

Special Issue

Education Technologies and COVID-19: Experiences and Lessons Learned

Relationships Among Higher Education EFL Student Perceptions Toward Fully Online Language Learning and Computer Self-Efficacy, Age, Gender, and Proficiency Level in Emergency Remote Teaching Settings

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Abstract

Objectives: The purpose of this study was to explore Chilean higher education English as a foreign language (EFL) students' perceptions toward components of their fully online learning experience and their computer self-efficacy during the CoVID-19 pandemic and assess how these variables are influenced by age, gender, and language proficiency.

Method: Participants of the study were 236 undergraduate students (110 males and 126 females) who took a fully online EFL course in a professional institute in Chile. Likert-scale questionnaires were used to gather data on perceptions toward fully online language learning components (online participation, collaborative group work, instructional materials, and learning strategies and styles) and computer self-efficacy (CSE).

Findings: Participants held overall positive views toward fully online language learning components but had negative views toward online participation. Findings revealed significant relationships between computer self-efficacy and perceptions toward fully online language learning components. The perceptions that learners held toward fully online courses seem to be unaffected by gender and proficiency level, although gender did impact CSE.

Implications for Theory and Practice: Feeling disconnected from peers and the learning experience in general can lead to negative attitudes toward online learning as well as feelings of isolation. Learners may feel unmotivated, frustrated, and discouraged to continue participating in the course. Teachers can nurture a

sense of community in the classroom by facilitating dialogue, providing timely feedback, moderating student discussions, and building social networks around learners. It is also important to promote healthy levels of computer self-efficacy that can positively influence perceptions toward group work and learning strategies.

Conclusion: Emergency remote teaching can have a negative impact on online participation. As more educational institutions provide their students with online options for attending classes, teachers should focus on increasing peer collaboration and interaction.

Keywords: *fully online language learning, learner perceptions, computer self-efficacy, gender differences*

Date Submitted: January 30, 2021 | **Date Published:** May 17, 2020

Recommended Citation

Cancino, M., & Towle, K. (2022). Relationships among higher education EFL student perceptions toward fully online language learning and computer self-efficacy, age, gender, and proficiency level in emergency remote teaching settings, *12*(0), 25–45. <https://doi.org/10.18870/hlrc.v12i0.1317>

Introduction

Online education has opened a window of opportunity for many individuals, especially those who have full time jobs or other obligations that do not allow them to attend face-to-face classes (Day et al., 2021). Education developers have taken advantage of the rapidly evolving technologies in telecommunication that the 21st century has provided and are using them to create online education programs. However, the COVID-19 pandemic has forced educational institutions to suddenly adapt their curricula to virtual environments, which in turn has signified several challenges for educators as they struggle to adapt to the online modality (Heo et al., 2021). These abrupt changes have prompted the concept of “emergency remote teaching,” defined by Hodges et al. (2020) as “a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances (p. 6).” The shift required that educational institutions provide remote teaching solutions to their students that can replace face-to-face learning environments partially (by means of blended learning courses), or fully (by means of fully online learning).

Hodges et al. (2020) stated that emergency remote teaching differs from online education in that it is created as a temporary measure, it is introduced under pressing circumstances (i.e., little time for planning or investing), and it replaces a face-to-face environment with remote learning. These aspects suggest that in emergency remote teaching, the sudden nature of the change will likely leave teaching and learning aspects unattended, such as perfecting the technologies used to deliver content and providing learners with strategic tools to navigate online learning. In line with this, Huang et al. (2020) highlighted the need to focus on specific aspects to foster learning in emergency remote teaching, such as improving infrastructure to minimize internet issues, adapting interactive platforms and resources to ensure participation and comprehension, using social networks to build online communities that can tackle feelings of isolation, and promoting teaching techniques such as debates, and learning based on discovery. Institutions have sought to recreate face-to-face interaction in emergency remote teaching environments by means of synchronous collaboration tools such as videoconferencing (Giovannella, 2021). However, as Bond et al. (2021) stated, collaboration tools such as videoconferencing seek to provide a learning experience that is as close as possible to what would happen in face-to-face learning settings, disregarding the temporal, asynchronous possibilities that online environments can offer.

In online English as a foreign language (EFL) learning environments, learners have reported challenges in relation to online participation, collaborative group work, instructional materials, and learning strategies and styles (Sun, 2014). The most challenging aspects identified by language learners taking online EFL courses were (a) following the schedule and studying regularly, (b) ensuring constant engagement with the class, (c)

staying self-motivated and being a self-directed learner, (d) working collaboratively, and (e) socializing. These findings suggest that fully online language learning needs to be personalized and self-regulated. Before the COVID-19 pandemic, schools and educational systems had time to create fully online EFL learning environments. Over the last 18 months, the forced nature of the changes in the form of emergency remote teaching implemented in tertiary educational settings to fit COVID-19 restrictions makes it relevant to address the perceptions of EFL students when embarking on a spontaneous, unscheduled fully online experience and explore how the different aspects involved in the creation of an emergency remote teaching environment (Bond et al., 2021; Huang et al., 2020) can increase participation, strategies, and collaborative work in the EFL online classroom.

The effectiveness of online learning settings has also been assessed by considering computer self-efficacy (CSE). Several studies have suggested that there is a relationship between CSE and learning when addressing the perceptions of learners toward online language courses and that this relationship can affect their anxiety, retention, and willingness to take future online courses (Awofala et al., 2019; Dupin-Bryant, 2004; Harrell & Bower, 2011; Lim, 2001; Simmering et al., 2009). Some studies have also explored gender differences in CSE and how they influence perceptions of online learning. The literature has consistently reported a significantly negative relationship between levels of CSE and computer anxiety levels, with computer anxiety appearing more commonly in females than males (Awofala et al., 2019; He & Freeman, 2010; Huffman et al., 2013; Koch et al., 2008). However, these studies were conducted in learning settings where emergency remote teaching was not the delivery format, which points at the need to examine how these factors may impact learners' perceptions, and at the same time identify potential strategies for teachers in such settings.

