Foreign Language Anxiety and Online Engagement During the COVID-19 Pandemic: a Comparison Between EMI and FMI University Students

COVID-19疫情期间外語學習焦慮與線上學習投入：EMI與FMI大學生之比較

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Abstract
Even though foreign language anxiety (FLA) has been studied in second language online learning more generally (Fondo & Jacobetty, 2019; Hurd, 2007; McNeil, 2014; Pichette, 2009), there is a lack of research on how FLA may affect university students’ academic engagement in online learning while studying through L2 English/French as a medium of instruction. The present study explored the effects of FLA on university students’ academic engagement with online learning during the COVID-19 pandemic. We surveyed 91 students studying through L2 English as a medium of instruction (L2 EMI) and 76 students studying through L2 French as a medium of instruction (L2 FMI) at universities in Costa Rica, using two adapted scales for measuring FLA and student engagement with online learning. Students were also asked what universities can do to support those who may suffer from FLA. We conducted two exploratory factor analyses on the scales used and multiple linear regressions to explore whether FLA affected students’ academic engagement with their online learning. Results of multiple linear regression analyses suggest that for students studying through L2 EMI, FLA positively influenced their academic engagement with online learning and that coming from a rural area positively affected online engagement. For students studying through

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L2 FMI, FLA also had a significant positive influence on their online engagement; however, coming from a rural area did not seem to significantly affect their online engagement. Additionally, students mentioned the need for more support, mainly via better organized learning contexts and psychological support. Overall, the results showed that university students experienced FLA in online learning and that it influenced their online academic engagement.

Abstract

Despite the study on foreign language anxiety (FLA) in second language research being well-documented (Fondo & Jacobetty, 2019; Hurd, 2007; McNeil, 2014; Pichette, 2009), there is a lack of research on how FLA affects students’ academic engagement when English/ French is the teaching medium. This study explores the effects of COVID-19 on FLA in students’ online academic engagement. We invited 91 university students to participate in language immersion courses using English as the medium of instruction (L2 EMI) and 76 students in French medium instruction (L2 FMI). We used modified scales to measure FLA and academic engagement. Students were also asked what the school could do to support those with FLA. We conducted two exploratory factor analyses to examine the scales and a multiple linear regression analysis to examine whether FLA affects students’ academic engagement. Multiple linear regression analysis results showed that for students in L2 EMI, FLA positively influenced their online academic engagement, and coming from a rural area did not seem to have a significant effect. For L2 FMI students, FLA positively influenced their online academic engagement; however, coming from a rural area did not seem to significantly affect their academic engagement. Students also mentioned the need for more support, mainly through better organized learning contexts and psychological support. Overall, the results showed that university students experienced FLA in online learning and that it influenced their online academic engagement.

Keywords

Foreign language anxiety · Online learning · Student engagement · Higher education · COVID-19 pandemic

Introduction

Foreign language anxiety (FLA) is a well-documented phenomenon in second language research that manifests itself as a specific situational anxiety (Onwuegbuzie et al., 2000) often characterized by vague fear, nervousness, and feeling infantilized (Horwitz et al., 1986; MacIntyre & Gardner, 1994; Spielmann & Radnofsky, 2001). FLA can occur in virtual environments (Côté & Gaffney, 2021; Fondo & Jacobetty, 2020; McNeil, 2014; York et al., 2021) and in classroom settings (Abdurahman & Rizqi, 2021; Dewaele & MacIntyre, 2014; Kruk, 2018; Toyama & Yamazaki, 2021).

Due to the COVID-19 pandemic, most universities have had to change their provision to online. Hence, in universities in Costa Rica, courses using L2 English medium and L2 French medium of instruction (L2 EMI and L2 FMI) had to be implemented online within a very short time, which may have contributed to
students’ FLA. Along with challenges such as access to the internet and worrying about family health (Cao et al., 2020), online teaching and learning may become a source of anxiety among university students studying through L2 EMI and L2 FMI due to the disruption to their usual ways of learning, such as the lack of instant feedback from tutors, isolation, and difficulty in understanding task instructions (Hurd, 2007).

FLA has been reported in virtual environments (Côté & Gaffney, 2021), and it affects students’ online engagement (Fondo & Jacobetty, 2020); thus, it is reasonable to hypothesize that it may be present in online L2 EMI and L2 FMI. However, most research up to now has explored FLA in L2 language learning settings which focus on acquiring the target language rather than using the target language to learn the subject content. Therefore, comparatively less is known about FLA in learning settings that use L2 languages as a medium of instruction to teach content subjects. The current study is motivated by the need to further explore the extent to which FLA may affect students’ online engagement in L2 EMI and L2 FMI learning contexts.

