foster critical thinking skills as well as a face-to-face setting.

Stapleton (2001) determined the rubric of critical thinking in writing: 1) conclusion, 2) argument, which consists of a claim supported by a reason, 3) evidence, 4) a recognition of opposition and refutation, and 5) no fallacies. Stapleton (2001) points out that if writing included fallacies, namely, errors in reasoning, students have lower critical thinking skills. To measure students' critical thinking improvements, the frequency of students' critical thinking in writing pre- and post-test were examined by adopting the rubric of Stapleton (2001) (see Appendix C).

Each writing sample was assessed by two judges (the author and a research assistant), who subsequently discussed the ratings until they agreed on the result. In the process of analysing students' essays, the author and a research assistant read each pre-and post- piece of writing. The author is a Japanese EFL teacher who obtained the International Baccalaureate's English teaching certificate and had 17 years' experience to teach English as a foreign language for Japanese students and has experience to evaluate students' writing script. On the other hand the research assistant's English proficiency level of is CEFR C1 level, and he is a native speaker of Japanese. His educational background was such that he was in an international school in Germany from elementary to middle school, and the language of instruction at all schools was English. To maintain objectivity and reliability between the author and research assistant, inter-rater reliability was run. The results indicated acceptable consistency between the two (r =.89).

To clarify the relationship between participants' English proficiency level and resistance to answering higher-order thinking-level questions, the study used CASEC and a questionnaire developed by the author referring to

Rosenberg (1965)'s scales for measuring self-esteem.

4 Results and Discussions

4.1 The classroom community scale

Participants responded to the Classroom Community Scale Short Form (Table 2) developed by Rovai (2002) and revised by Cho and Demmans Epp (2019) shown in Table 2 indicated in the 3.4 section.

Table 3. The Results of Classroom Scale Short Form in an Online Environment (n = 31)

Subscale	M	SD
Connectedness	2.51	0.99
Learning	2.71	0.98

Note. *M* and *SD* represent mean and standard deviation, respectively. Maximum score is 4.

Cronbach's alphas for the connectedness and learning items were .81 and .83, respectively. The median of the scale is 2.0, and it is suggested that when the mean becomes in more than 2.0, the result may indicate slightly positive. Therefore, the results shown in Table 3 indicate that the online EFL classes seem to be able to maintain a 'positive' classroom community, and it may suggest that the environment for learning critical thinking is maintained.

4.2 The frequency of using critical thinking in writing

When giving a pre- and post- writing topic to students, familiar topics were given, excluding unfamiliar topics, because Kennedy, Fisher, and Ennis (1991) point out that learners' familiarity with a subject matter plays an important role in measuring students' thinking task performance. In addition, the pre- and post- writing topic was originally created by the author based on the approaches of Paul and Elder (2016)'s theory that the essential questions can foster students' critical thinking skills.

The following are the pre- and post- writing topics; reading material for each can be seen in Appendices B and C.

1) Pre- writing topic:
What is a true friend? Do you think you are a true friend if you can share your emotions with someone? Write in more than 150 words
2) Post- writing topic:
Do you believe that understanding others is important in terms of having a good relationship with others? Write in more than 150 words

Table 4 indicates the number of students who met each criterion listed in Stapleton's (2001) rubric. Table 4 shows that most students included a conclusion in the pre- and post-test, arguments and evidence increased in the post-test more than in the pre-test, and the fallacies in the post-test decreased compared to the pre-test. On the other hand, the recognition of opposition and refutation are rarely found in the pre- and post-tests. It was surmised that since the writing topics indicate a word limit, the students seem to avoid using opposition and refutation to maintain writing coherency.

To measure the difference between the pre- and post-tests, the students' writings are scored as follows: if a student's writhing include a conclusion, an argument, an evidence, a recognition of opposition and refutation, and without any fallacies, add 1 point respectively, namely the maximum point is 5, and the minimum is 0. After that, Wilcoxon Signed-ranks test was conducted. The result indicates that students promoted their critical thinking more in post-test ($Mdn = 4.0$) than in pre-test ($Mdn = 2.0$), $Z = 3.18$, $p < .001$, $r = .74$.

Table 4. Numbers of Students That Meet the Criterion Described in Stapleton (2001)'s Rubric (n = 31)

Subscale	Pre	Post
1. Conclusion	25	29
2. Argument	7	21
3. Evidence	6	21
4. Recognition of opposition and refutation	0	2
5. Fallacies	28	6

To see the differences between students' English proficiency level in terms of promoting critical thinking skills, the relationship between the pre- and post-test and each CEFR level are compared in Table 5.

