A Comparison of Student Self-Assessment in Online and Face-to-Face Learning Environments

Catherine LeBlanc, Kyoto University, Japan

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Abstract
With the recent migration to online learning due to the global pandemic, the need to foster autonomous learners in English language courses has elicited much attention. Inherent to autonomy is the ability to assess one's process and progress in learning. However, little research in student self-assessments has reviewed how online learning can impact this practice compared to the face-to-face learning environment. This mixed methods study (n=52) investigated the extent to which online and face-to-face learning affected students' self-assessments in a university discussion course. Qualitative and quantitative data were collected through online surveys for four sections (two online, two face-to-face) of an English seminar course at a Japanese university over four semesters, from October 2020 to July 2022. The mean scores of Likert-scale self-assessment items on discussion preparedness, participation and comprehension were compared in the two learning environments, and a text analysis of students' comments in an open-ended item was conducted using grounded theory (GT). The findings from the Likert-scale items show that the online group evaluated themselves as better prepared for discussion while not much difference was found in level of participation and comprehension for both groups. As for survey comments, though both groups attributed positive impressions of their discussions to their level of participation, their group members, or the discussion topic, the face-to-face group were more critical towards their level of preparation and performance. Implications of this study suggest that teachers should give more guidance for self-assessment and reflection practices in language courses according to the learning environment.

Keywords: EFL Self-Assessment, EFL Self-Reflection, Online Learning, Face-to-Face Classes, Autonomous Learning

Introduction

Across the globe, millions of learners were thrust into a new educational environment with the widespread introduction of online learning due to the COVID-19 pandemic. For the first time in recent history, students of all ages were largely responsible for their own learning, the basic definition of learner autonomy (Little, 2004). Although the concept of autonomous learning in language education precedes today's era by a few decades (Benson, 2001), the shift to the online learning environment did highlight its importance and created the need for a greater understanding of learner autonomy not only from the perspective of teachers, but mainly from that of students (Al Ghazali, 2020). Indeed, considering a broader view of autonomous language learning as "learning that takes place outside the context of formal instruction" (Benson, 2013, p. 840), the shifting from traditional classroom interaction to online learning and back to modified face-to-face settings in language education calls for a look at the impact of these environments on students' autonomous learning.

Despite the convoluted nature of autonomy in language education and the difficulties to define the concept (Everhard, 2016), most definitions frame it as the development of metacognitive strategies and the ability to track one's learning process through self-regulation (Oxford, 2003). A fundamental component of self-regulation is the ability to reflect on this learning process (Benson, 2001). A great deal of research has focused on the development of these strategies in the in-class and online environment separately, but little is known about the impact of these environments on students' metacognitive skills, particularly reflection (Benson, 2001). Thus, the purpose of this exploratory study is to shed light on this issue, offer some practical implications for both online and face-to-face instruction, and propose future directions for research.

Literature Review

The concept of reflection as part of learning dates back many centuries and became more formalized in the 1980s with the formulation of models, such as Schön's Reflective Practitioner Model and Kolb's Experiential Learning Model (as in Huang, 2010). Such models prescribe the act of reflection, that is to think back about one's experience in the learning setting, the effectiveness of the event, and how this analysis can inform one's behavior, as a means to developing essential cognitive skills for learning. Huang (2010) explains that these Vygotskian sociocultural approaches to learning view the "conscious realization" of the experience as necessary for learning to take place, and reflection "as an invaluable tool that helps foster critical thinking, self-assessment, and self-directed learning that can contribute to L2 development" (p. 247). Thus, a reflective learner undertakes the process of thinking back, which may include "recalling/reconstructing, and/or recapturing the events, emotions, failures, and accomplishments of a learning episode" (Huang, 2010, p. 246).

Despite the emphasis on the importance of helping learners develop the metacognitive strategies necessary for self-monitoring and self-assessment (Oxbrow, 2018), empirical evidence on the effectiveness of reflection on academic performance varies (Lew & Schmidt, 2011). Many researchers have looked at student reflection as a means to understand strategy use. Huang (2010) explored reflection practices in varying modalities and reported that, though a wide range of strategies were used across modalities, some may be more effective in oral production than others. She argues, as others have, that though the use of metacognitive strategies has been widely recognized as favorable on performance, the evidence may not hold true for "all learners and learning contexts" (p. 254). In content analysis of students'

reflection journals using text analysis software, Lew and Schmidt (2011) concluded that though students did improve in their ability for self-reflection, this did not translate into improvement in course grades.

