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University students' perspectives on online English language learning: Implications for Ecuadorian educators

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Abstract: Online education has mainly been at the core of discussions after Latin America's Covid-19 sanitary crisis started in March 2020. Teachers and institutions have explored different ways to face what is now called "the new normal". This study aims to identify the perspectives of Ecuadorian university students on online English language learning in order to inform the design of strategies that allow improvements in the teaching process. This quantitative study was carried out at a university in Ecuador and encompassed 4.936 participants from different majors. An online questionnaire was administered for data collection and analyzed through the application of neural networks. The results showed that students perceive learning English online positively and that their greatest strengths are in listening and writing, while their difficulties lie in developing their reading and speaking abilities. This suggests that more attention should be given to the development of reading and speaking strategies in an attempt to fill the gap that students indicated while answering the questionnaire. Some directions in that regard are given in the conclusion.

Keywords: online learning; language education; higher education; Ecuador

1. Introduction

The COVID-19 world pandemic that hit Latin America in March 2020 surely left a myriad of life-changing consequences in all segments of life. In education, it was not different. Because of the lockdown measurements that took place during the pandemic, which imposed physical distancing for everyone and other precautionary measures, schools were forced to move their administrative and pedagogical activities from face-to-face to an online mode of operation (Santos and Velez, 2020). As Castells (2020) points out, the digital then became "the new normal". The transition from face-to-face to online learning mode sometimes happened overnight in some educational institutions while others took some time to reflect upon the best practices as they also were bound to establish an online learning setting. However, this movement proved to be somewhat bumpy, although the literature on the area had signaled much-needed attention to the role of technology in education for some time (Finardi et al., 2016; Finardi, 2017; Santos and Velez, 2020; Vieira and Finardi, 2018).

In Brazil, studies carried out during the pandemic have shown that teachers see the impact of the use of technology in language learning negatively, especially because of the lack of support received from their affiliate institutions (Có et al., 2020). Despite that, the teachers from the aforementioned study pointed out that they would not

oppose using technology in their future lessons as they become more familiar with the tools during the critical pandemic periods. Mayrink et al. (2021) investigated teachers' perceptions of the use of technology during the pandemic. They concluded that, even though their institution (University of São Paulo, USP) has adopted online pedagogical practices for some time, the Covid-19 sanitary crisis demanded a collective and immediate effort from all actors in the process at USP. Besides that, the researchers pointed out that language education and technologies are not on opposite sides and that, in both realities, one needs to explore and reflect upon the adaptation of materials, assessment, and forms of interaction. Furthermore, Mayrink et al. (2021) claim that educational institutions must review their concept of space and time and their roles in the curriculum so that they reflect the demands of the XXI century. This has also been a subject of concern by other researchers (Gastaldi and Grimaldi, 2021).

After gathering data from language teachers in Brazil, Amorim et al. (2021) went on to collect English language students' perceptions of online language learning in the Brazilian context. On the other side of the spectrum, the study revealed that students took the pandemic experience with a more positive attitude. Online language learning provided students with more time and local and access flexibility. In other words, they had more access to education in different times and places. However, there were some shortcomings as well, especially when it came to attention span when studying online, as the students saw themselves diverging from their course of study and trying to multitask. Another highlight of this study was that students demonstrated positive feelings towards the online classes, as many were physically isolated from other students at the pandemic's peak. They saw their English language classes as an escape from the tough reality of the disease.

The studies presented here have indicated the urge for research that considers the perceptions of the actors of the educational process in diverse contexts. Because the Technical State University of Quevedo (UTEQ), Ecuador, has shifted its English classes to online mode since the beginning of the pandemic, it becomes imperative that we hear the voices of those affected by the changes that the pandemic imposed in their pedagogical practices. The main purpose then becomes that the feedback provided by the UTEQ students informs the launch or the continuation of (better) practices involving the use of technologies.

Therefore, this study's primary goal is to identify Ecuadorian university students' perspectives on online English language learning to inform the design of strategies that allow improvements in the teaching process. More specifically, the present study aims to:

- Identify the difficulties and challenges of students learning the four English skills online.
- Establish teaching strategies that allow improvements in the online teaching process of the English language.