Literature Review

Fully Online Foreign Language Learning

Much of language learning and teaching in traditional and online classrooms is based on constructivist pedagogical theories that emphasize activity-based teaching and learning in which students develop their own frames of thought through hands-on activities (Keengwe & Kang, 2013). Fully online language learning adopts these tenets, as it requires learners to be more self-regulated, participate actively and not passively in the online platform, collaborate with their classmates in group work activities, use creativity, and exchange resources and materials with their classmates (Brooks & Brooks, 1999; Keengwe & Kang, 2013). Fully online learning environments do not make use of a physical space in which to interact with teachers and peers in a more familiarized manner (Sun, 2014). In such environments, all communication happens virtually and is either synchronous (i.e., real-time, through applications such as Google Meet, Zoom) or asynchronous (i.e., not in real-time using emails, recorded videos, etc.; Wang & Chen, 2013). This duality of lesson delivery formats in online learning requires that students apply more self-regulation strategies, as they receive less guidance in their learning process (Zhou & Wang, 2021). The synchronous aspect of learning typically takes place over a learning management system (LMS) such as Blackboard Collaborate. An LMS employs a variety of information and communication technologies to offer an online platform where an entire course can be organized, facilitated, and managed by both the teacher and the learners. This is done through synchronous and asynchronous activities implemented by means of computer mediated communication (CMC) tools such as emails, wikis, blogs, and learning management system platforms such as Moodle, Canvas, and Blackboard (Wang & Chen, 2013).

Student Perceptions of Fully Online Learning Settings

White (2009) argued that to create a better understanding of the design of distance learning courses—that is, courses that occur at a distance from the locus of learning, requiring the use of new technologies that may include computer technology (Moore, 2013)—the perceptions of teachers and administrators are not enough

to obtain a thorough examination. Hence, it is important to include student perspectives and attitudes. A focus on the role of student feedback in assisting with the design and revision of blended courses (i.e., courses where the learning environment includes both face-to-face and online formats; Tomlinson & Whittaker, 2013) suggested that student feedback on course design can help improve its delivery in terms of syllabus design, choice of materials, and number and frequency of meetings (Brew, 2008). Sun (2014) proposed specific characteristics that can be included to assess a fully online course by means of student perceptions. These components are online participation, collaborative group work, instructional materials, and learning strategies and styles. These will be reviewed below.

For language learners to obtain the most benefits from a language course, whether it be in a face-to-face, blended or fully online environment, it is essential for them to actively participate (Sun, 2011). In the online classroom, teachers and students communicate and participate in classes through CMC tools, as it is through these means that teachers and students can carry out learning virtually (Hampel, 2013). They are crucial to increasing online participation and must be effectively utilized to successfully simulate face-to-face interaction. Students new to online learning settings may find it difficult to participate at early stages. Indeed, teachers in a physical space can arguably encourage participation in a more effective way than they can through a virtual classroom setting (Sun, 2014). As Nguyen (2011) stated, online learning “does not automatically ensure the successfulness of the integration of CMC into language education.” (p. 1414).

Other authors have also found issues with students feeling disconnected and isolated from their peers and from the learning experience, leading to negative attitudes toward online learning altogether (Nor et al., 2012). Several studies have highlighted the consequences of non-participation in an online course, which prompts feelings of frustration and discouragement among students as they feel they do not have anything to contribute (Capdeferro & Romero, 2012; Diep et al., 2019; Moore & Iida, 2010). Teacher involvement is crucial in the creation of a sense of community in online settings, as this can reduce the feelings of isolation and frustration, as well as enhance the amount of student participation (Huss et al., 2015; Koh et al., 2010; Lala et al., 2017). These authors put forward ways in which teachers can create a sense of community, which can be achieved by facilitating dialogues over CMC tools, providing timely feedback, offering virtual office hours, and implementing activities that incorporate higher order thinking and active participation in real-world situations.

Collaborative group work in online learning and any other setting takes place when individual contributions to group thought allow the group to come to new understandings that would have not happened solely through individual work (Donato, 2004). In relation to online learning, teachers and students may find it challenging to work together over the internet (Sun, 2014), so it becomes necessary to maximize collaborative efforts, project-based learning, and non-academic interactions that can lead to engagement and authentic learning. Technological collaboration in an online learning environment can be as simple as an email or as complex as a long-term multi-person project. Technologies that can support collaboration are blogs, forums, Google Docs, Discord, and Google Classroom. Social networking sites can also enhance peer connections and collaboration by creating a more accessible way for learners to get acquainted with each other (Ellison et al., 2007). For example, some authors found that using Facebook interactions in an online course environment positively correlated with academic performance, as students asked questions, shared information, and posted content (Al-Dheleai & Tasir, 2016; Chou & Pi, 2015).

These studies suggest that it is the pedagogical duty of the educator to provide students with opportunities to collaborate. Students should be encouraged to use collaborative online tools and software to exchange opinions and experiences to create strong interactions among their peers (Vlachopoulos & Makri, 2019). These interactions among peers are related to what is known as communities of practice (CoP). This concept was coined by Wenger (1999) and continues to appear in studies pertaining to distance and online education. It refers to “a group of people who share a concern, a set of problems, or a passion about a topic, and who

deepen their knowledge and expertise in this area by interacting on an ongoing basis” (Wenger et al., 2002, p. 4). Wenger (1999) argued that the school and classroom are not self-contained, but that students learn from a broader learning system. Thus, the learning events that are executed in the classroom need to be relevant to the learning that takes place in the real world. Language learners can further benefit from the interaction taking place in CoP environments, as modern communicative approaches to learning allow language learners to express themselves and their views through collaborative activities in and outside the classroom (Alamri, 2018). In line with this, collaborative work can prompt language development in online EFL settings, as online peer collaboration and feedback on higher education students had a positive impact on their writing performance by means of LMS asynchronous activities based on a customized online forum where users could exchange ideas and documents (Tai, 2016). It follows that online collaboration enables the construction of knowledge and the development of critical thinking among language learners through social interaction (Zou et al., 2018).