Table 5. Numbers That Meet the Standards of Stapleton (2001)'s Rubric in Each English Proficiency Level (n = 31)

Subscale	English proficiency	Pre	Post
1. Conclusion	CEFR B2 level (n =10)	10	10
	CEFR B1 level (n=16)	13	14
	CEFR A2 level (n=5)	2	5
2. Argument	CEFR B2 level (n=10)	3	8
	CEFR B1 level (n=16)	4	12
	CEFR A2 level (n= 5)	0	1
3. Evidence	CEFR B2 level (n=10)	2	5
	CEFR B1 level (n=16)	3	14
	CEFR A2 level (n=5)	1	2
4. Recognition of opposition and refutation	CEFR B2 level (n=10)	0	0
	CEFR B1 level (n=16)	0	2
	CEFR A2 level (n=5)	0	0

5. Fallacies		CEFR B2 level (n=10)	9	1
		CEFR B1 level (n=16)	14	3
		CEFR A2 level (n=5)	5	1

To measure the significance of pre-test between the three different English proficiency level, a Steel-Dwass test was conducted. The result indicates that no significance was found between the three (see Table 6). Furthermore, the significance of post-test between the three different English proficiency level was also extracted, and no significant effect was found between the three (see Table 7).

Table 6. The Result of a Steel-Dwass Test for Pre-test

	Result	expected value	variance	test statistic
B2/B1	$P > 0.05$.	135.0	283.962	0.534341
B2/A2	$P > 0.05$.	80.0	52.0238	2.21829
B1/A2	$P > 0.05$.	176.0	117.143	2.07886

Table 7. The Result of a Steel-Dwass Test for Post-test

	Result	expected value	variance	test statistic
B2/B1	$P > 0.05$.	135.0	275.200	-0.994626
B2/A2	$P > 0.05$.	80.0	60.7143	1.79673
B1/A2	$P > 0.05$.	176.0	124.857	2.23735

4.3 Resistance to answering higher-order thinking-level questions

In this section, the relationship between participants' English proficiency levels and their resistance to answering higher-order thinking-level questions is examined. Participants took a CASEC test and answered the following question:

'*Describe as concretely as possible if you have a resistance to answering questions displayed in each module*'.

Table 8 indicates that students who were in a higher English proficiency level (CEFR B2) were mostly satisfied with tackling the higher-order thinking-level questions. Among middle-level students (CEFR B1), most students were willing to participate in answering higher-order thinking questions and three have some resistance; however, all three had a positive attitude toward answering higher-order thinking-level questions. In contrast, students with low levels of English proficiently (CEFR A2) exhibited strong resistance to answering higher-order thinking-level questions in an online setting. Therefore, it is suggested that students' English proficiency level

could affect their resistance to answering higher-order thinking-level questions in an online setting, although students could promote critical thinking skills regardless of their English proficiency level, as discussed in Section 4.2.

Table 8. The Correlations Between the English Proficiency Levels and Resistance to Answering Higher-order Thinking-level Questions (n = 31)

English proficiency level	Tendency of resistance
CEFR B2 level and above (10 students)	No resistance was found; 7 students feel satisfied and are willing to answer, and 3 are neutral.
CEFR B1 level (16 students)	Eleven students are willing to answer higher-order thinking-level questions, 4 are neutral, and 3 have some resistance. But the 3 students who have some resistance hope to overcome it even though they are struggling to answer higher-order thinking-level questions.
CEFR A2 level (5 students)	Two are neutral, and 3 have a strong resistance. All 3 students claim that they would drop out.

4.4 Further analysis towards resistance to higher-order thinking

The results displayed in 4.1 to 4.3 indicate that in online EFL lessons, students' sense of classroom community is maintained, and the frequency of critical thinking skills in writing were extracted more in the post-test than in the pre-test regardless of students' English proficiency level. However, resistance to critical thinking skills is observed in low proficiency level students in an online environment even when their critical thinking skills are fostered.

Although Saman and Masoud (2018) point out that online lessons based on LMS can promote students' collaborative learning, some students' perception of an online lesson is negative, and the results shown below indicate a lack of nurturing students' peer learning in each other, such as asking questions in an informal or formal setting. Table 9 is a questionnaire that aims to determine the relationship between resistance to higher-order thinking-level questions, prior EFL learning experience, and the relationship with self-esteem (referring to Rosenberg's scale developed in 1965).