After the introduction (section 1), the paper will be organized as follows: in section 2, a literature review will be presented as a solid theoretical foundation for the study; in section 3, a methodology will detail the execution of the study with its context and participants, data collection instruments and data analysis; in section 4, a results and discussion part will be interwoven with the theory presented in section 2; and finally, some conclusions will be drawn for the study.

2. Literature review

The main purpose of this literature review is to shed some light on the use of technology in language teaching/learning as a way to provide a solid foundation for the data that will be collected in the present study, which intends to gather students' perceptions of online English language learning. Before we delve into the studies on English language education online, a question might be posed: what challenges has the education field faced over the past few years in Latin America? Ferraz (2021) laid out some of the intricacies of the Brazilian context, which might be applicable to others throughout Latin America.

Ferraz (2021) describes the current context of education in Brazil and lists five challenges for re-signifying teacher training. Ferraz (2021) divides the five challenges into three categories: 1) epistemological challenges; 2) practical challenges, and 3) political challenges. In the first category, epistemological challenges, the author lists two challenges: 1) social transformations and 2) traditional education versus contemporary education. In this reflection, Ferraz (2021) points out that social transformations lead us to the possibility of the coexistence of a typographic society (more individualistic) and a post-typographic society (more collaborative). According to the author, the challenge, despite the two societies coexisting, is to think about the training of language teachers as those who were educated in a typographic society that insists on remaining and imbuing its visions of a centralized and linear world, which simplifies language in favor of its didactic nature.

In contrast, the post-typographic society advocates distribution, collaboration, and multimodality and insists on coexisting with the former. The second challenge in this category deals with the dichotomy of traditional and contemporary education. For Ferraz (2021), the epistemologies supporting the traditional school (binarisms, vertical relationships, centrality, individuality) are the same as those supporting the typographic society. Thus, Ferraz (2021) asks: Is contemporary education of collectivity and negotiations possible (to be invented)?

Concerning practical challenges, Ferraz (2021) poses an important question: How to think about the training (of teachers) in practical terms? Following the logic of the other challenges, teacher training until then was thought of in terms of teaching methodologies and methods, from which the curricula derived (or derive?), which in turn materialized in didactic materials. This was applied pedagogy (Ferraz, 2021). The understanding of language and language was not questioned or put in check. This same author cites Menezes de Souza (2019) to criticize our submission to methods and methodologies, curricula, and teaching materials of the moment (sometimes one, sometimes another). Even so, we want to form critical citizens. Ferraz (2021), thus, advocates for transdisciplinary teacher training that examines and reexamines practices and evaluates and self-evaluates pedagogical practices locally: Does all this work for my context? How can I use this to meet the needs, desires, and realities of my context and my students? (Ferraz, 2021).

Regarding political challenges, Ferraz (2021) highlights the evolution of our species towards modernity, whose two great systems, capitalism and neoliberalism, drive our society. More recently, this challenge has been largely based on the rise of ultra-right governments advocating homogeneity, consensus, and standardization and

generating much polarization. Finally, the challenge of recent language and educational policies, such as the reform of secondary education in Brazil, the BNCC, and the Escola Sem Partido program (Escola Sem Partido is a Brazilian political movement that advocates for the prohibition of political and ideological indoctrination in schools, arguing for educational environments free from perceived biases, particularly those related to political and sexual orientation). All these documents and movements restrict, limit, and sometimes prohibit dialogue, diversity, and the different, all against the direction we should be heading. Thus, we question what direction(s) should teacher training take in view of the imposed realities?

Ferraz (2021) serves as an impetus for the reflection upon which this study is calling. As we look into the students' perspectives on online English teaching and learning aiming to (re)design teaching strategies, one might question whether we are considering the new scenario in which we live, one in which technology plays a key role, portrayed by Castells (2020), as the "new normal".