Reflection in relation to autonomy is not only situated in the conscious use of cognitive and behavioral processes of the learners (Benson, 2001), but also, as Candy (as in Benson, 2001) explains, in the social interactions with peers or a facilitator. Thus, the learning environment, which may enhance or inhibit the quality of these interactions may potentially affect the process of reflection. This area of research, the relationship between the learning environment and self-reflection has received little attention (Zhan & Mei, 2013). In the online environment, studies have shown written reflections' effectiveness in supporting meta-cognitive skills development (Gummesson & Nordmack, 2012), and helping learners increase learning depth and build structural and social connections (Chang, 2019). In the face-to-face environment, Khongput (2020), through analysis of self-reflective reports, found that self-regulatory strategies appeared to be dependent on the classroom environment due to cooperative learning through group work activities. One of few comparative studies (Zhan & Mei, 2013) investigating differences in the online and face-to-face learning environment found that online students are in need of a stronger social presence through social interaction support.

Thus, in light of the existing literature and learning context of the course described in the following section, this mixed methods exploratory study considers the effects of the learning environment on student reflection and self-assessment. The following research questions were investigated:

1. What effects does the online environment have on students' self-assessments and reflection?
2. Comparatively, what effects does the face-to-face environment have on students' self-assessment and reflection?

Methods

Learning Context and Environment

This study draws on the experience of learners in one university course at a Japanese university focusing on the practice of English discussion and listening skills. The course is composed of undergraduate and graduate students from a diverse range of departments. In fact, one of the core objectives of the course is to introduce students to "current topics from the humanities, social sciences and natural sciences ... from an interdisciplinary perspective" (Kyoto University, 2022). Table 1 gives an overview of the course participants' education level and learning environment for each of the sections. Of the 15 classes in one semester, about half of the classes were spent in small-group discussions whereby students select topics based on their listening practice, prepare discussion questions, and lead discussions with their peers.

Table 1. Participant Description by Section

Course section and Semester	Learning Environment	Educational Level	
		Undergraduate (*n*=27)	Graduate (*n*=26)
Section 1- Fall 2020	Online	3	7
Section 2 - Spring 2021	Online	7	10
Section 3 - Fall 2021	Face-to-face	3	3
Section 4 - Spring 2022	Face-to-face	14	6

Another core component of the course is to raise students' awareness of their personal goals for the course and track their progress throughout the semester, in other words develop autonomous learning by practicing self-regulating strategies. To facilitate the development of these metacognitive skills, learners receive a digital portfolio at the beginning of the semester composed of multiple tabs in a spreadsheet. The portfolio consists of a listening practice log, a Can-Do statement self-assessment (American Council on the Teaching of Foreign Languages, 2013) to fill at the start of the semester, and note sheets to keep track of the topics prepared for class discussion and reflect upon their progress in the course. In addition, students are asked to fill out a post-discussion survey to help assess their preparation and performance and reflect upon their experience. Data from these surveys were used for analysis.

Data Collection and Analysis

Data were collected via online Google Forms in four sections (two online, two face-to-face) of the discussion course over four semesters, from October 2020 to July 2022. The online group joined class using a synchronous meeting tool (SMT). The face-to-face group attended classes on campus in a classroom which can accommodate approximately 20 to 25 students. An English-language survey was administered and consisted of two sections: the first part was an open-ended writing prompt asking students to comment on their impressions of the discussion, and the latter part was made up of three Likert-scale items measuring students' self-assessment of their discussion preparedness, class participation, and comprehension of their discussions. Students filled out this survey immediately after group discussions, roughly five to ten minutes before the end of class.

Data from the Likert-scale items were analyzed by tallying the mean scores for each and compared in the two learning environments. Students' comments in the open-ended item were analyzed through content analysis using grounded theory (GT) (Glaser and Strauss, 1967). GT is a process of interpreting data whereby, rather than imposing existing theoretical frameworks in coding data, theory is generated by identifying emergent themes from the data (Friedman, 2012). The process begins with open coding, in which the dataset is organized by labeling subsets according to broader categories, followed by axial coding, which consists of finding patterns in the coding and connecting larger categories to subcategories, and finishing with focused coding, or applying initial coding to the whole dataset and refining categories.

For this study, students' comments, which were automatically collected chronologically into a spreadsheet, were divided and labeled based on the subject or focus of reflection. Words or

phrases were highlighted to identify subcategories in each comment type, and each subcategory was further labeled as a positive, neutral, or negative comment when applicable. Data from the two learning environments were compared. Additionally, the average length of the comments was determined by performing a word count average for each group.

