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## The Effects of Online Learning on EFL Students' Academic Achievement during Coronavirus Disease Pandemic

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**Abstract:** Coronavirus disease (COVID-19) Pandemic changed education conditions worldwide forcing all the parties involved to adapt to a new system. This study aimed to collect information related to the effects of teaching English online on English as a Foreign Language (EFL) students' achievement. Data were collected from EFL teachers and students enrolled in three different Ecuadorian Universities (Technical University of Ambato, Higher Polytechnic School of Chimborazo, and University of Cuenca) from five different levels: A1, A2, B1, B1+, and B2. This preliminary paper reports the results of 480 students regarding four major sections: pedagogical practice and assessment, learning outcomes, affective factors and perceptions of students about the advantages and disadvantages of online learning during the pandemic COVID-19; considering the Hierarchy of online learning needs of Justin Shewell. An online survey questionnaire with 17 questions and a 5-point Likert scale was applied. The Cronbach's Alpha test presented 0.84 and 0.73 level of reliability. The Kolmogorov Smirnov's statistic and, the Kendall's Tau\_b tests, and the Levene's test for homogeneity of variances were performed with the SPSS statistical program. The results made evident that online learning affects academic achievement in EFL students during the COVID-19 pandemic, which was confirmed after analyzing four main areas: pedagogical practices and assessment, learning outcomes, affective factors and students' perceptions about the advantages and disadvantages of online learning. The importance of online learning was highlighted since it has been understood as a tool to face the emergency produced by the COVID-19 pandemic.

**Keywords:** *Online learning, pedagogical practices, assessment, learning outcomes, affective factors, academic achievement.*

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### Introduction

The worldwide pandemic has changed people's lifestyles, habits, beliefs, feelings, and behaviors. In education, professors are delivering their instruction online. According to the report Coronavirus disease (COVID-19) by Economic Commission for Latin America and the Caribbean – United Nations Educational, Scientific and Cultural Organization (ECLAC-UNESCO, 2020), until July 2020, Ecuador was one of the only four countries in Latin America (Bahamas, Costa Rica, Ecuador, and Panamá) offering live-classes online (ECLAC-UNESCO, 2020). Selecting the pedagogy, technology, and content of an online course has been the primary task for educators to provide students with quality online learning opportunities (Ferdig et al., 2009). Therefore, teachers have had to innovate themselves and learn what they have not learned in years. Many changes needed to be done to the conventional way of teaching concerning goals, philosophy, teacher and students' roles, resources, learning environment and assessment. Online learning has undoubtedly been a challenge, and crucial issues such as creating knowledge, participation, and a favorable environment have been found in this modality.

The aforementioned tasks are clearly not only the teacher's responsibility, but also involve students' commitment. It is a task of both to promote and strive for those competencies of the millennium, which contribute to a successful learning in a setting of education, work, personal or professional development. Communication is the first component of this skills set where Information and Communication Technology (ICT) plays an important role, especially in higher education, where it is imperative to develop practical skills such as the use of the "adequate, available tools, collaboration and virtual interaction to support collaborative work among peers in learning communities inside and outside school" (Ananiadou & Claro, 2009). Today, taking part of the digital culture shows the ability to be active in virtual family, friends, and

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professional worlds where young people can use applications to communicate effectively in a growing learning community.

Many teachers are being forced to take what they were doing in their classrooms and move it into an online environment, which has some significant differences over the face-to-face classes. The differences require adjustments to what curriculum and materials teachers use and how they structured their lessons. Other relevant factors to be considered in online learning are cognition, emotion, and well-trained teachers.

As it can be seen, online learning is highly demanding, which is why one of the most frequent questions that teachers have is how students will be successful in such a complex process. Although most students are benefitting from that type of education at the moment, it can be optimized taking into account important considerations such as quality of instruction, high quality and right quantity of content, students' motivation and engagement, interpersonal relationships, and good mental health (Martin, 2020).