2.1. Teaching English/Languages online

Addressing a current theme, the global crisis caused by the Covid-19 pandemic, Mayrink et al. (2021) reported how the University of São Paulo (USP) faced the pedagogical and technological adversities brought about by the pandemic. Among the lessons learned by the academic community at USP, the most significant was the realization that face-to-face and virtual/remote pedagogical practices are not on opposite sides despite this not being a new agenda. In both realities, as mentioned elsewhere in this paper, it is necessary to rethink the adaptation of materials, evaluation, and forms of interaction. With or without a pandemic, with virtual and remote or hybrid teaching, such reformulations must be on the agenda of language teachers, trainers, and teachers (Mayrink et al., 2021). Another lesson refers to a paradigm shift in the focus of language education, which, instead of emphasizing linguistic aspects, should focus on language as a social practice and, with this vision, guide work. There is also a need for higher education institutions to invest in continuous training support regarding technology and its various possibilities for building knowledge and teaching in remote environments.

In this way, the university must explore hybrid teaching/learning alternatives or blended learning since these methodologies provide more possibilities for learning in different times and spaces and expand the interaction between professors and students and among students beyond the classroom. Finally, Mayrink, Albuquerque-Costa, and Ferraz (2021) invite researchers to explore these practices in order to contribute to the field of language education.

The study by Có et al. (2020) included language teachers from all education sectors, that is, from regular basic public and private schools and language institutes. As mentioned elsewhere, the participants took the experience of teaching online negatively due to the fact that the transition from face-to-face to online mode was done, in some cases, overnight (literally) and to the lack of institutional support. Conversely, when asked about future lessons, the participants reported that, if given the necessary support, they would consider using technology in future lessons.

Months into the pandemic and the lockdown in Brazil, in another study, Amorim

et al. (2021) looked into the voices of English students attending online classes in different contexts, that is, language courses, regular schools, or private classes. The results showed that the students faced the online classes with a more positive attitude as opposed to the teachers of the first study. Some of the difficulties mentioned by the students, though, included the lack of concentration due to the many distractions studying online may bring about (i.e. opening tabs, receiving messages, etc.) and time management, as during the lockdown, most of our activities were shifted to online mode and screen time increased. The amount of time spent in synchronous activities online causing, consequently, a negative impact on students (and teachers!) was pinpointed in Ross and DiSalvo (2020).

For the participants in Amorim et al. (2021), face-to-face socialization was detrimental and, therefore, was one of the downfalls of online education. However, despite the lack of socialization, especially because students kept cameras and microphones off during the classes, the online meetings represented a chance for students to interact with other people outside their inner circle, positively boosting their emotions. Amorim et al. (2021) concluded that the issues brought by online education during the COVID-19 sanitary crisis were not new. However, they were rather exacerbated (Have “the cameras” and “microphones” of our students been shut down for quite some time?). This corroborates what Mayrink et al. (2021) claim regarding face-to-face and online education not being on opposite sides and needing serious revisions in terms of materials, assessments, and forms of interaction.

2.2. Learning English in Ecuador

In Ecuador, English has gained importance due to its role in promoting international communication and economic growth (Santos and Ramirez, 2023). As part of the educational policy, the Ministry of Education of Ecuador (Mineduc) and the Curriculum Department designed a new English as a Foreign Language Curriculum that responds to the needs of the Ecuadorian reality. The curriculum proposal is designed for students from 2nd to 10th grade of General Basic Education and from 1st to 3rd grade of General High School Education whose mother tongue is not English, conforming to the Mineduc (2016) guidelines.

The Ecuadorian population is composed of groups from different cultural and language backgrounds. This curriculum recognizes that not all students in Ecuador are L1 Spanish speakers, and there are varying degrees of bilingualism in their communities. The curricular proposal is flexible, worked by sub-levels, developed in five (5) main curricular contents, and promotes the values of justice, innovation, and solidarity integrated into the Common European Framework of Reference for Languages (CEFR), according to the Mineduc (2016).

In order to improve English language learning, elementary schools and high schools often use interactive teaching methods such as group discussions, role-playing games, and multimedia resources. However, issues such as limited resources and varying teacher competencies can affect the effectiveness of programs. Efforts have been made to address these issues and improve the overall level of English proficiency in Ecuador. The goal is to enable students to acquire the language skills they need for global communication, higher education opportunities abroad, and better job

opportunities in an increasingly interconnected world.