**Foreign Language Anxiety**

FLA is a situation-specific anxiety related to foreign language learning that may lead to concerns about being unable to communicate with others in a foreign language due to linguistic limitations (Horwitz, 2017). FLA has been found to be negatively correlated with L2 learning motivation (Liu & Huang, 2011), L2 willingness to communicate (Elahi Shirvan et al., 2019), L2 proficiency (Santos et al., 2017), and decision-making strategies (Demi̇R & ZaiMoğlu, 2021), to name a few. Even though FLA has been researched in multilingual university contexts (Bensalem & Thompson, 2021; Fondo & Jacobetty, 2020; Santos et al., 2017), research on FLA in EMI and FMI university contexts is scarce as most of the studies focus on the L2 as the target content. FLA experienced by university students studying in L2s as the medium of instruction remains poorly understood. There has been even scarcer research on FLA in L2 English and L2 French as the medium of instruction (L2 EMI and L2 FMI) in university contexts (see the following section).

**FLA in L2 English and L2 French in University Contexts**

Research has shown that students learning L2s at university may suffer from FLA. For instance, Fondo and Jacobetty (2020) showed that for university students learning L2 English and L2 Spanish online, lack of support while conducting online tasks may result in FLA. There is also evidence that for university students learning L2 English, motivation and FLA are negatively correlated (Liu & Huang, 2011), that FLA may occur in both synchronous and asynchronous learning settings (McNeil, 2014), and that it may negatively affect students’ performance in oral examinations (Hewitt & Stephenson, 2012). It has also been shown that FLA may be present in virtual communication tasks using voice, video, and virtual reality (York et al., 2012).
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2021) and that bilingual students may present higher levels of FLA than multilingual students (Bensalem & Thompson, 2021).

There has been less research on FLA in university students learning L2 French than on FLA in university students learning L2 English. However, there is some evidence that university students learning L2 French may experience FLA (Côté & Gaffney, 2021; Dewaele, 2010; Hurd, 2007). Hurd (2007) demonstrated that L2 French learners experienced FLA, particularly when they have to speak in L2 French in front of others and are concerned about not being understood. Dewaele (2010) also confirmed that FLA is present in adult L2, L3, and L4 French learners. FLA in L2 French contexts has also been reported in online settings. Côté and Gaffney (2021) demonstrated that L2 French beginner learners experienced less FLA in online learning in comparison to face-to-face oral communication.

Much less is known about FLA that is experienced by university students studying for a degree in which an L2 is used as a medium of instruction. Only a few studies have researched FLA in university L2 EMI contexts (Gargalianou et al., 2016; Kudo et al., 2017; Suzuki, 2017), and to the best of our knowledge, there are no studies researching whether or how FLA may impact on learners in L2 FMI contexts. For example, Gargalianou et al. (2016) researched FLA of university students (N=320) in an EMI course on organizational skills and found that personal factors, such as emotionality, conscientiousness, and extraversion, are related to FLA. Kudo et al. (2017) conducted a small-scale study with university students in Japan (N=15) studying through EMI and reported that students experienced FLA, particularly in regard to their L2 oral skills. Similarly, Suzuki (2017) investigated FLA of university students in EMI contexts (N=71) in Japan and found that FLA may decrease with time and may be reduced by improving L2 skills with strategies such as practicing their oral skills, preparing for oral tasks before class, and not being afraid of committing language mistakes.

To sum up, previous research suggests that FLA is present among university students studying English and French as L2 in face-to-face and in online contexts. However, there have been few studies on FLA in L2 EMI; none of these studies investigated the impact of FLA on students’ overall engagement with their courses. We were unable to find studies researching FLA and online engagement in L2 FMI. The present study aims to explore these issues by investigating whether FLA occurs in L2 EMI and in L2 FMI in a university context in Costa Rica and its possible influence on students’ online engagement.

FLA and Student Online Engagement in University Contexts

Student engagement can be defined as “the extent to which students actively engage by thinking, talking, and interacting with the content of a course, the other students in the course, and the instructor” (Dixson, 2015, p. 2). The time and effort put into a course also relates to students’ engagement (Kuh, 2003), for instance, being prepared for a class and having a learning schedule (Finn & Zimmer, 2012). Halverson and Graham’s (2019) framework for engagement in blended learning
context also includes emotional engagement, which covers enjoyment, happiness, and confidence.