Evidently, the sudden change to online learning has caused positive and negative effects in the EFL classroom. This fact led us to seek answers for the following research questions:

- 1) To what extend does online learning affect pedagogical practices and assessment in EFL students?
- 2) To what extend does online learning affect learning outcomes in EFL students?
- 3) To what extend does online learning impact affective factors in EFL students?
- 4) What are the perceptions of students about the advantages and disadvantages of online learning during the pandemic COVID-19?

### Literature Review

The world had to face many changes, one of the biggest ones was the digitalization of education. Justin Shewell has adapted the Maslow's hierarchy of needs to illustrate the essential online learning needs. He analyses and suggests different scales to have an integral online learning starting with equipment, which might seem obvious, however, it has to be highlighted that although the internet connection and the electronic devices are essential to work, not everyone in the pandemic had. Next, the Environment, which refers to the adequate space to learn. The third aspect is Community Interaction, or the community-building activities teachers must plan into their live sessions in order to provide students with opportunities to interact. The fourth need that has to be covered by students to learn is Self-reliance, mainly focused on the encouragement of autonomous learning, along with the appropriate tools, and finally, Creativity, that is a skill that allows students to fulfill their tasks and assignments in ways that connect class projects and work with what they are learning (Shewell, 2020).

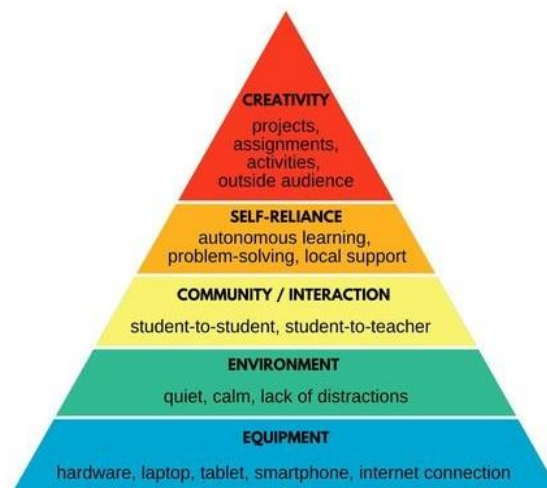


Figure 1: Justin Shewell's Hierarchy of online needs (Shewell, 2020)

Shewell's theory, illustrated in figure 1, fits perfectly with some findings of researchers in recent months that suggest the need to reformulate some preconceptions about online education. It is well known that teachers and students had to cooperate and find solutions to avoid the interruption of the teaching learning process. Many of those who did not have a computer, found in smartphones the only way to be part of online learning. As an example, in an investigation in India on the perception of students about online education, it was made evident that most of the students preferred to use smartphones for their school assignments. In the same research, students expressed that they considered it more beneficial to have the lectures recorded, and a test at the end of them, to improve the effectiveness of learning. However,

their perception also showed that the challenge was rather in the bandwidth available, which was mostly quite poor, especially in rural areas (Muthuprasad et al., 2021).

To conclude what it is concerned to online learning during this world pandemic, it is also necessary to consider other issues that are in the air and that directly influence the base of Shewell's pyramid. For instance, the disparities between those who possess the essential equipment for learning and the family or social environment that allows them to focus on their studies, and those who first had to deal with the lack of equipment and problems at home are notorious. Acknowledging these disparities brings educators closer to understanding the real perceptions of students regarding online education (Oyedotun, 2020). Despite the probable deficiencies in contexts of poverty, it is not possible to establish that everything has been completely negative, because in some European areas, the perception of students showed a notable decrease in anxiety levels regarding school tasks, because of time management and asynchronous classes that allowed them to have studying material at hand if they had not understood something (Ferraro et al., 2020).