In line with Mineduc (2016), the basic principles of the curricular proposal can be summarized as follows: 1) communicative language approach: Language is best learned as a means to interact and communicate and not as a set of knowledge to be memorized; 2) learner-centered approach: Teaching methodologies that reflect and respond to learners' strengths and challenges, facilitating their learning process; 3) thinking skills: Learning a foreign language fosters the development of thinking, as well as the social and creative skills necessary for lifelong learning and citizenship; 4) content Integrated Learning for Foreign Languages: A model used to integrate language learning with cultural and cognitive aspects, so that language acquisition serves as a guide for students' development; 5) international standards: The curriculum is based on internationally recognized levels and teaching processes for language learning.

There are four main objectives of the English as a Foreign Language Curriculum: First, to develop students' understanding of the world, other cultures, and their own and their ability to communicate their views through the Foreign Language. Second, to develop the personal, social, and intellectual skills necessary to reach their potential and participate productively in an increasingly globalized world operating in other languages. Third, to create a love of language learning from an early age through interesting and positive learning experiences to foster students' motivation to continue learning. Fourth, to achieve the profile proposed in the national curriculum for Elementary and High school, as reported by Mineduc (2016).

All universities offer English language courses as part of their curriculum to give students the necessary language skills for international cooperation and career advancement. On the "Ley Orgánica de Educación Superior" (Higher Education Act), CES (2010), article 126 talks about the formation of values and rights of citizens and mentions that it is the responsibility of higher education institutions to provide those who graduate from any of the careers or programs, the effective knowledge of their duties and citizens' rights and of the social, cultural and ecological reality of the country; the mastery of a language other than the mother tongue and the effective management of computer tools (CES, 2010).

In the "Reglamento de Régimen Académico" (Academic Regime Regulation), article 80 affirms that learning a second language shall be a requirement for graduation in third-level careers, in accordance with the following levels of sufficiency, taking as a reference the CEFR: a) for the third technical level, at least the level A1 and for the technological level shall be required at least level A2; b) for the third-grade level, at least level B1 shall be required.

In the post-graduate programs, the Higher Education Institutions (HEI) will define, depending on the development of the area of knowledge, the level of mastery of the second language, if this is required. Each HEI will decide whether or not to integrate a second language into the curriculum of the career or program.

In order for regular students enrolled in a career to meet the requirement of proficiency in a foreign language, higher education institutions may, if they so require, carry out agreements with other HEI or institutions which, although they are not part of the Higher Education System, provide language programs or courses, provided that they issue certificates of proficiency through the surrender of examinations with

international recognition, in agreement with the CES (2017).

To ensure effective language learning, universities often use a combination of classrooms, interactive classes, language labs, and immersion opportunities. This multifaceted approach aims to improve students' listening, speaking, reading, and writing skills. In addition, universities encourage students to participate in language exchange programs to communicate with native speakers to improve their language abilities further.

3. Materials and methods

3.1. Context and participants

This quantitative study was undertaken at Universidad Técnica Estatal de Quevedo, a public university located in the Los Ríos province, Ecuador. We utilized a non-probability sampling method to gather data from the student population at Universidad Técnica Estatal de Quevedo. An open invitation was extended to all 10,000 students enrolled in various majors across the university, encouraging voluntary participation. However, 4,936 students participated in this investigation, representing a diverse range of academic disciplines (**Table 1**). Among them, 34.2% were male, 65.1% were female, and 0.7% preferred not to say. Their ages ranged from 17 to 60 years old. The wide age range reflects the diverse student body typically found in public universities in Ecuador.

Table 1. Participants' majors.

Faculty	Participants
Faculty of Health Sciences	625
Faculty of Education Sciences	440
Faculty of Engineering	376
Faculty of Industry and Production	779
Faculty of Industry and Production	515
Faculty of Social, Economic, and Financial Sciences	716
Faculty of Business	855
Faculty of Livestock and Biological Sciences	630
TOTAL	4936

Source: The researchers.