Even though student engagement is a key element in learning (Zhoc et al., 2019), it has not been broadly explored in relation to FLA in EMI and FMI online university settings. For example, Fondo and Jacobetty (2020) found that students experiencing FLA in online L2 learning may have difficulties engaging in the online environment as a result of online interaction anxiety and technophobia. Student engagement can also be affected when experiencing FLA in L2 learning, resulting in communication avoidance (Luo, 2013). However, FLA might not always adversely affect students’ online engagement, as some students could be more engaged in L2 online settings than in L2 face-to-face environments (Côté & Gaffney, 2021).

Another element that may be related to FLA in online learning and that could influence students’ online engagement in EMI and FMI contexts is adequate access to the internet and appropriate technological equipment. Such access may vary according to students’ geographical location, particularly in developing countries where the technological gap between rural and urban areas is significant. For instance, in Costa Rica, students studying in rural areas are less likely to have internet access and are 1.2 times more likely to experience poverty than students in urban areas (Programa Estado de la Nación, 2021) which can limit their access to appropriate technological equipment. Undoubtedly, not having adequate internet access and technological equipment may influence students’ online engagement and increase their FLA. However, to the best of our knowledge, the possible effects of studying online in a rural area on FLA and online engagement have not yet been explored.

To summarize, research into FLA and student engagement in L2 EMI and FMI contexts is scarce. Furthermore, the extent to which studying online in a rural area and FLA affect online engagement in L2 EMI and L2 FMI courses needs to be researched.

The Present Study

The present study was registered on the Open Science Framework (OSF), which is a platform that promotes transparency and replicability in research. All data and R scripts will be available on OSF.

The study’s research questions are:

1. What are the effects of FLA and location of residence (rural vs. urban) on university students’ engagement in online L2 EMI and L2 FMI learning settings?
2. What do the participants think universities can do to support university students who suffer from FLA in online L2 EMI and FMI learning settings?
Method

Participants

The study included 168 participants, studying at Costa Rican public universities, divided into two groups based on their medium of instruction. All of them were native speakers of Spanish. One group consisted of 91 participants in L2 EMI courses (mean age = 22; SD = 4) and the other group, 77 in L2 FMI courses (mean age = 23; SD = 0.50). Both groups received online modules in the first term of the 2021 academic year due to the COVID-19 pandemic. Our rationale to include the two groups of participants is that FLA may be mediated by language similarity (Dewaele, 2010); hence, whether the target language belongs to the same linguistic family as the participants’ L1 may have different effects on their FLA.

The L2 EMI participants were undergraduates of the English Teaching major program, and their self-reported English proficiency level indicated that eight students considered themselves as having a high proficiency level, 42 a high-intermediate level, 38 low-intermediate, and three a low proficiency level. Thirty-eight percent of the students indicated coming from a rural area (n = 35) while 62% (n = 56) from an urban area. Fifty-seven percent of the students confirmed having received technological aid from the university, such as tablets and internet chips, to be able to attend the online modules.

The L2 FMI participants were undergraduates from the French Teaching major program. One of them indicated not having access to their modules’ online materials; therefore, he was removed from the data. A total of 76 participants were analyzed, and their self-reported French proficiency level indicated that only two students considered themselves as having a high proficiency level, 24 indicated having a high-intermediate level, 38 low-intermediate, and 12 a low proficiency level. Thirty-five percent (n = 27) lived in a rural area, while 64.4% (n = 49) in an urban zone. Sixty-one percent of the participants affirmed having received technological aid from the university to be able to attend the online modules.

Instruments

An online questionnaire was administered via the software Qualtrics to both EMI and FMI participants. The questionnaire consisted of (a) informed consent, (b) background questions, (c) an FLA scale, and (d) a students’ online engagement scale (SOES). In both scales, the participants were asked to rate the items on a 5-point Likert scale ranging from 1 (strongly disagree), 2 (somewhat disagree), 3 (neither agree nor disagree), 4 (somewhat agree), to 5 (strongly agree). The questionnaire finished with an open-ended question asking participants what the university can do to help students who suffer from FLA. The questionnaire took approximately 25 min to complete.
Foreign Language Anxiety Scale