The content of the online courses (i.e., the instructional materials used) is an important factor influencing learners’ perceptions of fully online courses (Xiao, 2017). Vlachopoulos and Makri (2019) stated that much of the literature over the past 10 years continues to support Moore’s (1989) transactional distance theory to describe the ways in which learners interact with their distance (online) learning environment. In his theory, Moore described student-content interaction as the interaction of a student with the course material, which can include educational videos, various forms of media, such as tutorials and web-based courses, game-based activities, and collaborative projects. In student-content interaction, online content and instructional materials trigger cognitive processes in learners (Moore, 1989). Consequently, a strong student-content interaction can increase course success, even if student-teacher and student-student interaction may not be optimal (Miyazoe & Anderson, 2010). Furthermore, Bernard et al.’s (2009) meta-analysis on different components of online learning showed that student-content interaction is the most important relationship regarding student achievement and satisfaction.

Finally, the learning strategies and styles that students adopt to navigate the online context are crucial, as fully online learning in a pandemic requires students to approach their learning in a new manner. Sun (2011) examined fully online language learners and noted that their experience changed their learning environment from a large class, one-size-fits-all environment, to a customized personal learning environment (PLE) created by each student. Dabbagh and Fake (2017) described PLEs as personal and social learning spaces that provide learning experiences which empower students to “direct their own learning and develop self-regulated learning skills” (p. 28). Within a PLE, students are the focus, while all other components revolve around them, including the teacher, materials, and peers (Sun, 2011, 2014). PLEs unite the tools and resources that are most often selected and used by the language learner and give them control in their language learning process. The students tailor the learning environment with their tools of preference and use those tools to their discretion to advance their learning and to connect with other students, teachers, and even native speakers (Reinders, 2014). Some common tools that make up a PLE are portfolios and profiles, tools for creating content, tools for collaboration, tools for planning and managing, tools for recording and reflection, and tools for content storage and retrieval. These PLE tools were assessed by Dabbagh and Fake (2017), who gathered the perceptions of 105 college students toward the tools and their impact on personal growth and learning. Most of the participants reported that an ideal PLE would include opportunities for discussion, collaboration, and interaction taking place digitally through messenger applications, social media, wikis, and forums, and supported by search engines, videos, and social networks. Interestingly, students felt they lacked access to organizational tools and progress tracking tools. The authors’ findings suggest that PLEs are not a constant or uniform learning technology that can be standardized or used in a controlled environment; rather, “PLEs cross institutional and organizational boundaries and evolve over time and place” (Dabbagh & Fake, 2017, p. 34).

Due to the nature of PLEs and the way online learning takes place, online language learners need to be more in control of their learning and must become more self-regulated and disciplined. Distance learners, as

described by White (1995), are faced with the demands of a self-regulated context and thus are required to reexamine their role and responsibilities as language learners. Compared with face-to-face classrooms, online learning requires students to apply more autonomous control over their learning behaviors; a higher locus of control—the perception of the control an individual has in a particular situation or context—has been found to result in better online-course performance (Barnard et al., 2008). Furthermore, self-regulated learning (SRL) is an important individual difference that affects learning outcomes in online language learning environments (Broadbent & Poon, 2015; Lin et al., 2017). For example, Chang (2005) found that vocational school students who participated in a web-based instruction course and incorporated SRL strategies improved their learning motivation and were more likely to feel accountable for their own learning outcomes. Similarly, Lin et al. (2017) conducted a study with 466 high school online language learners and showed that use of learning strategies was the only significant predictor (over variables such as intrinsic and extrinsic motivation) of language learning outcomes such as final grades, perceived progress, and student satisfaction.

Computer Self-Efficacy

Self-efficacy (Bandura, 1977, 2010) refers to the belief people have in their abilities to influence a situation or event that affects their lives as well as their belief in the capability to perform a certain task. Task specific self-efficacy predicts the success in performing that task, such as using a computer efficiently (Zimmerman, 2000). According to Bandura (1977), self-efficacy influences “initiation and persistence with a task” (p. 193) and is the central factor that determines the amount of effort applied and the duration of persistence in the face of difficulty. The concept is related to agency, “the conviction in one’s control over the outcomes to be attained” (Pawlak et al., 2020, p. 3), so self-efficacy beliefs play an important role in motivation and self-regulation (Bandura, 1993). As Bandura (2010) stated, the beliefs are formed about what one can do while performing a specific task within a specific domain, which consequently creates anticipation of possible outcomes of those specific tasks. If an individual believes he/she will be successful in a particular activity, it is more likely for them to complete the activity successfully because they are also more likely to put additional effort into the task than someone who has a low sense of self-efficacy performing the same task. Individuals with low self-efficacy will also avoid challenging tasks because they view them as a threat (Bandura, 2010). Failures for these individuals can be detrimental, as it is harder for them to recover from setbacks. On the other hand, people with a high sense of self-efficacy will tend to commit to their goals, relating any failures to lack of effort or knowledge on their part (Bandura, 2010).