3.2. Data collection

An online questionnaire was applied to collect the data in this study for its reliability and practicality to gather information from 4938 respondents in a prompt and efficient manner (Zboun and Farrah, 2021). Participants had three weeks to complete the questionnaire, which was sent to them by email.

The researchers measured the reliability of the questionnaire and determined that its Cronbach Alpha Coefficient stood at ($r = 0.891$). This score denotes a satisfactory level of internal consistency, suggesting that the questionnaire served as a dependable tool for the objectives of this study. Also, in order to validate its reliability, the questionnaire was revised by two scholars prior to its administration. Both researchers

provided feedback regarding the clarity of questions and expected outcomes. Later, it was piloted with 50 students. The study followed ethical standards.

Its content is divided into two sections: The first one is to profile the participants and provide a consent form totaling ten questions. In the other section, which aimed to identify the students' perspectives on the online English classes at the university, fourteen questions applied a 5-point Likert scale (1—Strongly agree to 5—Strongly disagree). Additionally, one question asked the participants to define learning English online in one word, and the last one asked them to write any relevant comments about using digital technologies in their English classes.

3.3. Data analysis

Neural networks:

Upon gathering the data, the Statistical Package for Social Sciences (SPSS) (version 25) was used to analyze the collected data. The information obtained was carried out through the application of neural networks following the model proposed by Peng (2022). This neural network aims to identify the factors contributing to student satisfaction in receiving online English classes. The dependent variable, factors, and covariance were considered in setting up the neural network.

The choice of using neural networks is justified by their superior capability to discern complex, non-linear relationships within large datasets. This method aligns closely with the intricate dynamics of educational data, offering nuanced insights that traditional models might overlook. Neural networks' adaptability ensures they can accurately predict outcomes based on diverse factors, providing a deep understanding of what influences student satisfaction and thereby guiding more effective educational strategies.

4. Results and discussion

4.1. Reliability analysis

The survey conducted has a quantitative nature. It consists of identification questions (course and level) and questions aimed at measuring the degree of understanding or satisfaction of students who receive virtual English classes. In total, a survey of 17 questions related to learning a foreign language was carried out.

Table 2. Reliability statistics.

Cronbach Alpha	N of elements
0.891	17

Source: The researchers.

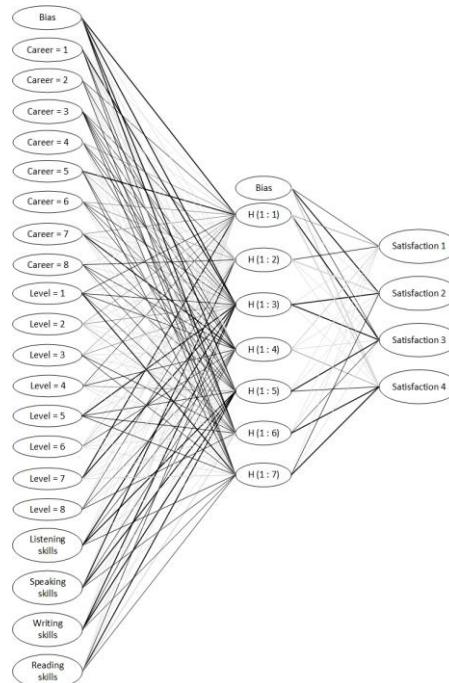
In **Table 2**, a Cronbach's Alpha coefficient value of 0.891 is observed, which is higher than 0.75, indicating that the data acquired through the survey instrument are reliable. Therefore, the data can be used for statistical analysis.

In **Table 3**, the factors and covariates used to construct the structure of the Neural Network are shown. This network is designed to identify the percentage impact of the covariates on the dependent variable (the degree of student satisfaction). Additionally, a description of the characteristics of the input and output layers can be found.

Table 3. Summary of the neural network structure.