We adapted Fondo and Jacobetty’s (2020) telecollaborative foreign language anxiety scale (T-FLAS) for each group of participants. T-FLAS is a foreign language anxiety scale designed for virtual learning environments that adapts some items from the Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) to virtual learning contexts. It comprises 21 items pertaining to three categories: FLA (14 items), technophobia (4 items), and online social interaction (3 items) (Fondo & Jacobetty, 2020). We employed T-FLAS as a unitary construct as all of its categories are interrelated to test FLA in virtual environments. For instance, items related to technophobia ask if participants feel uncomfortable learning online and if they do not like using technological devices, among others, which we consider appropriate for this study. Even though FLCAS (Horwitz et al., 1986) has been widely used and validated, in the present study, T-FLAS was adapted and used instead as our population was taking classes in virtual environments. We adopted several steps of adaptation and validation:

Step 1 T-LFAS originally comprises 21 items, and some of them were slightly adapted to fit the context. For instance, item 13 “I feel overwhelmed by the number of grammatical rules I have to learn in the foreign language” was changed to “I feel overwhelmed by the number of grammatical rules I have to learn in English’’ for EMI participants and to “I feel overwhelmed by the number of grammatical rules I have to learn in French” for FMI participants.

A full list of items can be found in Appendix 1. Given that the scale was slightly modified, it underwent content validation. Three expert reviewers rated the items, on a 4-point Likert scale, in terms of representativity, comprehensibility, reliability, and conciseness. All items were rated 3 or above; thus, all of them were kept. We added another layer of validation by calculating the items’ content validity index (CVI) with a cut-off point of < 70 for each item’s CVI (Delgado-Rico et al., 2012). All items had a CVI higher than 0.70; thus, none of them were removed.

Step 2 We employed a backward translation technique to translate the original items written in English into Spanish. In a backward translation, the translated items are re-translated into the original language to mitigate any translation errors in the first translation process (Tyupa, 2011). The direct translation of English into Spanish was carried out by a researcher who specializes in translation from English to Spanish and by a researcher on English teaching and learning. Then, the reverse translation of Spanish into English was done by two Spanish native speakers, with an advanced English proficiency level, who have lived and undertook postgraduate studies in English speaking countries. Some minor changes were made based on the results of the backward translation.

Step 3 Exploratory factor analyses (EFA) were performed in R with the psych package (Revelle, 2022) to examine whether individual items adequately tested
the main construct of FLA. The factor extraction technique was factor analysis; we used the oblique rotation method and extracted one factor. We implemented a 0.32 cut-off point for all individual items based on Tabachnick and Fidell (2013), who suggest that items below 0.32 are poor. Three items (13, 14, and 15) had loadings below 0.32 and, therefore, were removed from the analysis. The resulting scale had a total of 18 items (Appendix 1). We examined individual and overall values to assess whether our sample was adequate via a Kaiser–Meyer–Olkin (KMO) measure. Overall KMO was 0.89, and individual items were well above 0.5; thus, our sample was deemed adequate for factor analysis (Kaiser, 1974).

**Step 4** The scale was tested for reliability in R with the userfriendlyscience package (Peters, 2018). We employed the ordinal omega coefficient given that our data was ordinal (McNeish, 2018). Results showed an ordinal omega coefficient of 0.94 indicating excellent reliability.

**Students’ Online Engagement Scale**

To assess students’ online engagement in online learning, 22 items were adapted from Dixson (2015), Lin and Huang (2018), and Lee et al. (2019). Items that could fit the Costa Rican context and the emergent online setting caused by the COVID-19 pandemic were chosen. For instance, we adapted the item “Making sure to study on a regular basis” from Dixson (2015) into “I study on a regular basis” as we considered it more appropriate for the context. However, we did not include the item “I am seldom late for school” from Lin and Huang (2018) as it did not fit the online context.

The following five items were included, adding up to a total of 27 items:

1. I need emotional support from my lecturer-tutor to increase my self-confidence in the module.
2. I can ask my lecturers questions when I need to.
3. I prefer writing in English/French to speaking in English/French in VLEs.
4. I am less nervous about participating in my coursework online than in face-to-face lessons.
5. I fear pronouncing words incorrectly in my speaking practice in VLEs.

Items 1 and 2 were included because students, in the university’s modules assessment during 2021, highlighted the need to be able to ask questions inside and outside the classroom (e.g., via email) and to feel supported by the lecturers/tutors. Items 3, 4, and 5 were included given that, when assessing online modules, students have mentioned feeling more comfortable writing than speaking in English/French in virtual learning environments (VLEs), that they fear pronouncing words incorrectly in VLEs, and that online settings were less intimidating than face-to-face settings. Additionally, in faculty meetings, lecturers have reported that students were
less engaged in online language modules due to their fear of mispronunciation and preference for using written (e.g., chat) instead of oral interactions.