Self-efficacy can be associated with different domains, one of which is CSE. The concept refers to an individual’s feelings toward his/her capabilities in completing tasks while working with a computer (Howard, 2014); it is a person’s perception of efficacy when performing computer-related activities within the area of general computing (Karsten et al., 2012). CSE has been shown to predict several notable relationships, which include variables such as computer phobia and computer anxiety (Howard, 2014). Individuals with computer anxiety are more likely to avoid computers; however, this tendency can be mediated through positive experiences with computers that can give users a sense of accomplishment (Bandura, 2010). Awofala et al. (2019) characterized the relationship between attitudes towards computers, computer anxiety, gender, and CSE among pre-service teachers in Nigeria. The authors found that computer anxiety was negatively correlated with CSE; that is, the higher the level of computer anxiety an individual has, the lower the level of CSE they display. Furthermore, the authors reported a positive relationship between computer attitudes and CSE. Finally, CSE beliefs can also influence learning. Simmering et al. (2009) examined how 190 undergraduate university students enrolled in a fully online software learning course were influenced by initial motivation to learn and CSE. The authors found a positive relationship between the average amount of time spent using computers and the internet before participating in the online course and CSE at the beginning of the course. Similar results are reported for retention rates in fully online learning courses, as persistence and desire to finish the course seem to increase when learners possess previous computer experience and training (Dupin-Bryant, 2004; Harrell & Bower, 2011) and high CSE (Lim, 2001).

Studies Addressing CSE and Gender

Gender has been a variable of interest when assessing CSE, with early studies finding that male participants outperform female participants in this respect (Coffin & MacIntyre, 1999; Murphy et al., 1989; Whitley, 1997). Furthermore, these studies reported that male learners scored higher on perceived relevance of computer skills and software management in their future careers, interest in knowing how computers work, and in their intentions to take computer courses. These differences seem to be more noticeable for more complex computer tasks (Torkzadeh & Koufteros, 1994). More recent studies have reported a similar trend, but with a consistent decrease in these differences. A meta-analysis of the literature around gender differences in attitudes about technology (Cai et al., 2017) indicated that males still hold more favorable attitudes toward technology use than females; however, the meta-analysis showed a decrease of gender difference in the measurement of self-efficacy involving computers and technology. The authors attributed the lessening of the gender gap in CSE to the fact that computers and technology are more ubiquitous in people's daily lives, and females are more encouraged to access computers and technology.

Gender can also influence computer anxiety and CSE, as females have been found to display more computer anxiety and report fewer experiences with computers than males (Awofala et al., 2019; He & Freeman, 2010). This can be explained to some extent by males being typically regarded as more skilled in computer and technology-based sciences (Prescott & Bogg, 2011). Koch et al. (2008) reported that males scored higher than females in many predictor variables of CSE, such as practical computer knowledge, weekly hours of computer use, computer-related intrinsic motivation, and computer domain identification. The authors suggest that the reported low CSE in females can provoke "self-fulfilling prophecies" (Cooper, 2006, p. 328) which can lead to an increase in anxiety, a loss of interest, and decreased competence and use regarding computers (Anderson et al., 2008; Nelson & Cooper, 1997).

In summary, the reviewed literature suggests that learner perceptions in fully online learning settings can be influenced by several aspects, including online participation, collaborative group work, instructional materials, and learning strategies and styles. Computer self-efficacy can influence perceptions, as its presence has been found to lower anxiety and increase positive attitudes toward computers and retention rates. Female learners can also become more anxious in front of a computer, although the gender gap has been reduced in recent years. These results prompted the need to assess opportunities for collaboration, quality of content and course materials, participation, EFL learning strategies and styles, and the role of CSE and gender in learners' perceptions of an online course that was delivered in an emergency remote teaching format. The impact that these variables may have on the perceptions of higher education students attending fully online EFL courses implemented in response to a pandemic can contribute to our understanding of the teaching and learning dynamics affecting course delivery.

Purpose of the Study and Research Questions

The present quantitative study explores the perceptions of tertiary education students regarding their fully online learning experience and their CSE during the COVID-19 pandemic in a Chilean higher education context. The research questions guiding the present study, and the alternative hypotheses underlying them are as follows:

1. What is the relationship between learners' perceptions of a fully online language learning course, computer self-efficacy, and age, across gender?

Alternative hypothesis 1: There is a relationship between learner perceptions of a fully online language learning course, computer self-efficacy, and age, that is influenced by gender.

2. What are the effects of gender and language proficiency on learners' perceptions of a fully online language learning course and computer self-efficacy?

Alternative hypothesis 2: There is an effect of gender and language proficiency on learners' perceptions of a fully online language course and computer self-efficacy.

Methods

The present study used a quantitative approach to answer the research questions. Likert scales were used to gather data on students' perceptions toward fully online language learning (PFOLL) components (online participation, collaborative group work, instructional materials, and learning strategies and styles), computer self-efficacy (CSE), age, gender, and language proficiency. First, these data were used to establish correlations between PFOLL components and CSE, age, and language proficiency. Then, since gender has been addressed as a variable impacting PFOLL and CSE in the literature, the sample was separated into two groups (males and females) to assess its impact on the variables.

Participants and Context

The study included 236 undergraduate students of varying majors who took a fully online EFL course in the first semester of 2020 in a professional institute in Chile. The courses were delivered in an emergency remote teaching setting that prompted a fully online format due to COVID-19 restrictions regarding face-to-face learning. Participants were selected through convenience sampling (Creswell, 2012), as the researchers had access to students in the educational institution.

Regarding the learning context, these students take between two to six semesters of compulsory EFL classes. During the first semester of online courses, students typically met with their teachers synchronously through the Blackboard learning management system (LMS) and its virtual classroom space labeled Collaborate. The course was delivered twice a week, and teachers were encouraged to give students homework by means of worksheets, videos, forums, and bookwork to promote autonomous learning. Teachers were also able to upload contents into weekly folders and assign students to complete tasks such as blogs, discussion forums, videos, and other asynchronous activities.