Layer Description	Parameter/Attribute	Index	Description/Value
Factors		1	Career
		2	Level
Input Layer	Covariates	1	Listening Skills
		2	Speaking Skills
		3	Writing Skills
		4	Reading Skills
Hidden Layers	Number of units	20	
	Rescaling method for covariates		Standardized
Output Layer	Number of hidden layers	1	
	Number of units in hidden layer	1	7
	Activation function		Hyperbolic Tangent
Bias unit is excluded. Source: The researchers.	Dependent variables	1	Satisfaction
	Number of units	4	
	Activation function		Softmax
	Error Function		Cross Entropy

In **Figure 1**, the structure of the Neural Network is shown. On the left are the input variables, the hidden layer in the center, and the output on the right. Additionally, the sets of connections that enable the proper functioning of the network can be observed.

**Figure 1.** Structure of the neural network.

Source: The researchers.

Table 4 presents the results of the training and testing process of the Neural

Network, which was constructed to analyze the effect of the development of student skills and their relationship with the satisfaction of students studying English online. At the top, the training results are displayed, and at the bottom, the results from the tests. It also indicates that the training time is 0:00:00.19.

Table 4. Model summary.

Phase	Metric	Value
Training	Cross-Entropy Error	2770.077
	Percentage of Incorrect Predictions	29.8%
	Stopping Rule Used	1 consecutive step(s) without decrease in error.
	Training Time	0:00:00,19
Testing	Cross-Entropy Error	1265.038
	Percentage of Incorrect Predictions	31.4%

Dependent variable: satisfaction. Error calculations are based on the test sample. Source: The researchers.

The data shown in **Table 5** presents the competencies analysis, both in the training phase and in the tests. By comparing the two sets of results, it can be observed that the obtained values are close, indicating that the model is stable and can allow for the prediction of outcomes through varying inputs. This means that depending on the data fed into the system, results equivalent to the behavior of the sample can be obtained.

Table 5. Neural network results.

Sample	Observed	1	2	3	4	Correct percentage
Training	1	398	23	63	9	80.7%
	2	48	56	142	20	21.1%
	3	59	47	1174	148	82.2%
	4	84	21	346	785	63.5%
	Overall percentage	17.2%	4.3%	50.4%	28.1%	70.5%
Testing	1	210	15	19	1	85.7%
	2	19	24	62	11	20.7%
	3	38	28	517	57	80.8%
	4	29	7	160	316	61.7%
	Overall percentage	19.6%	4.9%	50.1%	25.4%	70.5%

Dependent Variable: Satisfaction. Source: The researchers.

To conclude, in **Table 6**, the importance of the independent variables, which correspond to the factors and covariances, is shown. The table indicates that the most significant are Auditory Competence, with 0.286, and Writing Competence, with 0.233, suggesting that these are the competencies with greater development and significantly impact student satisfaction. Meanwhile, Reading and Speaking Competencies, with 0.165 and 0.152, respectively, have shown lower values.

The results found in **Table 6** indicate that, according to the students' criteria, learning Listening and Writing skills can be more effectively achieved in Online Education. On the other hand, students need help in developing their speaking and

reading skills through this mode of education.

Table 6. Importance of the independent variables.

	Importance	Normalization
Major	0.054	18.9%
Level of English	0.110	38.4%
Listening Skills	0.286	100.0%
Speaking Skills	0.152	53.3%
Writing Skills	0.233	81.6%
Reading Skills	0.165	57.8%

Source: The researchers.

The findings of this research help identify the limitations of online education, which will enable the reconsideration of methodologies or teaching strategies. This is critical for improving student learning outcomes in online programs at the University.

Regarding the students' definition of learning English online in one word, it is possible to find different words such as good, excellent, great, enriching, funny, awesome, and adaptable. However, there are some words that demonstrate that not all students are content with this type of study, such as difficult, frustrating, and hard. **Figure 2** portrays the most common words used by the participants.



Figure 2. Word cloud.

4.2. Discussion: Implications for Ecuadorian teachers

As the data has shown, the questionnaire revealed reliable and relevant information for the study. Our major objectives in this study were as follows: 1) identify the difficulties and challenges of students learning the four English skills online and 2) establish teaching strategies that allow improvements in the online teaching process of the English language.