Adaptation and validation procedures were similar to those involved in developing and validating the FLA scale:

**Step 1** Three expert reviewers rated the items, on a 4-point Likert scale. All items were rated 3 or above; thus, all of them were kept. All items had a CVI higher than 0.70; thus, none of them were removed.

**Step 2** All 27 items underwent a backward translation process.

**Step 3** EFA was conducted. Results showed that items 1, 2, 3, 4, 23, 25, 26, and 27 had loadings below 0.32; thus, they were removed. All other 19 items had a loading above 0.32 (Appendix 2). Similar to step 3 for the FLA scale, we examined individual and overall values to assess whether our sample was adequate. Overall KMO was 0.79, and individual items were above 0.5, indicating an adequate sample for factor analysis (Keiser, 1974).

**Step 4** A similar step as with the FLA scale was conducted to assess the reliability of the online engagement scale. Results showed an ordinal omega coefficient of 0.89, indicating excellent reliability.

**Data Collection Procedures**

Participants were recruited by email through an official email account of a University in Costa Rica, and they did not receive any credits or monetary compensation for their participation. They were given the online link to the questionnaire via email and were asked to complete all the questionnaire’s sections.

**Data Analysis Procedures**

Multiple linear regressions were conducted in R to determine whether FLA and location of residence (rural vs. urban) were associated with students’ online engagement in L2 EMI and FMI contexts. The SOES scale ratings were entered into the model as the outcome variable and the FLA scale ratings and location of residence as the predictor variables. Living in the rural area was coded as 1 and in the urban area as 0. We used a composite FLA score (i.e., a mean of the score of all the scale’s 19 items) for the numerical FLA variable and a SOES composite score (i.e., mean of the score of all the scale’s items) for the numerical SOES variable.

An analysis of the responses to the open-ended question for both L2 EMI and L2 FMI groups was carried out through an initial coding scheme (Strauss & Corbin, 1997) applied line-by-line, and the following categories emerged: satisfaction with the course, psychological engagement, support, and study skills. We conducted a second round of axial coding in which emergent sub-categories were identified: positive and negative (satisfaction with the course);
class dynamics and class environment (psychological engagement); language support, organization of study, and psychological and academic help (support); and workload (study skills). For example, the following response from participant 9, “Reduce the number of students per group, consequently there would be more attention and time from lecturers” (our own translation), was coded “Support: organization of study.” We also identified the emergent category of technological equipment based on participants’ answers. To establish inter-coder reliability, we asked three raters to rate participants’ responses using the coding scheme. They could assign more than one category to each response if needed. Ratings were considered valid if at least two of the raters agreed on them. We checked inter-rater reliability with Fleiss’s Kappa in R using the irr package. Reliability was acceptable, with Fleiss’s Kappa of 0.78 for the ratings of categories in the L2 EMI context, and moderate with Fleiss’s Kappa of 0.507 for the ratings in the L2 FMI context.

Results

The Effects of FLA and Location of Residence on Online Engagement

Table 1 shows the descriptive statistics for the FLA and SOES scales for both the L2 EMI and L2 FMI contexts. The mean score for each participant group and for each scale demonstrates that the L2 FMI group reported slightly higher levels of both FLA and engagement with their online course.

The variable FLA was logged-transformed to improve its normality. Pearson correlations between the variables for the L2 EMI and FMI contexts are shown in Table 2 along with point-biserial correlations between location of residence and the other variables.

As shown in Table 2, there was a statistically significant weak positive correlation between FLA and living area in L2 EMI. No significant correlations were found for L2 FMI.

Multiple regression analyses were conducted to determine the predictability of FLA and living in a rural area for online learning engagement in L2 EMI and L2 FMI contexts. The results are summarized in Table 3.