Instrumentation

The two instruments utilized in the study were adapted from published research, and permission was secured from the authors by email correspondence. The instruments were translated into the participants' primary language (L1) (Spanish) by the main researcher, and, to our knowledge, we are the first team to translate them into Spanish. The translated versions of both instruments were reviewed by two external researchers and then piloted with a group of 15 students to further identify issues with item comprehension. The pilot participants did not identify any major clarity issues with the items. The adapted and translated versions of the instruments can be found in the Appendix.

Perceptions of Fully Online Language Learning (PFOLL) Scale

The instrument was adapted from Sun (2014) and translated into Spanish. The PFOLL instrument included 19 items that displayed a 5-point Likert scale (ranging from *Totally Disagree* to *Totally Agree*). There are four components. The first component is *Online Participation*, which includes four items (e.g., Item 1: "There was not enough opportunity for peer interaction". "I found it more difficult to participate and engage in an online class than a traditional classroom"). The second component is *Collaborative Group Work*, comprising four items (e.g., Item 8: "There needed to be more group discussions on study-related matters amongst class members and with the teachers"). The third component is *Instructional Materials*, with six items (e.g., Item 9: "Online language learning instruction should be task-based rather than rote learning"). Finally, the fourth

component is *Learning Strategies and Styles*, which includes five items (e.g., Item 13: “My preferences, needs, social life, technology choices, etc. were better served by online learning”). The order of the items was randomized, and four items were reverse-coded. Each of these components yields a score, which in the present study were presented separately as well as a full scale of the instrument addressing general perceptions toward fully online language learning. The PFOLL questionnaire also included age and gender.

To measure the internal consistency of each of the four areas, reliability analyses with Cronbach’s alpha were conducted for each of the components. For online participation, Cronbach’s alpha was .45, which is quite low. The reliability analysis suggested that removing two of the items in the component would increase internal reliability to .59, which is moderate (Hinton et al, 2014). The removed items may have decreased reliability for online participation since they did not directly address the component. For example, one of these items focused on the work done by the teacher to build an online community rather than the actual participation of the students (“Much work was needed by the teacher to foster the building of an online learning community”). The other component that had low reliability was collaborative group work, with a Cronbach’s alpha of .4. Upon removing a single item in the component, the reliability increased to .54 which represents a moderately reliable figure (Hinton et al., 2014). The removed item may have decreased the reliability because it also focused on the discussion with the teacher (“There should have been more group discussions about the subject matter among the students and also with the teacher”). Instructional Materials and Learning Strategies and Styles both had a Cronbach’s alpha value of .7, which suggests adequate internal consistency (Hinton et al., 2014).

Computer Self-Efficacy Scale

The computer self-efficacy scale (CSES) was adapted from Howard (2014). A 5-point Likert scale was used for the 12 items addressing CSE statements such as, “It is easy for me to achieve my goals with the computer” and “I can persist and complete almost any computer-related task.” In line with Howard (2014) and Loar (2018), the scale displayed very good internal consistency, with a Cronbach’s alpha value of .92. The questionnaire was also translated into Spanish.

Procedures

The PFOLL and CSE instruments were administered by means of Google Forms. The links to the questionnaires were emailed to students taking an online EFL course for the first time in the first semester of 2020. These links included a section where the general aims of the study were outlined. The section also informed them that their data would be anonymized (numbers would be assigned to each participant), and that the study had received the required permissions from their institution and the ethics approval from the researchers’ university. The students who answered the PFOLL questionnaire received the CSE questionnaire two weeks after the former to reduce potential fatigue effects. Thus, data for five variables were collected: PFOLL, CSE, language proficiency level, age, and gender. The data set for the PFOLL and CSE instruments were non-parametric.

Data Analysis

A Shapiro-Wilk test was performed and showed that the distribution of both PFOLL total scores ($W = 0.98$; $p < 0.01$) and CSE scores ($W = 0.93$; $p < 0.01$) departed significantly from normality. Thus, non-parametric tests were used, and the medians (*Mdn*) were reported. Research question 1 required Spearman *rho* correlations with PFOLL components, CSE, and age, across gender. Regarding demographic variables, age (years of age) and gender (male-female) were included in the PFOLL questionnaire as single items. As for research question 2, a series of Mann-Whitney U tests with gender and language proficiency as the independent variables was employed. To access language proficiency data, TOEIC Bridge total score data were gathered for the sample by the end of the first semester of 2020 ($M = 458.31$; $SD = 69.34$). The TOEIC Bridge is a test administered to assess English proficiency in beginning and intermediate level learners by means of

reading and listening comprehension items. These scores were converted to Common European Framework of Reference for Languages (CEFR) levels and were used to create two distinct groups: A2 (basic user; $n = 66$) and B1 (independent user; $n = 170$). A t test confirmed that the means of the A2 group (365.1) and the B1 group (495) were significantly different ($p < .01$).

Results

Descriptive Statistics

The study included 236 undergraduate students (110 males and 126 females). Students completed an average of three EFL semester courses ($M = 3.13$; $SD = 1.77$). Ages of the participants ranged from 18 to 49 ($M = 24$) years. Table 1 includes descriptive statistics for scores on the PFOLL questionnaire and each of the four subscales as well as CSE, across gender.