Table 9. Questions Displayed in a Questionnaire

Questions
1. I was able to do things as well as most other people in this course. Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1)
2. I certainly feel useless at times in this online course.* Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1)
3. I take a positive attitude toward myself in this online course.

Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1)
4. What types of English lesson did you experience before taking this class? (You can choose one or more.)
A: Translate English into Japanese, B: Read a text and answer simple questions, C: Writing and speaking with peers, D: Giving a speech and a presentation, E: Read a text and answering questions which have no correct answers, F: Listening, F: others
5. Describe as concretely as possible if you feel a resistance to answering questions displayed in each module.

Questions 1-3 attempt to measure students' self-esteem; * a reversed item.

Torigoe et al. (2017) point out that students with low self-esteem tend to feel negative and resist involvement in critical thinking lessons. In fact, the differences in English proficiency and their level of self-esteem were not correlated with each other ($r = .02$); however, students who have both low English proficiency level and low self-esteem tend to feel resistance towards higher-order thinking. Therefore, an effective peer support among students is necessary in an online environment.

In addition, question 4 asked students about their EFL learning experience (Table 9). The results indicate that no participant had experience in tackling higher-order thinking-level questions. However, as indicated in Table 7, 18 students in CEFR B1 and B2 were willing to answer the higher-order thinking-level questions, even though they had never done it before.

A student in CEFR B2 level stated, 'the most irritating [things in] this type of lesson is that there are no time limitations to answer the questions because of the virtual platform; however, I enjoyed answering these types of questions and it could contribute to improving my English speaking and writing skills'. This description suggests that a resistance arises from time limitations; however, students have a positive feeling of answering the higher-order thinking questions in an online setting and have a sense of connectivity that having critical thinking skills can be related to promoting English proficiency level. In addition, as a student in CEFR B1 level described, 'I feel happy because I do not have to show the only one precise and correct answer here. If there is only one answer, I feel very nervous to answer whether my answer is correct or not. However, in an online setting, how to answer is dependent on each student, so I could have a sense of freedom toward answering critical thinking questions. In addition to this, other classmates left comments on me and I could understand others' feelings and thoughts'. This description indicates that the online EFL lessons promote collaborative learning, and a middle-level student enjoyed displaying answers interacting with other students.

Instead, a student in CEFR A2 described anxiety and resistance to answer higher-order thinking questions: 'In an online style lesson, there are few opportunities to ask [about] unfamiliar contents [among] other classmates, they just leave their comments, and there are no real interactions

in the same way as face-to-face classrooms. Most communications have a time lag and seem one-way communication. This situation demotivated my learning toward English and [I] felt anxiety, and I cannot understand whether my English was correct, and my ideas and thoughts were OK or no.' This description indicates that students who have both low self-esteem and low English proficiency levels have fewer opportunities to reset their anxiety in an online setting compared to a face-to-face setting, and thus need more support.

5 Conclusion

The results of this study suggest that the approaches promoting critical thinking skills in EFL online classes sustain students' sense of classroom community and would develop middle and high English proficiency level students' critical thinking skills. In contrast, students with low levels of English proficiency tend to have a strong resistance to answer higher-order thinking-level questions in an online environment. It is more difficult to promote students' informal interaction in online EFL environments than in a face-to-face setting, and it compounds less proficient students' sense of nervousness and resistance to higher-order thinking-level questions.

Overall, the study suggests that by displaying higher-order thinking questions, critical thinking skills can be fostered within a student-centred online environment, regardless of differences in their English proficiency level. However, the results also suggest that stakeholders such as EFL researchers and educators should support low English proficiency-level students and reduce their resistance towards answering higher-order thinking questions offering them informal and formal interactive opportunities among peers. Therefore, future research should use a semi-structured interview to examine how and what kind of situations can contribute to increasing students' social presence in an online EFL setting.