### *Pedagogical practices and Assessment*

Pedagogy and assessment are two essential tenets in the learning process, and more importantly today in online learning environments. In the previously mentioned adaptation of the Maslow's hierarchy of needs by Shewell (2020), a level referring to pedagogical practices is found. It highlights community/ interaction (student-student; teacher-student), which is essential in Teaching English to Students of other Languages (TESOL). Professors are to include effective pedagogical practices such as person-to-person interaction, group work, forum responses when the activity is asynchronous, post of discussion topics, videos, voice recordings, and other types of interactive activities that build a sense of community among participants (Shewell, 2020).

At this point, it is also important to mention the significant contribution of the Teaching English to Students of other Languages international association (TESOL) which published the six principles to be exemplary teachers of English learners in different contexts: remote, academic, ESP, and K12 education. Fundamentally, it is an explanation about what educational strategies a teacher must include to succeed when teaching English. These strategies include: (1) Know your learners. (2) Create conditions for language learning. (3) Design high-quality lessons for language development. (4) Adapt lesson delivery as needed. (5) Monitor and assess student language development. (6) Engage and collaborate within a community of practice (TESOL International Association, 2021). When talking about remote learning, the following principles are applied (1) advocating for equity of access. (2) giving voice to English learners' families during planning. (3) Preparing caregivers for their new roles. (4) caring for socioemotional needs. (5) supplying the tools of learning. (6) reaching out of vulnerable students. (7) Tapping home resources. (8) Reaching for Tried-and-True method. (9) Boosting participation (Hellman, 2020). As we are witnessing today, technology supports both sets of principles and provide vital technical assistance and capacity-building for teachers who want to be equipped to teach English meaningfully.

After providing students with strategies that help them develop English language skills and online learning abilities, teachers must determine what the best practices of assessing learning outcomes are in this digital environment. Once those practices are identified, the task of matching the formative assessment obtained using paper-based or in-class evaluation starts. Instructors need to be creative to design on-going evaluations; good examples are the questionnaires of google forms, Moodle questionnaires, portfolios, journals, writing logs, online exercises for practice, listening and reading input summaries, projects, presentations, and games, all of them with the aid of available web technologies. Educators also must manage to deliver lessons with timely, focused, and clear feedback to complete the learning process. However, proposing this kind of assessment when the setting has completely changed, has not been an easily accomplished task. Professors have found their support by creating networking among themselves for voluntary cooperation and the exchange of best practices. In addition, university heads have been concerned about faculty training, access, equity, and technical support.

### *Learning outcomes*

Students' learning outcomes and ways to enhance the learning process have always been topics of interest in EFL. Although intelligence is closely associated with successful learners and their achievement, authors such as Amer (2003), as well as Rastegar and Memarpour (2009), highlight that cognition and emotion are equally important factors in L2 acquisition.

Additionally, it is interesting to note that some learners affirm they invest more time and effort in their online assignments; and even when this happens, it could be assumed that students would be achieving more in their academic performance (Cerezo et al., 2016; Conijn et al., 2017; Joksimović et al., 2015; Motz et al., 2019), a study carried out by Motz et al. (2021) found the opposite. Students who invested more effort in their tasks earned lower grades and felt less successful than when doing their schoolwork in normal circumstances. Undoubtedly, it is essential to delve into the subject of workload and access to digital resources. A similar study with university students in Saudi Arabia showed that they perceived a higher workload, despite having more time to do it (Hassan et al., 2021).

Likewise, another important thing to keep in mind is that it might not be technology itself what causes this type of change in learners' achievement. It is the educational methods used in the teaching and learning process. Most important of all,

is teacher training. Quality of education online requires instructors trained for online teaching to create students' satisfaction and a higher academic achievement (Abuhassna et al., 2020; Atmojo & Nugroho, 2020).

#### *Affective factors in online EFL*

Affective factors play a crucial role in students' academic achievement. Ozel et al. (2013) highlight that a learning environment which offers enjoyment, creative and interesting activities attracts students' attention and raises their motivation towards learning. In this regard, Milheim (2012) stresses the second level in the model proposed by Maslow (1943), which is safety. The author explains that safety refers to an environment including a sense of familiarity and comfort. These two elements potentially alleviate the anxiety learners have in the online classes.