Table 1. Descriptive Statistics for PFOLL Components and CSE by Gender

	Overall mean ($n = 236$)		Males ($n = 110$)			Females ($n = 126$)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>Mdn</i>	<i>SD</i>	<i>M</i>	<i>Mdn</i>	<i>SD</i>
Online participation	2.07	1.12	2.09	2	1.16	2.06	2	1.09
Collaborative group work	4.03	.79	3.95	4	.88	4.09	4	.69
Instructional materials	4.27	.59	4.22	4.3	.65	4.3	4.4	.53
Learning strategies and styles	3.69	.80	3.69	3.8	.91	3.68	3.6	.7
Total PFOLL	3.51	.43	3.49	3.5	.44	3.54	3.5	.42
Computer Self-efficacy	4.14	.72	4.41	4.6	.61	3.91	4	.72

Results indicate that the most challenging component of the fully online language learning experience was online participation ($M = 2.07$; $SD = 1.12$). Participants agreed with statements such as “I learnt in a small group rather than in a big class, e.g., I only practiced with a handful of classmates as I knew fewer classmates than I would have in the traditional classroom setting.” A higher mean was found for the learning strategies and styles component ($M = 3.69$; $SD = .80$), as they tended to agree that their online learning was more self-regulated than in a face-to-face setting. They agreed with statements such as “Without a classroom and the presence of a teacher, I found online learning to be more self-directed and self-regulated.” Likewise, collaborative group work displayed a high mean ($M = 4.03$; $SD = .79$), as participants agreed with statements such as “I like the groupwork we had to do” and “Learner cooperation and collaboration should be encouraged in online learning.” Finally, the highest mean was found in instructional materials ($M = 2.07$; $SD = 1.12$), where students agreed with statements such as “Learners should be encouraged to co-construct class resources and the learning environment and co-create new learning and knowledge.” The mean for CSE ($M = 4.14$; $SD = .72$) was also high. The CSE mean for males was 4.41 ($SD = .61$) and 3.91 ($SD = .72$) for females.

Alternative Hypothesis 1

The first alternative hypothesis states that there is a relationship between learner perceptions of a fully online language learning course, computer self-efficacy, and age, that is influenced by gender. Table 2 shows the relationships among the variables. As can be seen in Table 2, for males there were several significant positive correlations between CSE and age ($r = .258$, $p < .01$), CSE and learning strategies and styles ($r = .271$, $p < .01$), and CSE and instructional materials ($r = .249$, $p < .01$). Positive correlations between CSE, age, and some of

the components of PFOLL were found in female learners. The strongest of these correlations was between CSE and learning strategies and styles ($r = .355, p < .01$). Overall, males had a higher correlation between age and CSE ($r = .258, p < .01$) than females ($r = .199, p < .05$). For females, except for instructional materials, all the correlations between CSE and PFOLL components were higher. Table 2 displays Spearman's rho correlations between PFOLL components, CSE, and age, across gender.

Table 2. Correlations Between Age, PFOLL Components, and CSE for Males and Females

	rho	Age		OP		GW		IM		LSS		TPFOLL		CSE	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
Age	rho	1	1												
OP	rho	-,015	,100	1	1										
GW	rho	-,072	-,069	-,293**	-,108	1	1								
IM	rho	,061	-,072	-,207*	-,256**	,361**	,305**	1	1						
LSS	rho	-,010	,022	-,394**	-,107	,397**	,289**	,387**	,293**	1	1				
TPFOLL	rho	-,060	-,005	,166	,416**	,642**	,589**	,590**	,402**	,625**	,616**	1	1		
CSE	rho	,258**	,199*	-,098	-,075	,184	,342**	,249**	,241**	,271**	,355**	,207*	,332**	1	1

Note: * $p < .05$ (2-tailed); ** $p < .01$ (2-tailed)

A = Age; Online participation = OP; Group work = GW; Instructional materials = IM; Learning strategies and styles = LSS; Total PFOLL = TPFOLL; Computer self-efficacy = CSE.

Alternative Hypothesis 2

The second alternative hypothesis states that there is an effect of gender and language proficiency on learners' perceptions of a fully online language course and computer self-efficacy. Mann-Whitney U tests were first conducted to assess whether the difference in the median scores for PFOLL and CSE could be explained in terms of language proficiency level (A1 and B2). Results revealed no significant differences ($p > .05$) in this respect. Then, a set of Mann-Whitney U tests was run to assess whether the difference in the medians of the PFOLL components and CSE could be explained in terms of gender. Test results ($U = 4018, p < 0.05$) revealed an effect for gender on CSE, where the CSE median score for males ($Mdn = 4.41$) was significantly higher than those of females ($Mdn = 3.91$). The effect size for the difference (η^2) is rather large (.13).

Discussion

Research Question 1

Research Question 1 involved exploring the relationship between learner perceptions of a fully online language learning course, computer self-efficacy, and age by gender. Several findings are worth considering. Males had a significantly higher positive correlation between age and CSE ($r = .258, p < .01$) than females ($r = .199, p < .05$). This finding is in line with Jan (2015), who found that older students taking online courses displayed higher levels of CSE than younger learners. As Jan suggests, this is a rather surprising finding as younger participants are expected to display higher CSE. Since this relationship was found to be stronger in males, it can be surmised that older males may be more experienced with computers when compared to older females (He & Freeman; Koch et al., 2008). These prior experiences will likely contribute to a person's feelings of self-efficacy (Bandura, 2010) with computers. The weaker relationship between CSE and age for females may have also been influenced by computer anxiety (Awofala et al., 2019; He & Freeman, 2010). It is

possible that even though the older female students had prior computer experiences, those experiences could have been negative due to computer anxiety and thus lower the correlation between age and CSE levels.

A significant relationship was not found between CSE and online participation by gender. It could be reasoned that the three components of PFOLL that correlated with CSE all require a degree of computer self-efficacy and competency to be able to perform tasks within these domains. For students to create a personalized learning environment, which is related to the learning strategies and styles component, they need to feel confident using the computer and computer software to have a sense of control (i.e., self-regulation). Regarding online participation, most students believed that their interaction was limited to participating in small groups, regardless of their CSE beliefs.