As shown in Table 3, contrary to our expectations, for L2 EMI participants, FLA positively influenced their academic engagement with online learning ($\beta = 1.12, \ SE = 0.44, \ t = 2.57, \ p < 0.05$), suggesting that participants who

| Table 1 | Descriptive statistics for all variables used in L2 EMI and L2 FMI contexts analysis |
|---------|-----------------------------------------------|
| Variables | N | Mean | SD | Min | Max |
| L2 EMI | FLA | 91 | 3.24 | 0.86 | 1.25 | 4.95 |
| | SOES | 84 | 3.43 | 1.13 | 1.74 | 4.68 |
| L2 FMI | FLA | 76 | 3.55 | 0.93 | 1.00 | 4.95 |
| | SOES | 68 | 3.35 | 0.68 | 2.00 | 4.75 |
experienced higher levels of FLA had stronger engagement in their online learning. Similarly, for L2 FMI participants, FLA had a positive statistically significant influence on their online engagement ($\beta = 1.02$, $SE = 0.49$, $t = 2.11$, $p < 0.05$). The findings suggest that participants who experienced higher levels of FLA tended to be more actively engaged online in the interest of their academic achievement (Hewitt & Stephenson, 2012).

A novel finding is that living in rural areas was a significant positive predictor of online engagement in L2 EMI ($\beta = 0.34$, $SE = 0.13$, $t = 2.71$, $p < 0.01$), suggesting that L2 EMI participants studying online in a rural area tended to engage more in learning. However, this was not found for L2 FMI participants. It is likely that L2 FMI participants might have benefitted from the linguistic similarity between French and Spanish, mitigating the possible effects caused by the differences between rural and urban areas in Costa Rica.

Table 2  Correlations among FLA, online engagement, and residential location (rural area)

| Context | Variables | 1   | 2   | 3     |
|---------|-----------|-----|-----|-------|
| L2 EMI  | 1. FLA    | -   |     |       |
|         | 2. SOES   | 0.26|     |       |
|         | 3. Rural area | 0.05| 0.27*|       |
| L2 FMI  | 1. FLA    | -   |     |       |
|         | 2. SOES   | 0.26|     |       |
|         | 3. Rural area | 0.02| −0.002|       |

*p < 0.05

Table 3  Results of multiple linear regression analysis of online learning engagement on FLA and residential location (rural area)

| Predictor | Estimate | 95% CI | SE | t   | p    |
|-----------|----------|--------|----|-----|------|
| L2 EMI (Intercept) | 2.85 | 2.47 | 3.23 | 0.19 | 14.85 |
| FLA       | 1.12 | 0.25 | 1.99 | 0.44 | 2.57 | 0.012 |
| Rural area | 0.34 | 0.09 | 0.60 | 0.13 | 2.71 | 0.008 |
| $R^2$ adjusted | 0.12 |   |      |      |    |
| $F(df)$  | 0.01 (2.81) |   |      |      |    |

| L2 FMI (Intercept) | 3.02 | 2.63 | 3.42 | 0.2 | 15.35 | < 0.001 |
| FLA       | 1.03 | 0.06 | 2.00 | 0.49 | 2.11 | 0.038 |
| Rural area | 0.01 | −0.34 | 0.35 | 0.17 | 0.04 | 0.971 |
| $R^2$ adjusted | 0.04 |   |      |      |    |
| $F(df)$  | 0.08 (2.65) |   |      |      |    |
Students’ Perceived Need for Online Learning Support

Students in the L2 EMI context provided a total of 60 comments indicating the need for support with the organization of study. The majority of comments ($n = 25$) referred to the need to have smaller groups, more language sessions, and less assignments, as well as the problem of the evaluation system being too rigid and not taking into account students’ different proficiency levels.

There were comments ($n = 17$) regarding needing more support, both psychological ($n = 9$) and academic ($n = 8$). For instance, students mentioned the need for psychological help and workshops to learn how to cope with FLA. They also mentioned that the university should consider students’ mental health, that modules should not put so much pressure on students, and that the university should provide spaces for students to talk about how they are feeling. There were also comments ($n = 6$) in terms of students’ psychological engagement, mentioning that online classes are emotionally heavy and that class dynamics are negative among peers. On the other hand, we also found comments ($n = 11$) regarding students’ satisfaction with their modules, mentioning that the university is doing its best to support students with their online learning. There was one comment where the participant highlighted that he did not know how the university could help students who suffered from FLA.

Analysis of the open-ended question for the FMI context showed a total of 61 comments and provided evidence of participants needing help to cope with their FLA in online learning in a FMI context. The majority of comments ($n = 27$) referred to the need for a balance between synchronous and asynchronous lessons, more pedagogical practices to improve self-confidence in the target language, more opportunities to practice the target language among peers, and less traditional teaching methods.