Unfortunately, the way how online or remote learning was adopted during the pandemic has made educators and learners experience anxiety and other affective states. Krashen (as cited in Russell, 2020) points out that when students increase the levels of anxiety and stress, a filter is raised in their minds which prevents linguistic input from internalization. Likewise, Piaget (as cited in Duque et al., 2018) states that affective factors have a significant impact on the cognitive process. When learners have positive emotions, students improve their performance; however, negative emotions have an adverse result (Izard as cited in Duque et al., 2018).

As a result of the abrupt change to remote learning, some scenarios have caused negative beliefs about satisfaction and engagement in some students (Erickson & Wattiaux, 2021). In effect, learners may have a different perception of online learning if affective factors are taken into consideration when devising the online pedagogy, content, and materials. Henter (2014) asserts that "negative attitude and lack of motivation of learners can become obstacles to language learning" (p. 375). Affective factors can influence the success or failure in learning, as well (Krashen, as cited in Henter, 2014). Therefore, teachers have the responsibility to seek for ways to improve the online learning environment to motivate, engage, inspire students, and make them feel satisfied (Milheim, 2012).

#### *Students' perceptions*

The sudden change to synchronous online learning, which was unfamiliar to some students, have shown to have both positive and negative reactions. While some university students have the comfort of the houses to continue learning online, others are sheltered in places where the connectivity is not optimal. This atypical circumstance is not conducive to effective learning and successful performance (Besser et al., 2020). That is why Tan (2021) notes the pivotal need to enhance teaching and learning by using the appropriate methods that fit the new reality of teaching and learning.

A few years ago, online technology had started to be given special attention regarding the enhancement of EFL learning. Nowadays, teachers all over the world adapt their classes to online learning. Since the pandemic, some research results have shown that students perceive this type of learning as something helpful, which led to positive attitudes towards technologies (Allo, 2020). In fact, online learning has proven to be potentially better than face-to face learning, if adapted to the situation and condition of students (Nurohmat, 2020). However, other findings have also shown that, during the pandemic, lower achiever students have considered online learning as their opportunity to level up with top students (Clark et al., 2020).

## **Methodology**

#### *Research Design*

This study employed mixed-methods that aimed to explore the impact online learning has on university students during the COVID -19 crisis. The nature of quantitative research involves the use of numerical data. On the other hand, qualitative methods use descriptions and categories to have awareness of the specific meaning and behaviors of a certain phenomenon (Palmer & Bolderston, 2006). It is also a cross-sectional study, since the data collection was carried out only once.

This work also involved the hypothesis testing, in which the online learning and the academic achievement results obtained by the students during the COVID-19 pandemic are the variables. The responses collected in the instrument were contrasted, having as H0 or null hypothesis that online learning influences the academic achievement of the EFL students of the three universities chosen; and the alternative hypothesis or Ha would be that online learning does not influence the academic achievement of the sample.

#### *Sample*

A total of 480 students participated in this study. They belonged to three public universities in Ecuador: 161 students were from Technical University of Ambato, 156 from Higher Polytechnic School of Chimborazo and 163 from University of Cuenca, distributed as Table 1 shows:

*Table 1: Students' demographic information*

University	Frequency	Percentage	Gender	Age
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			Male	Female	
Technical University of Ambato	161	33,5	61	100	20-25
Higher Polytechnic School of Chimborazo	156	32,5	87	69	18-20
University of Cuenca	163	34,0	80	83	20-23
Total	480	100,0	228	252	

As it can be seen, the number of students in each university in this study was similar. Also, the students surveyed study English as a requirement prior graduation, therefore all of them belong to different semesters in their faculties, however they share the same English instruction. Technical University of Ambato, Higher Polytechnic School of Chimborazo and University of Cuenca offer all levels of EFL. For this reason, the sample intended to involve individuals from levels: A1, A2, B1, B1+ and B2. This aimed to avoid bias regarding the results analysis. Each university corresponded to an average of 33% of the data sets.