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Appendix A
Text Material and a Writing Topic Displayed in the Pre-test

Read the speech script and answer the question shown below.
I am Emma, a student in the Department of Liberal Arts. Today, I'd like to focus on the importance of noticing our emotions to help build good relations with others. I'm not a researcher, a scientist, or a psychologist, so I can't discuss emotions from a scientific perspective, but I'd like to talk to you based on my personal experiences as a student and what I learned in a psychology lecture. Let me ask you: Have you ever compared something with others, like your grades or your pay at your part-time job? How did you feel then? Some of you might have experienced a feeling of superiority when you knew that your grades were better than your friends'. Or, some of you might have felt guilty when you heard that your friend's salary was lower than yours. I learned in psychology class that these spontaneous reactions are called 'the social brain'. Our lecturer, Ms. Yoshida, explained the theory that all of us control our instinctive emotions by imagining others' emotions. Looking back to when I was in a senior high school, I always cared too much about what others thought and thought negatively about myself. In other words, my emotions were not good; I was jealous and felt overwhelmed. In her lecture, Ms. Yoshida introduced how we can deal with these emotions. First, you can brush up your skills to be in a better position than others. Second, don't compare yourselves with others. Which actions are best suited for you? I believe that a combination of these two actions is ideal for our wellbeing. The first is very productive, and I want to be like

this. The second is also important; all of us are different and doing this may reduce our stress levels. I understand that noticing our emotions and acting in appropriate ways are not easy for us, but I believe that if we can do this, it will contribute not only to forming better relationships with others but also to living well as a university student.

In conclusion, I believe that everyone is eager to create good relationships with others—your family members, your classmates, your friends, and your colleagues at your workplace. As a first step to living well as a university student, I urge you to notice your emotions and accept them, then brush up on your skills and don't compare yourself too much with others since everyone is different. Thank you for your attention.

Question: Do you believe that understanding others is important in terms of having good relationships with others? Write in more than 150 words.

Appendix B
Text Material and a Writing Topic Displayed in the Post-test.

Read the explanatory note and answer the question shown below.

How many of us believe that expressing our emotions to others is important? Some young adults believe that expressing emotions directly to others is not a good choice, but rather that keeping calm and thinking logically are ideal attitudes. However, can we really claim that these attitudes are better than showing emotions to others?

Some religious leaders and psychologists claim that noticing our emotions is very important for living well and forming better relationships with others. For instance, when we pretend not to notice, hide, or ignore negative emotions such as fear and sadness, we may build up stress in our mind. When we share what we feel with our peers, they may open their minds when they communicate with us.

Here, we will explore what emotions* are. Some students may believe that negative emotions such as jealousy and irritation represent not having a good attitude. But is this true? Some experts say that having negative emotions is not a problem in itself in terms of freedom of thought; however, if we act according to our negative emotions, it will be ethically problematic as our actions may greatly influence our relationships with others. For example, if your friends don't immediately reply to your text messages, you may become irritated or concerned. Feeling these emotions is a natural reaction among young adults. However, if you blame your

friend based on your spontaneous emotions, your friend may perceive it as bad behaviour and thus feel hurt.

*Experts define emotions as spontaneous instinctive reactions that we experience, and that remind us of someone or something.

Question: What is a true friend? Do you think you are a true friend if you can share your emotions with someone? Write in more than 150 words.

Appendix C
Descriptions of critical thinking in Writing
(The author created the table below based on the rubric in Stapleton, 2001, pp. 536–539.)

Subscale	Details
1. Conclusion	A statement or series of statements in which a writer sets out what s/he wants the reader to believe. Conclusions are often preceded by declarations such as 'I agree', 'I disagree', 'I am undecided', or indicator words or phrases including 'therefore', 'instead', and 'as a result'.
2. Argument	Each argument consists of a claim supported by a reason. Claims are often expressed using claim markers such as 'I think' or 'In my opinion'. Reasons are statements used to support claims and generally answer why the claim should be believed. Reasons are often identified by indicator words and phrases such as 'because', 'for this reason', and 'for one thing'.
3. Evidence	Evidence constitutes statements or assertions which serve to strengthen the Argument. Evidence comes in many forms including personal experience, research studies, statistics, citing authorities, comparisons and analogies, pointing out consequences, facts, logical explanations, and precisely defining words.
4. Recognition of opposition and refutation	Opposing viewpoints constitute statements that run counter or offer alternative interpretations to those expressed in the claim. Refutations are statements in which the writer responds to the opposing viewpoint in a way that shows that it is inadequate in some way. Opposing viewpoints and refutations are identified by indicator phrases and words such as, • 'It is said that … but,' • 'Some people claim that … however,' • Conjunctive devices, including 'although', 'despite', and 'even though'.
5. Fallacies	Fallacies are errors in reasoning. They occur when the reason does not adequately support the claim in one of a number of ways.

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