Findings

Likert-scale items

The findings from the Likert-scale items show little difference between the online group and face-to-face group in level of participation and comprehension (Figure 1 and 2, respectively). The online group evaluated themselves slightly higher up the scale for discussion preparation, as can be seen in Figure 3.

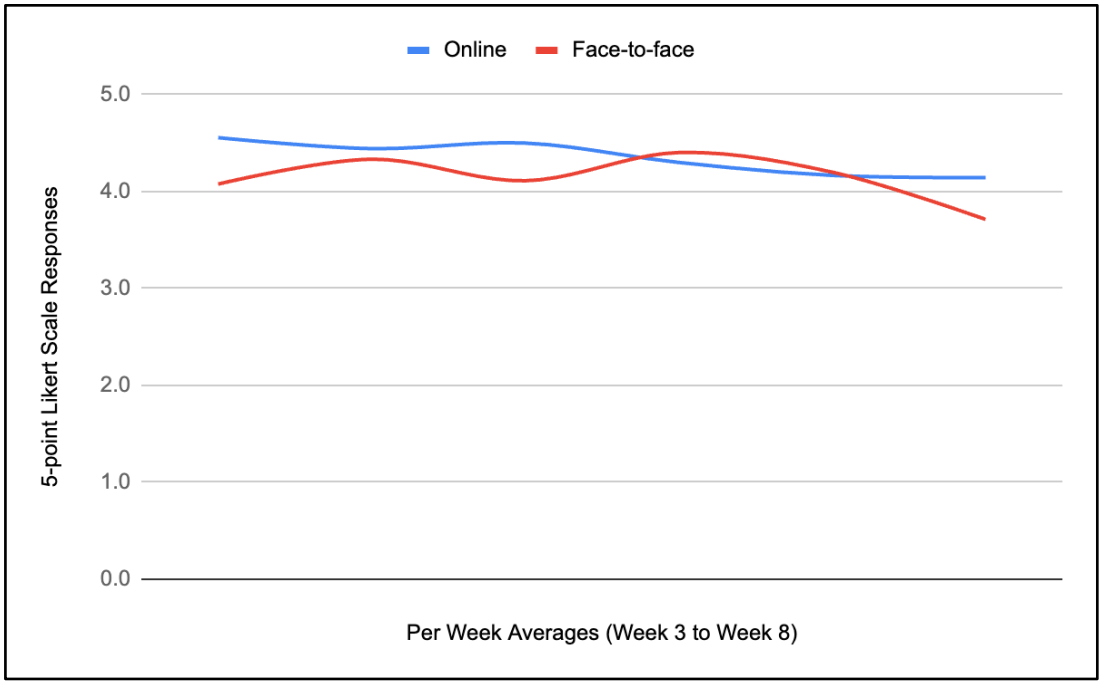

Figure 1: Likert-scale Item for Self-assessment of Discussion Participation

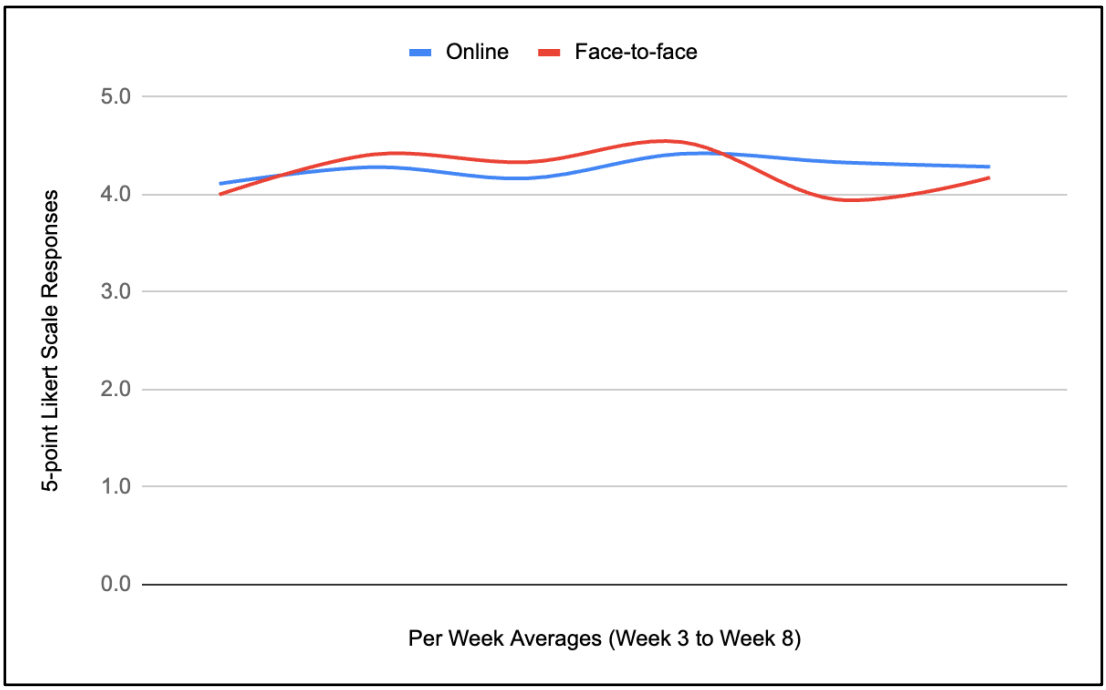

Figure 2: Likert-scale Item for Self-assessment of Discussion Comprehension

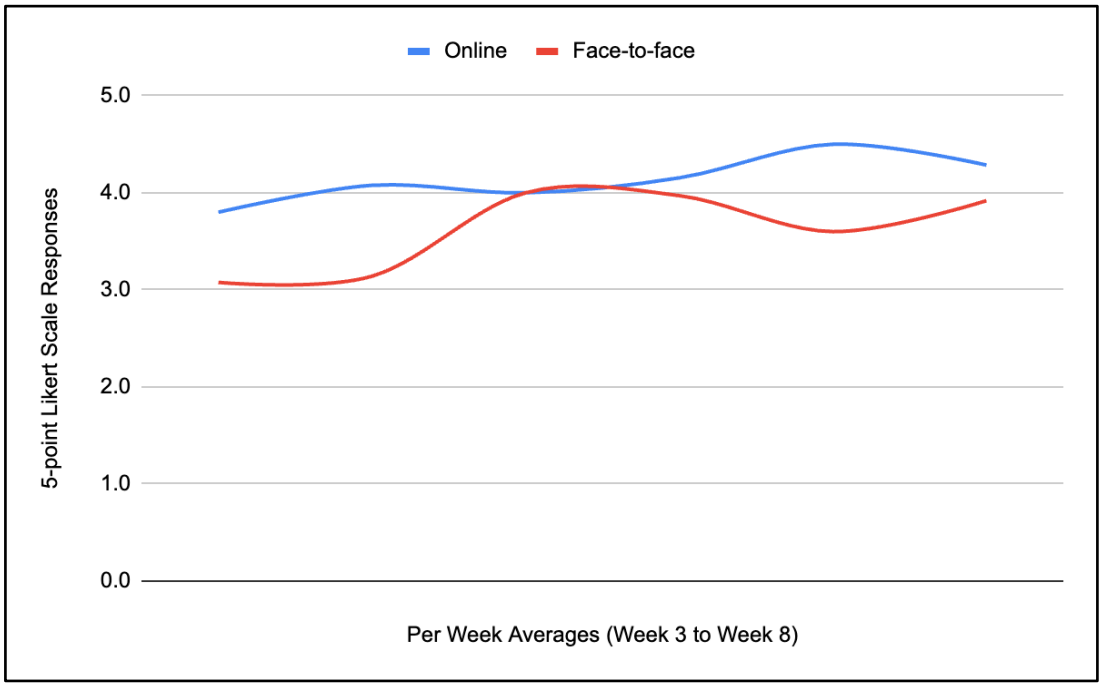

Figure 3: Likert-scale Item for Self-assessment of Discussion Preparation

Open-ended item

Seven main categories were revealed as the object or focus of the survey comments. The categories and examples from the dataset are shown in Table 2.

Table 2. Emergent Main Categories in Open Coding of Comments

Main response categories	Example Comments
General / Non-specific comments	● "It was fine" ● "I like this class"
Self-evaluation ('present' self)	● "... but sometimes i [*sic*] feel frustrated because of a lack of my vocabulary"
Self-related ('future' self)	● "I will prepare more specific questions for the next class" ● "And I want to became [*sic*] a good listener during the discussion"
Topic/content related	● "I have never heard circula [*sic*] report. It's interesting information." ● "Today our group's discussion includes medical and economic development …"
Other participant related	● "He majors in medicine so he introduced something about his field" ● "I was impressed by Hiro's description"
Task/group organization related	● "There were 3 people in our group and 30 minutes wasn't enough to discuss all [*sic*] since everyone prepared well" ● "I really like the idea of comparing two different speeches. It is very nice to know how other people combine the two different speeches and create new ideas! …"
Course goal/skills development related	● "I realized 'good question' is difficult" ● "Understanding the main point of speech would be key to make a good paraphrasing"

Note: Pseudonyms are used when applicable.