Females displayed higher correlations between CSE and collaborative group work and learning strategies and styles, results that can be explained in terms of how females and males may approach computers, technology, and the internet. Johnson (2011) found that females displayed more collaboration and peer interaction behaviors than males by creating more forum posts in an online platform, responding to others' posts more frequently, and reading others' posts more often than their male counterparts. In the present study, CSE and group work may have correlated for female learners due to the significant role of collaboration in their perceptions of online learning. This perception could be lowered if their collaboration experience is hindered because of the lack of beliefs in their abilities to use a computer efficiently enough to allow for peer-to-peer communication, collaboration, and connection in the online learning environment. Likewise, the perceptions of group work will likely be heightened if there are sufficient levels of CSE to create positive collaboration experiences amongst their peers. Similarly, collaboration and communication are important components of PLE as part of learning strategies and styles, which may have also strengthened the relationship of the component with CSE in females, as a lack of collaboration and communication has a greater impact on their online course perceptions (Johnson, 2011).

Research Question 2

Research Question 2 involved exploring effects of gender and language proficiency on learner perceptions of a fully online language learning course and computer self-efficacy. The Mann Whitney tests did not show that language proficiency level and gender influenced PFOLL components. This suggests that female and male students perceived the four components similarly. Similarly, language proficiency was not found to significantly impact CSE. Perhaps the two group levels (A2 and B1) were quite like each other in terms of proficiency level, and teachers and students may have relied on their first languages to address the new learning context, which would make language proficiency levels less relevant when reporting perceptions toward an online course. A significant effect of gender on CSE was found, with males significantly outperforming females. This is consistent with previous studies (Cai et al., 2017; He & Freeman, 2010; Huffman et al., 2013; Koch et al., 2008; Whitley, 1997). Males in higher education typically display higher levels of CSE due to the higher number of hours exposed to computers than their female counterparts (He & Freeman, 2010; Koch et al., 2008). The strength of this relationship can increase over time, which is confirmed by the higher correlations found in the present study between CSE and age in males, who may be less affected by computer anxiety (Awofala et al., 2019; He & Freeman, 2010).

Limitations

A limitation of the study is that the final number of participants who completed both questionnaires only represented 10% of the intended population. They were contacted using their institutional emails, which they may not have checked periodically. A larger sample may have yielded more significant differences in males and females regarding PFOLL components. In addition, the reliability issues identified with the PFOLL instrument for the components of online participation and group work prompted us to remove three items from the PFOLL questionnaire to increase internal consistency before data analysis. A revision of such items

would improve the instrument and its effectiveness in gauging perceptions regarding fully online courses. Furthermore, future studies with a qualitative component could explore specific aspects related to computer self-efficacy, such as computer anxiety and negative perceptions toward online participation.

Implications for Theory and Practice

The results of this study highlight a few areas that could be addressed to enhance the perceptions of language learning in fully online environments in higher education EFL contexts. Regarding online participation, the findings in the present study are in line with other studies reporting that online participation and socialization in similar online settings was limited to small groups of students interacting rather than a whole class interaction environment (Capdeferro & Romero, 2012; Moore & Iida, 2010; Nor et al., 2012; Sun, 2014). Feeling disconnected from peers and the learning experience in general can lead to negative attitudes toward online learning (Nor et al., 2012) as well as feelings of isolation (Huss et al., 2015; Koh et al., 2010; Lala et al., 2017). These negative attitudes and feelings can be to some extent tackled by creating a sense of community in the classroom (Koh et al., 2010; Huss et al., 2015). The teacher can do so by facilitating dialogues over CMC tools, posting videos at the beginning of the course with introductions, providing timely feedback, offering virtual office hours, and moderating student discussions. In line with the findings of Huang et al. (2020), building a social community through social networks can also promote a sense of community that can reduce feelings of disconnectedness. Furthermore, educators could encourage students to set up study groups, use social media to create more informal moments to get to know their classmates, and diversify the groups of learners when participating in group tasks so they have a chance to interact with more students. Students in the present study enjoyed the collaborative work they carried out, and engaged in activities that made it possible for them to collaborate with their classmates in small groups in a virtual and synchronous manner. Teachers can enter these “break-out rooms” to give support and feedback throughout the activity. Moreover, Blackboard offered asynchronous spaces for forums and blogs where the students could collaborate with the teacher and classmates to support their language learning. These online collaborative activities were based on problem-solving, information gathering, and identifying language gaps, all of which are crucial to promote learning based on discovery in emergency remote teaching settings (Huang et al., 2020), and can make learning relevant to the real world as part of a CoP (Wenger, 1999).

Participants believed they should be encouraged to be creative and that they should participate in the co-construction of the online learning resources to be used in the learning environment. This is in line with Sun’s (2014) findings, in which students showed a high level of appreciation and awareness for task-based, authentic, and learner-generated online materials containing real-life problem-solving and critical thinking skills. When online course materials include educational videos, various forms of media such as tutorials and web-based tasks, activities that are game-based, and collaborative projects, learning can become more relevant and interactive (Vlachopoulos & Makri, 2019). When students find it difficult to adapt their strategies to stay engaged in the fully online EFL lesson, creating a personalized learning environment that is more specific to the learning preferences and needs of the student (Dabbagh & Fake, 2017; Reinders, 2014) can increase participation and self-regulation. Teachers can make use of a variety of instructional materials (e.g., tutorials, synchronous class sessions that were recorded and could be seen at any time, vocabulary and grammar worksheets, forums, blogs, videos, and interactive websites) that can be uploaded onto CMCs such as Blackboard. These collaboration tools will increase the temporal possibilities that online learning settings can provide and can expand the positive impact of emergency remote teaching settings (Bond et al., 2021).