Objective 1 was corroborated in **Table 6** as students signaled that, on the one hand, their greatest strengths rely on their listening and writing abilities, and weaknesses, on the other hand, lie primarily in reading and speaking. This data takes us back to the study of Amorim et al. (2021), as they signaled that students tended to embrace the shift from face-to-face to online classes and saw this as an opportunity to improve their language skills. This also resonates with Mayrink et al. (2021), as these authors point out that virtual and face-to-face modes of instruction are not on opposite sides. Students seem to perceive this as most of their responses shown in the word cloud previously shown were positive. As far as implications are concerned, as Ferraz

(2021) vehemently advocates, we should take this opportunity in which students voiced their perceptions on learning English online and shift the courses of action so that their voices are heard. That is, much focus should be placed, for example, on the teaching of speaking and reading online, which were demonstrated to be the lowest points of the participants in the study. This would also imply a change of focus on teacher education programs so that teachers are better equipped to face the challenges imposed by the online mode of instruction. In line with the propositions of the Mineduc in Ecuador for higher education, aligning teacher education and instruction with the benchmark levels of the CEFRL would help HEI provide high-quality English language instruction to its students.

As per objective two, the results indicate the need for implementing more teaching strategies in order to improve weaknesses in speaking and reading skills in the online teaching process. As for empowering student-speaking proficiency, Syafiq et al. (2021) suggest YouTube as a strategy for English speaking, depicting the stages of application: 1) showing the video and observing the students; 2) writing down the text of the video by the students and discussing it in groups of 3 or 4; 3) evaluating their performance by the teacher. Pratama et al. (2020) state that YouTube is a simple, relevant strategy for establishing English teaching materials since a variety of scientific, literary, political, and other videos are posted on such a platform. The given strategy is mainly used at Ecuadorian universities for improving listening rather than speaking competence yet putting it into application may take students to the next level in speaking English. When it comes to improving reading skills, enhancing English vocabulary plays a major role.

Simamora et al. (2020) suggest that watching English movies is an effective strategy for learning new words because it gives the students the opportunity to guess the meaning through the script, gestures, body language, and the scene. Moreover, some of the research participants—students in this case—claimed that watching English movies not only adds new vocabulary to their memory but also improves their speaking skills. At present, the two suggested strategies seem to be appropriate since YouTube videos and English movies are a kind of entertainment. Therefore, students can be entertained thus motivated to work on their speech and reading skills at the same time.

5. Conclusion

This quantitative study aimed to identify the perspectives of Ecuadorian university students on online English language learning in order to inform the design of strategies that allow improvements in the teaching process. Data was collected through an online questionnaire and analyzed through the application of neural networks following the model proposed by Peng (2022).

In the reliability analysis using Cronbach's Alpha, a coefficient value of 0.891 was obtained for the 17 survey questions. This verifies the randomness of the responses obtained, confirming the validity of the data for this article. It was found that, according to the students' criteria, the importance of Listening skills is 0.286, Writing skills is 0.233, Reading skills is 0.165, and Speaking skills is 0.152. This

indicates that listening and Writing skills are better achieved in online Education, while students find greater difficulty developing their Speaking and Reading skills.

According to the participants, the best-developed skills are listening and writing, which have achieved better learning. Reading is at a medium level, which could be improved, and lastly, the least developed competence is Speaking. The Neural Network facilitated the data analysis and helped identify the students' weaknesses in learning English online. This will allow for establishing appropriate methodological strategies to improve the Speaking and Reading competencies.

Based on these findings, it is recommended that teaching strategies be diversified to specifically target speaking and reading skills. This could include the implementation of blended learning models, which combine online and traditional teaching methods, to provide a more comprehensive learning experience or watching English movies.

However, the study presents two limitations. Firstly, the use of a single instrument (online questionnaire) for data collection may not capture the full complexity of students' experiences and skills in online learning. Secondly, it is not considered other factors that might influence online language learning, such as technological access, student motivation, and individual learning styles. So, future studies should take into consideration these two factors.

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