Table 3 shows a comprehensive table of the categories and subcategories derived from the dataset with the number of comment types labeled under each category and the percentage of each type for the larger categories (in bold) and the percentage for each type within the subcategories. For most of the main categories, the comments showed an evaluative dimension, labeled as either positive, neutral, or negative. The assignment of this value for many of the comments in the category of *Self-evaluation* was attributed to either external factors (e.g., materials, topic, other students) or to internal factors (e.g., skills, strategies, or unspecified). For example, the sample comment in Table 2 , "... but sometimes i [*sic*] feel frustrated because of a lack of my vocabulary," falls under the category of *Self-evaluation*, the attribution of the negative evaluation is placed on the student's shortcomings in vocabulary control, an assessment of one's own skill or ability. By contrast, the comment, "I think I could participate in discussion more than last week" was categorized as a positive evaluation of the 'present' self in comparison to previous classes acknowledging improvement. In other categories, attribution was not delineated as an internal or external

factor, but rather as a descriptive quality. For example, positive comments about the topics were ascribed to having interest for the reasons of either familiarity and novelty, while the same qualities were used to describe negativity towards some topics.

Table 3. Text Analysis of Open-ended Survey Item

	Learning environment	
	Online	Face-to-face
Average word count per entry	46	19
Response category and subcategories	Frequency, *n* (%)	Frequency, *n* (%)
General / Non-specific comments	**14 (10.4)**	**6 (4.1)**
Positive	13 (92.9)	4 (66.7)
Neutral	1 (7.1)	0 (0.0)
Negative	0 (0.0)	2 (33.3)
Self-evaluation ('present' self)	**32 (23.7)**	**51 (34.5)**
Positive - external - materials/topic	0 (0.0)	1 (2.0)
Positive - external - other students/group	2 (6.3)	1 (2.0)
Positive - external - task/organization	3 (9.4)	2 (3.9)
Positive - internal - past comparative/improvement	5 (15.6)	4 (7.8)
Positive - internal - skills/ability	2 (6.3)	0 (0.0)
Positive - internal - strategies/planning	1 (3.1)	2 (3.9)
Positive - internal - unspecified	2 (6.3)	2 (3.9)
Total for positive comments	15 (46.9)	13 (25.5)
Negative - external - materials/topic	3 (9.4)	8 (15.7)
Negative - external - other students/group	1 (3.1)	0 (0.0)
Negative - external - task/organization	4 (12.5)	11 (21.6)
Negative - internal - past comparative/improvement	0 (0.0)	0 (0.0)
Negative - internal - skills/ability	5 (15.6)	9 (17.6)
Negative - internal - strategies/planning	2 (6.3)	8 (15.7)
Negative - internal - unspecified	2 (6.3)	3 (5.9)
Total for negative comments	17 (53.1)	38 (74.5)
Self-related ('future' self)	**17 (12.6)**	**11 (7.4)**

Need for improvement - skill/strategy	7 (41.2)	1 (9.1)
Need for improvement - unspecified	3 (17.6)	4 (36.4)
More participation/practice	2 (11.8)	5 (45.5)
More preparation	5 (29.4)	1 (9.1)
Topic/content related	**37 (27.4)**	**37 (25.0)**
Positive - interest - familiarity	1 (2.7)	1 (2.7)
Positive - interest - novelty	5 (13.5)	3 (8.1)
Positive - interest - unspecified	7 (18.9)	11 (29.7)
Positive - suitability	1 (2.7)	1 (2.7)
Neutral - General summary	10 (27.0)	3 (8.1)
Neutral - Summary - elaboration/exploration	8 (21.6)	0 (0.0)
Reflection - opinion	2 (5.4)	9 (24.3)
Negative - disinterest	1 (2.7)	0 (0.0)
Negative - challenging/unfamiliar	2 (5.4)	9 (24.3)
Other participant related	**9 (6.7)**	**3 (2.0)**
Positive	6 (66.7)	2 (66.7)
Neutral	0 (0.0)	0 (0.0)
Negative	3 (33.3)	1 (33.3)
Task/group organization related	**22 (16.3)**	**37 (25.0)**
Positive - task performance satisfaction	2 (9.1)	8 (21.6)
Positive - group participation	14 (63.6)	16 (43.2)
Neutral - group activity/agreement	1 (4.5)	3 (8.1)
Neutral - teacher involvement	0 (0.0)	1 (2.7)
Negative - task time	4 (18.2)	1 (2.7)
Negative - task difficulty	1 (4.5)	8 (21.6)
Course goal/skills development related	**4 (3.0)**	**4 (3.0)**
Total	**135 (100.0)**	**148 (100.0)**