The level of English according to the Common European Framework of Reference (CEFR) was considered to select the number of participants, as it is shown in Table 2. As a result of this consideration, a similar number of students per level provided researchers with useful information about their experience learning a foreign language online.

Table 2: Students per level of English

Level	Frequency	Percentage	Cumulative Percentage
A1	98	20,4	20,4
A2	103	21,5	41,9
B1	127	26,5	68,3
B1+	80	16,7	85,0
B2	72	15,0	100

To calculate the sample, a finite population sample calculation formula was used with a confidence level of 95 and population size exceeding sixteen thousand EFL students in the 3 educational institutions:  $SS/ [1 + \{(SS - 1)/Pop\}]$ ; Where,

- SS = Sample size
- Z = Given Z value
- p = Percentage of population
- C = Confidence level
- Pop = Population

#### Research instrument

The study used an online questionnaire survey devised in Google forms, containing topics related to online learning during the Covid-19 pandemic.

This online questionnaire was designed by choosing the basic constructs: pedagogical practices and assessment, learning outcomes, affective factors and students' perceptions about online learning during COVID-19. Google forms was used to apply the survey with students from the previously mentioned higher education institutions in Ecuador. To design the questionnaire survey, the researchers also included a section that collected students' perception about online learning in EFL classes.

The first section comprises five questions, which gathered opinions students have about the methodology, environment and assessment process. This information answered the first research question: to what extend does online learning affect pedagogical practices and assessment in EFL students?

The second section contains three questions, which required learners to evaluate how successful they are at online learning and the results answered the research question number two: to what extend does online learning affect learning outcomes in EFL students?

The third section explores affective factors by proposing 5 questions to get information for the research question number three: to what extend does online learning impact affective factors in EFL students?

Finally, there is a fourth section that has 3 closed questions and an open one which aimed at identifying the perceptions students have about learning online, and what advantages and disadvantages have been found in the process. The information gathered here responds to the final research question: what are the perceptions of students about the advantages and disadvantages of online learning during the COVID-19 pandemic?

The internal consistency of the questionnaire was validated. The results of tryout, as indicated in table number 3, for each of the 4 sections that Cronbach's Alpha statistic is between 0.84 and 0.73, which means that there is a very high reliability of the instrument to proceed with data collection.

The nominal variables were analyzed using the Likert Scale to find the number of students per university and the number of students per level of English. The odd-numbered Likert scale was used in all four sections. The scales were represented as 5 for strongly agree, 4 for agree, 3 for neutral; 2 for disagree and 1 for strongly disagree. To validate the confidentiality of the survey applied to the students of the three universities, the Cronbach's alpha statistic was run by section and also confirmed by using the SPSS software, as it can be seen in table number 3: Confidentiality of the instrument.

*Table 3: Confidentiality of the instrument*

<b>Section</b>	<b>Cronbach's alpha</b>	<b>Nº of elements</b>
Pedagogical practices and assessment	,816	5
Achievement	,844	3
Affective factors	,801	5
Perceptions on online learning	,732	4

Additionally, the survey was completed by the researchers independently before being used in order to make corrections about how questions were proposed and the time they took to be completed by students.

#### *Data collection*

The survey was applied to a total of 480 students from 5 different EFL levels as follows: Level A1: 98 students, A2:103; B1:127; B1+: 80 and B2: 72 delivered by email, WhatsApp, Zoom and Microsoft Teams. The data collection process lasted four weeks. After that, the information was coded and the results computed and analyzed.

The number of participants were selected considering the level of English according to the European Common Framework of Reference, and each level accounted for the 20% of the total participation to have a similar number of students per level in a significant sample.

The process of data collection on the answers of all items in the questionnaire or dimensions is done by means of frequency tables in absolute values and percentages in full descriptive analysis.