Comments ($n = 24$) also referred to the need for receiving psychological ($n = 10$) and academic support ($n = 14$). Comments on psychological support highlighted the need for websites with information about how to manage anxiety, online spaces for sharing feelings, and anxieties about using a foreign language. Comments on academic support referred mainly to the support lecturers could provide to students, and how lecturers should be more understanding and make students feel more self-confident.

Two comments, relating to the dimension of technological equipment, mentioned that not having a stable internet connection for assessments increases anxiety. There were two comments highlighting satisfaction with the online modules, as the university reduced the amount of time in synchronous sessions and it had provided enough information on how to deal with online learning. Five comments referred to not really knowing how the university could help students who suffered from FLA.

Overall, in both L2 EMI and FMI contexts, students reported organization of study and psychological support to be the most important for helping students who suffered from FLA.
Discussion

This study investigated the extent to which FLA and residential location affected students’ online engagement when studying in L2 EMI and FMI contexts. The results on FLA showed that university students experienced FLA in both L2 EMI and FMI contexts; however, contrary to our expectations, FLA positively influenced students’ online engagement. Experiencing FLA, under the circumstances of this study, may have pushed them to engage in learning. This finding suggests that FLA does not always have an inhibitory effect on students’ learning process (Dornyei & Ryan, 2015). Given that the online setting could give students more time to formulate L2 responses than face-to-face contexts, the debilitating effect of FLA might have been mitigated.

For the effects of residential location, the results showed that in the L2 EMI learning context, those living in rural areas engaged more in their online learning than those living in urban areas. According to Programa Estado de la Nación (2021), students studying in rural areas in Costa Rica are 1.2 times more likely to experience poverty than students in urban areas. And according to Abarca and Ramírez (2017), in Costa Rica a person who speaks English has a 20.6% salary increase, 0.8% less weekly working hours, 2.5% more probability of having paid vacation, and 2.7% more probability of having paid sick leave than those who do not speak English. Therefore, students studying in L2 EMI in rural areas might have experienced more pressure to do well and finish their courses to seek better job opportunities than their counterparts in urban areas, hence leading to more online engagement. Additionally, due to the social and economic inequality caused by the COVID-19 pandemic in Costa Rica (Programa Estado de la Nación, 2021), university students could have felt increased pressure to complete their university courses in order to be better qualified to enter the job market, hence increasing their fear of failure (Alsowat, 2016) and boosting their online engagement. In contrast, in the L2 FMI context, students living online in rural areas were not more engaged in their online learning than students in urban areas. Given that the target language (i.e., French) in L2 FMI belongs to the same linguistic family as participants’ L1 (i.e., Spanish), students studying in L2 FMI might have benefitted from the linguistic similarity, hence, minimizing the differences between rural and urban areas. Another mitigating factor may be due to the fact that in Costa Rica L2 French does not have the same instrumental value as L2 English (Abarca & Ramírez, 2017); hence, L2 FMI participants, in rural areas, may not experience fear of failure to the same extent as L2 EMI participants. To verify this interpretation, more research into this area is needed.

This study also showed that students studying in an L2 EMI context considered the organization of their study an area in which they needed help most from the university. In particular, students mentioned the need for having smaller groups, more language sessions, and fewer assignments. They also highlighted the need for psychological support in the form of workshops to learn how to cope with FLA and more spaces for sharing their feelings. They further pointed
out that overall the university should be more concerned about students’ mental health. Similarly, L2 FMI participants considered organization of their course as the most significant factor in coping with their FLA. They mentioned needing a balance between synchronous and asynchronous lessons, more pedagogical practices to improve students’ self-confidence, and more opportunities to practice the target language among peers. For students studying in L2 FMI, psychological help such as general tools to manage anxiety, informative websites, and talks regarding FLA are necessary to reduce their FLA. Similar to L2 EMI participants, L2 FMI participants also highlighted the need for more spaces to communicate their feelings. Overall, universities should pay close attention to students’ needs and offer them the psychological help to reduce their FLA and boost their online engagement.

**Conclusion**

The present study explored the extent to which FLA and location of residence affected students’ online learning engagement among Costa Rican university students in L2 EMI and FMI contexts. We have shown that FLA occurred in L2 EMI and FMI online learning settings; nevertheless, it had a positive effect on online learning engagement. In addition, studying in a rural area positively affected students’ online engagement of those students studying in L2 EMI but not those studying in L2 FMI. The study also demonstrated that students may need better organized L2 EMI and L2 FMI online learning and more psychological support to cope with their FLA in online learning.