The percentages of comments by main categories and subcategories show some variation between the two groups. Most noticeable is the larger proportion of comments focusing on self-evaluation in the face-to-face learning environment, particularly those qualified as negative, 74.5% of comments in this category, compared to 53.1% in the online group. In addition, The face-to-face group attributed their negative assessment of their class

participation or performance to external factors, while the online group were more apt to attribute both positive and negative evaluation more evenly across internal and external factors, as is illustrated in Figure 4. Unsurprisingly, the face-to-face group commented more frequently on the task organization or group activity with 25% of categorized comments; however, somewhat surprising is the lower percentage of positive comments towards group participation from the face-to-face group versus that of the online group, with 43.2% and 63.6% respectively. Overall, task and topic difficulty was more commonly reported as an issue for the face-to-face group.

One notable difference between the two learning environments is the average length of entries. The online environment average word count for comments came at 46 words while that of the face-to-face group was at 19 words per entry.

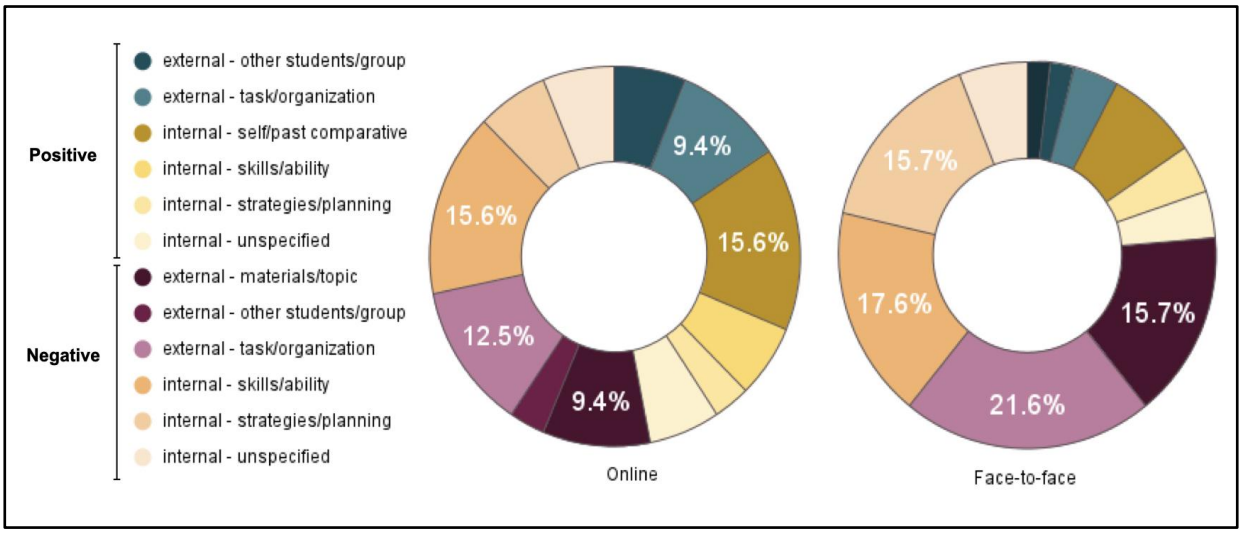

Figure 4: Attribution of Self-evaluation

Discussion

Space and the Learning Environment

To understand the findings from this study, the discussion of space as it relates to the learning environment is necessary. For one, the most distinct feature dividing these two groups of learners is the digital and physical space inhabited while reflection took place (Hobbs & Dofs, 2018). The online group, attending class while remaining in their personal space, were afforded a great deal more freedom during the group discussions and post-discussion self-assessments since they were not being closely monitored by the teacher or other students — only what is visible through the small video layout in the SMT can be observed. In comparison, their face-to-face peers, in a physical classroom, were bound by expectations of a more formal learning environment, and made more aware of the physical presence of other students and the teacher. The impact of others on self-assessment will be more greatly felt when the physical space boundary is immediate, not virtual. Here, self-regulation crosses into the emotional space for the learners, perhaps affecting their ability to reflect and evaluate their experience with the 'noise' of the social interactions in person. In a longitudinal study of online distance students, White (2016, as in Hobbs & Dofs, 2018), investigated the relation between emotion and the process of learning. White explained that emotions play an important role in learners' motivation to engage and persist in the process of learning. The face-to-face learning environment will allow for closer perception of other students' emotions,