Exploratory data to see if there are outliers or missing data, using the technique of box and whisker plots for quantitative data and frequency tables for qualitative data were also performed. Outliers were eliminated in order to work with data close to the mean.

#### *Data analysis*

The process of data analysis is done by means of frequency tables in absolute values and percentages in full descriptive analysis. Additionally, exploratory analysis is used to see if there are outliers or missing data, using the technique of box and whisker plots for quantitative data and frequency tables for qualitative data were also performed. Outliers were eliminated in order to work with data close to the mean.

The normality test is run on the quantitative variables in order to see if these variables follow a normal distribution or not, using the Kolmogorov Smirnov's statistic. Then, in order to see if the variances are equal or different, the Levene's test for homogeneity of variances is run.

In order to verify the hypothesis, the Kendall's Tau\_b test was used to correlate 2 variables through this nonparametric measure of the strength and direction of association measured on an ordinal scale. All these tests are performed with the SPSS statistical program.

In addition, the E2R squared epsilon coefficient was used as an alternative to calculate the Kruskal-Wallis effect size, which reveals the practical significance in the results (Ventura-León, 2019).

## **Results**

Results of this study were reported in two main findings, the descriptive statistical analysis and the inferential statistic to test the hypothesis using Kendall's Tau\_b-test analysis. The results of descriptive statistics were reported following the answer of each research question. Meanwhile, the summary of the hypothesis testing was displayed in this section.

*Hypothesis testing*

In order to use the Kendall's Tau\_b-test of non-parametrical correlation, the results from the section of learning outcomes were scored, as well as those from the section called online learning. Both scores were analyzed to see the correlation between the variables. Sig. (bilateral) is 0,000, which means there is significant differences, that is to say there is a significant correlation at the 0.01 level. There is a correlation coefficient of 0,517. Therefore, academic achievement is influenced by online learning, as it can be observed in Table 4: Correlation Coefficient.

H0: online learning influences academic achievement of the EFL students.

Ha: online learning does not influence academic achievements of the EFL.

*Table 4: Correlation Coefficient*

		<b>ACHIEVEMENT</b>	
Kendall's Tau_b	Online Learning	Correlation Coefficient	,517**
		Sig. (bilateral)	,000
		N	480

*Note:* Correlation is significant at the 0.01 level (bilateral).

*RQ1: To what extent does online learning affect pedagogical practices and assessment in EFL students?*

Results of pedagogical practice in Table 5 indicate mean score 4.32 meaning in average the range of attainment among students is 4 points. With the standard deviation .528, this result proves that different competence between individual is slightly little that means students are heterogeneous and have different levels of competence.

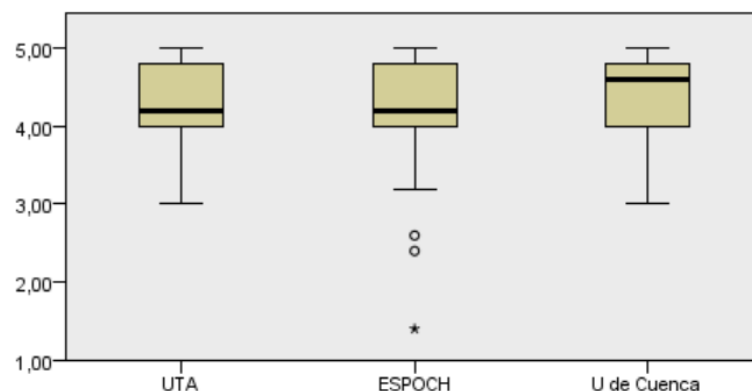
*Table 5: Central Tendency of the Results of Pedagogical Practice*

<b>Descriptive measures- Pedagogical practices</b>	
Mean	4,3254
Median	4,2000
Standard Deviation	,52878
Variance	,280
Range	3,60
Minimum	1,40
Maximum	5,00

The result of hypothesis testing confirms this finding. The results in this section responded to the questions about pedagogical practices, resources, classroom environment, activities done, content and assessment. As it was mentioned by Shewell (2020), environment plays an important role in community-building. Interactive activities should be one of the components of live sessions so that students make the most of their experience with English as a result of meaningful pedagogical practices. This is exactly what the mean (4,32) shows in this section, in which the majority of students agreed with pedagogical practices and assessment used in their EFL virtual classes.