The findings of this study are of great importance to the understudied field of FLA in L2 EMI and FMI online learning contexts. However, limitations of this study have to be recognized. First, the number of participants is much smaller than other studies on FLA. Further research should be carried out with a larger sample to generalize the findings of this study. Another limitation is that this study did not control for socioeconomic variables. Given the inequality created by the COVID-19 pandemic in Latin America, further research is needed to explore how socioeconomic variables influence Latin American students’ FLA and online learning engagement, especially among those living in the rural area. Future studies may also investigate how differences in the social and economic benefits of L2 English and L2 French abilities impact university students’ FLA and learning engagement. More research is strongly recommended to further understand FLA and online engagement in L2 EMI and FMI contexts.
Appendix 1. FLA scale items, factor loadings, and reliability for EMI context

See Table 4

| Item                                                                 | Factor loadings | \( \omega \) |
|----------------------------------------------------------------------|-----------------|-------------|
| 1. I feel anxious when I want to express myself but can’t find the proper words to say it in English when engaging on virtual learning environments (VLEs) | 0.81            | 0.94        |
| 2. When participating in online activities I can get so nervous I forget things I know | 0.77            |             |
| 3. I am nervous communicating in English in front of my lecturers on VLEs | 0.83            |             |
| 4. I feel nervous when I’m expected to communicate with people from my class on VLEs | 0.83            |             |
| 5. When participating on VLEs I feel nervous when I can’t express myself in English | 0.85            |             |
| 6. I feel nervous when I’m expected to communicate with people from my class on VLEs | 0.80            |             |
| 7. I feel low self-confidence about participating in English on VLEs | 0.85            |             |
| 8. I feel anxious when I don’t understand what the people in my class are saying in English | 0.56            |             |
| 9. I don’t enjoy sharing my opinions on VLEs | 0.51            |             |
| 10. I feel anxious when communicating in English online | 0.87            |             |
| 11. I feel nervous when I am around more experienced foreign language users in VLEs practices | 0.56            |             |
| 12. I feel uncomfortable interacting online | 0.66            |             |
| 13. I feel nervous talking to a partner in VLEs who has a higher level of proficiency in the foreign language than me | 0.61            |             |
| 14. I feel uncomfortable when speaking in English on VLEs | 0.69            |             |
| 15. I feel nervous talking to a partner in VLEs who has a lower level of proficiency in the foreign language than me | 0.31            |             |
| 16. I feel overwhelmed by the number of grammatical rules I have to learn in English | 0.35            |             |
| 17. I don’t like to talk online to new people | 0.34            |             |
| 18. I feel uncomfortable in video conferences | 0.49            |             |
Appendix 2. SOES scale items, factor loadings, and reliability

See Table 5

| Item                                                                 | Factor loadings | $\omega$ |
|----------------------------------------------------------------------|-----------------|---------|
| 1. I participate actively in small-group discussion on the VLE as part of my lectures or seminars | 0.45            | 0.89    |
| 2. I am confident that I can learn and do well in the curriculum     | 0.57            |         |
| 3. I usually do well on the assessments                              | 0.40            |         |
| 4. I enjoy contributing to class discussions set by the lecturer     | 0.56            |         |
| 5. I always take the initiative in asking questions when I don’t understand the instructor | 0.50            |         |
| 6. I value the knowledge and expertise learned in lectures and seminars | 0.51            |         |
| 7. Online classes are very useful to me                              | 0.61            |         |
| 8. I engaged with the lecture content every week of the term         | 0.48            |         |
| 9. Last term, I found the lectures content interesting               | 0.54            |         |
| 10. After taking an online lesson, I look forward to the next one    | 0.54            |         |
| 11. I try to engage with other students in my class groups in online activities (e.g. by commenting on their contributions) | 0.63            |         |
| 12. I can access support regarding my modules when I need to         | 0.59            |         |
| 13. I communicate with the instructor privately for extra help       | 0.34            |         |
| 14. I ask other students for help when I can't understand a concept taught in my online class | 0.39            |         |
| 15. I tend to apply the knowledge I have learned in online classes to real problems or new situations | 0.65            |         |
| 16. When I take an online course, I plan a learning schedule         | 0.45            |         |
| 17. I feel a connection with the students who are in my online classes | 0.57            |         |
| 18. I feel a sense of belonging to the online class community        | 0.64            |         |
| 19. I can ask my lecturers questions when I need to                  | 0.48            |         |
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Declarations

Conflict of Interest The authors declare no competing interests.

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