including stress due to insecurities due to one's skills or ability in the target language. Schwienhorst (2018), in describing goals to developing autonomy, places reflection as a priority and recognizes the importance of creating opportunities "to experiment with language and learning strategies in a stress-free and stress-reduced environment" (p. 23).

In this study, the higher frequency of negative evaluations for students in the face-to-face environment may be a response to this environment. The course begins with explicit instructions and training of discussion strategies to navigate the group discussion. However, it is possible that students in the physical classroom were impacted by the presence of others in assessing their performance by overly relying on comparison of their group members or other classmates' performance and participation. Particularly, section 4 in the face-to-face group consisted of a majority of undergraduate students (Table 1), so it is feasible to assume that this group of learners felt more intimidated in group discussions with graduate students. Moreover, overall affective factors due to in-person interaction may have influenced face-to-face students' reflection on task difficulty. Therefore, instructors should be aware of the affective factors related to space, how these may sway students' self-assessment and reflection practices, and raise their students' awareness about these issues.

Practicalities of the Technology

The technological advantages of the digital space are most likely responsible for differences in the students' self-assessed level of preparation and length of entries. Similar to differences of modalities, the learning environment matters due to limitations in each context (Huang, 2010). Firstly, the online group were mostly attending class from their home, therefore; commuting time required for in-person class attendance could be used for preparation. As aforementioned, students in the online group may have felt less direct observation from their peers or the teacher, thus giving them the time and space to look up terms and definitions, check their preparation notes (although, this is not discouraged in the face-to-face environment), and use other tools to assist them. In addition, although the post-discussion survey was identical for the two groups, and both groups accessed the form at the same time during the class, the online group could access the survey via a link posted in the chat function of the SMT, while students in the face-to-face group mostly accessed the survey via Quick Response (QR) code. Since the online group most likely used their personal computers to leave comments, unlike the face-to-face group which accessed the survey using their smartphones, this allowed online students to spend more time typing comments, lending to more in-depth reflections, particularly in summarizing the discussion topics. Thus, technological considerations should be made for reflection practices in all learning environments.

Attribution Theory in Reflection

Many comments in the reflection practice were categorized as ascribing reason for a perceived positive experience or negative evaluation as an internal or external construct. This pattern could be explained by Weiner's *attribution theory* (McLoughlin, 2018), in which individuals assign explanations for their successes and failures, which in turn can impact future outcomes in terms of persistence and motivation. Attributions can span a wide range of dimensions, but mainly these can be divided into factors which are controllable or uncontrollable. McLoughlin (2018) explains that motivation is affected by these factors in terms of how the learner perceives the possibility to change future outcomes. Thus, generally people typically look for explanations for their failures rather than successes, and determine

attributions that are controllable, such as effort and preparation, and which can be improved. Considering this theory, students' tendency in both groups to focus on negative aspects in their self-evaluation is in line with this notion. However, looking at the attributes given, it is unclear if students understand the relationship between the reasons given and how this can help their learning. Similarly, Khongput (2020) also observed that "some students emphasized their negative feelings and uncertainties in their learning process at the beginning of the course" (p. 100). She posited that in an engaging learning environment, students may depend less on affective factors in reflection and increase awareness in their strategy use that leads to improvement. Therefore, greater awareness of attribution through a guided process of reflection may help learners foster reflection practices that lead to improved self-regulating strategies.

Practical Implications

Findings from this study can support the explicit teaching of a structured approach to reflection in language learning. One approach might include question prompts as a guided reflection practice. The series of prompts would have students follow a pattern of reflection, assessment, attribution, and resolution. Figure 5 illustrates this proposed guided process.