Finally, another area that can be improved upon is the level of CSE for female learners, which impacts their perceptions toward group work and learning strategies and styles. Although their CSE levels were moderately high in the study, males significantly outperformed them. This is important because CSE can influence perceptions toward group work and learning strategies by establishing a more personalized learning environment. Increasing the ability to use computer equipment (Simmering et al., 2009) and incorporating

collaboration and peer-interaction into the online language learning environment (González-Gómez et al., 2012; Johnson, 2011) can promote healthy levels of CSE.

Conclusion

The present study sought to explore the perceptions that EFL higher education learners held toward a fully online language learning course and whether those perceptions were related to computer self-efficacy, age, gender, and language proficiency level. Results revealed that students had overall positive perceptions of the fully online language learning course regarding collaborative group work, instructional materials, and learning strategies and styles, and that they displayed negative reactions toward online participation. Findings revealed significant relationships between CSE and PFOLL components, except for online participation across gender. Gender had an effect on CSE, with males displaying significantly higher CSE than females. It can be concluded that many of the negative perceptions reported by these learners could be to some extent tackled by the way in which the teacher creates a sense of community in the classroom and by the creation of collaborative tools that increase online participation. The perceptions that learners held toward fully online courses seem to be unaffected by gender and proficiency level, although gender did impact CSE. The COVID-19 pandemic has reshaped education and much of EFL learning will continue to be offered in virtual formats. As more schools and universities are opting to provide their students with online options for attending classes, teachers should focus on increasing peer collaboration and interaction in emergency remote teaching settings. In doing so, teachers and administrative authorities will be able to embark on a fully online learning endeavor with a better understanding of the learner experience and will identify more strategies to confront the difficulties and challenges that their students will likely face.

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Appendix: Translated Instruments

Perceptions of Fully Online Language Learning (Sun, 2014)

1. Me gustó el trabajo en grupo que tuvimos que hacer.
2. En vez de relacionarme con muchas personas en una clase, mis interacciones con compañeros estuvieron limitadas a un grupo pequeño de compañeros.
3. Sin una sala de clases ni la presencia física del docente, encontré que el aprendizaje fue más auto-dirigido y regulado por mí.
4. Creo que otros estudiantes en el curso también formaron sus propios ambientes de aprendizaje.
5. El trabajo en grupo y el desarrollo de proyectos son partes importantes del aprendizaje en línea.
6. El docente tuvo que hacer un gran esfuerzo para poder fomentar el desarrollo de una comunidad de aprendizaje en línea.
7. Se debe incentivar la cooperación y colaboración del alumno en el aprendizaje en línea.
8. El aprendizaje online debe ser un aprendizaje individualizado o personalizado que permite flexibilidad, e incentiva a seguir mi propia dirección y elección. Por ejemplo, no siempre tuve que seguir las instrucciones del docente, pude reorganizar los materiales de aprendizaje, o pude escoger mis propias herramientas en línea y configurar el ambiente de aprendizaje para ajustar mejor mis objetivos de aprendizaje y necesidades.
9. Sentí que tuve el control del proceso de aprendizaje.
10. Aprendí en un grupo pequeño en vez de una clase grande. Por ejemplo, solo practique con unos pocos compañeros de clase, pues conocía menos compañeros de los que hubiera conocido en una clase tradicional.
11. Debió haber más discusiones en grupo acerca de la materia de estudio entre los alumnos y también con el docente.
12. El trabajo en clases de manera online deber a estar basado en actividades de práctica en vez de memorizar contenidos.
13. Mis preferencias, necesidades, vida social, elecciones de tecnología, etc. fueron abordadas de mejor forma por el aprendizaje online.
14. El material del aprendizaje de idioma en línea debe ayudar al desarrollo de resolución de problemas de la vida real y habilidades de pensamiento crítico.
15. A veces se debe usar materiales de aprendizaje auténticos, de primera fuente (artículos de noticia, canciones, libros, videos en YouTube, blogs, etc.).
16. Se debe promover la iniciativa por parte del alumno en vez de que todo esté preparado y dado al alumno por su profesor; por ejemplo, que los alumnos sugieran temas de aprendizaje.
17. Se debe promover que los estudiantes participen en la creación de recursos de aprendizaje y del ambiente de aprendizaje, logrando aprendizajes y conocimientos nuevos de forma cooperativa.
18. No había las suficientes oportunidades para interacción de pares. Encontré más difícil participar e interactuar en una clase en línea que en una clase tradicional.
19. Se debe incentivar la creatividad del estudiante en las actividades.

Computer Self-Efficacy (Howard, 2014)

1. Siempre me las arreglo para resolver problemas difíciles con el uso del computador si me empeño en hacerlo.
2. Si mi computador no está funcionando correctamente, a pesar de esto puedo encontrar la forma de hacer lo que necesito.
3. Es fácil para mí lograr mis objetivos con el computador.
4. Tengo confianza de que podría manejar situaciones inesperadas con el computador.
5. Cuando invierto el tiempo necesario puedo manejar muchos programas computacionales.
6. Puedo mantener la calma cuando enfrento problemas con el computador porque confío en mis habilidades.
7. Cuando estoy enfrentado/a a un problema con el computador, normalmente puedo encontrar varias soluciones.
8. Normalmente puedo manejar cualquier problema computacional al cual me enfrento.
9. Fallar al hacer algo en el computador me incentiva a intentarlo con más ganas.
10. Soy una persona auto-suficiente (me las arreglo solo/a) cuando se trata de hacer cosas en un computador.
11. Hay pocas cosas que me cuesta hacer en un computador.
12. Puedo persistir y completar casi cualquier tarea relacionad

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