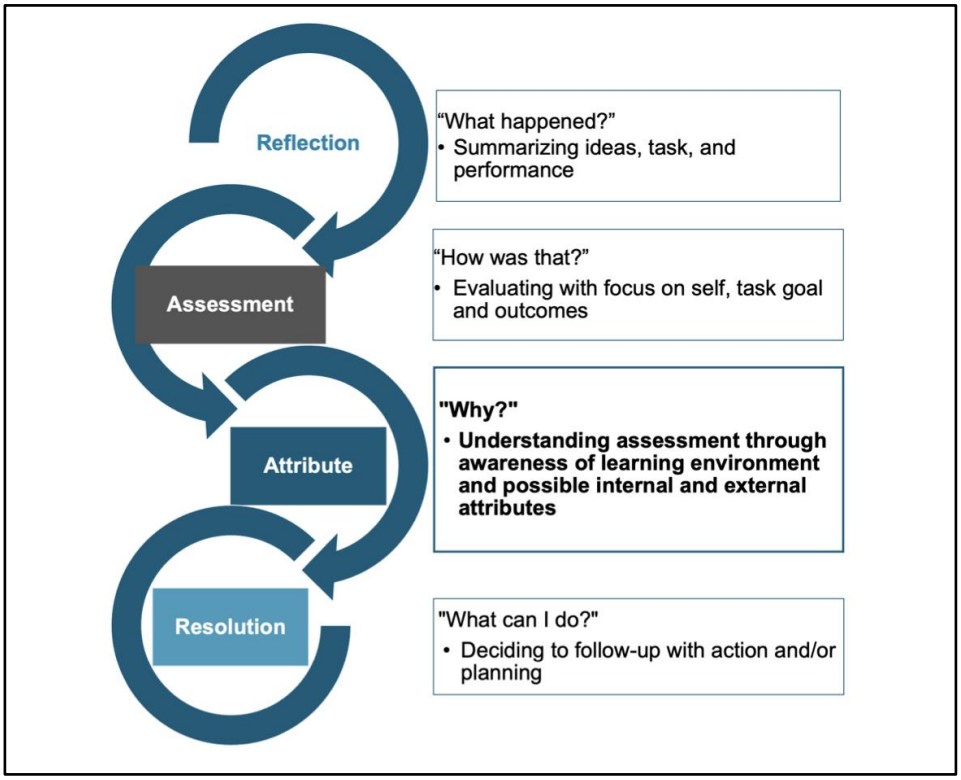

Figure 5: Proposed Guided Reflection Practice

This guided process is supported by other models or frameworks for autonomous learning strategies. Oxford's model of learner autonomy (2003) consists of four perspectives each with a different focus: technical, psychological, sociocultural (I & II), and political-critical. This proposed guided reflection framework would fit under the sociocultural perspective, focusing "on the development of human capacity via interaction" (p. 85). The positioning of reflection firstly in the group interaction, and then repositioning the self within this reflection can provide learners with the context and agency for proper assessment, attribution, and resolution. More specifically, in 1991, Smyth (as in Benson, 2001) proposed a model

categorized as an *emancipatory reflective learning model* by which, as is similarly proposed here, is represented as "a series of moments and questions" (p. 91).

Limitations

This exploratory study is a first step in shedding light on learning environments' impact on students' reflection practices. Many varying factors, such as gender identity, the participants location during online classes, especially in regards to international students attending from their home countries, were not accounted for in the analysis. To address limitations and improve generalizability, issues in data collection (e.g. small n-size) and analysis (e.g. overlap in data interpretation) should be addressed in more robust empirical research. More recent content analyses of student reflection utilizing text analytics (Kovanovic et al., 2018) may improve classification systems of reflection.

Conclusion

This paper investigates the effects of the learning environment on language learners self-assessment and reflection practices. Findings from survey and comment-based data show students' practice of self-assessment and reflection may be influenced by their peers and perception of self in a social setting, particularly in the face-to-face learning environment. Teachers should consider the impact of the learning environment on self-assessment and the possible variation in how learners in the online class and face-to-face class attribute their successes and failures in preparation for and during small group discussions. To help students better understand their learning process, a simple framework for self-reflection is proposed involving a line of questioning about one's experience in group discussion. A more structured approach to self-reflection may allow students to grasp the gist of their discussions, their role and performance in this task, the reasons for their assessment, and how to take action based on their reflection practice. Although more robust research may lend better insights into the link between self-reflection, the development of learner autonomy, and course outcomes, this study attempts to position the learning environment as an influential factor in the student self-regulation strategies.

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Contact email: leblanc.catherine.5u@kyoto-u.ac.jp