Additionally, the box and whisker plot was also made to have a general idea regarding pedagogical practices and assessment used in the universities, as well as the general performance as levels.

It is evident that the pedagogical practices and assessment are different in each of the universities. By observing the medians of the whisker boxes, it can be seen that the university of Cuenca has higher scores in this section, which was verified with the post hoc tests, as seen below:



*Figure 2: Whisker plot for independent samples-university*

*Note.* This figure shows that University of Cuenca has the highest medians, whereas Technical University of Ambato and Higher Superior School of Chimborazo have no difference whatsoever.

To look for significant differences comparing pairs among the 3 universities, the Kruskal-Wallis post hoc test is performed, which is detailed in the following table:

Table 6: *Kruskal-Wallis test*

Variable	University	N	Mean	D.E.	Median	H	p
ppaTotal	1	161	4,29	0,49	4,20	12,88	0,0014
ppaTotal	2	156	4,24	0,57	4,20		
ppaTotal	3	163	4,44	0,50	4,60		

*Note:* ppa=pedagogical practices and assessment

1= Technical University of Ambato

2= Higher Polytechnic School of Chimborazo

3= University of Cuenca

In this test, p value is significant, which makes it possible to continue with the post hoc Kruskal-Wallis test, which will group universities with similar means, as is it is presented in Table 7.

Table 7: *Post hoc: Kruskal-Wallis test*

Trat.	Ranks	
2	220,13	A
1	228,52	A
3	271,82	B

*Note:* 1= Technical University of Ambato

2= Higher Polytechnic School of Chimborazo

3= University of Cuenca

Means with a common letter are not significantly different ( $p > 0,05$ ); that is why Technical University of Ambato and Higher Polytechnic School of Chimborazo are classified in the same group A. On the other hand, B describes University of Cuenca in a different group, showing a higher mean in pedagogical practices and assessment.

Furthermore, in order to calculate the Kruskal-Wallis effect size to reveal the practical significance in the results, the E2R squared epsilon coefficient was used:

$$E2R = H / (n2 - 1)(n + 1)$$

$$E2R = 12,88 / (4802 - 1)(480 + 1)$$

$$E2R = 1,16 \times 10^{-7}$$

Results of online learning in Table 8 indicate mean score 3.09 meaning, students achievement is different in each three students, lower one digit from the pedagogical practice. With the standard deviation .930, this result proves that different competence between individual is slightly little that means students are homogeneous and have the almost the same competence.

Table 8: *Central Tendency of the learning outcome*

Descriptive measures- Achievement	
Mean	3,0958
Median	3,0000
Standard Deviation	,93022
Variance	,865
Range	4,00
Minimum	1,00
Maximum	5,00

The results in this section responded to the questions about learning outcomes, knowledge acquisition in EFL and effectiveness in learning. The theory proposed by Shewell (2020) goes in accordance with Maslow's hierarchy of needs. Both theories state that for individuals to achieve their learning outcomes, there are some needs to be covered: the basic needs, the psychological needs and the self-fulfillment needs. The mean of the questions proposed in this section in this section (3,09) showed some interesting numbers regarding learning outcomes: 30,5% of the students surveyed in this



study said that they learned as much English studying online, as they would have learned in face-to-face classes and 24,1% of them are not sure. Also, when asked whether grades reflect achievement, it was found that only 36,1% of the students concurred. In fact, according to the Likert scale proposed for the survey, 40,3% of students completely agreed and 45,6 agreed that they must make more effort when studying online. These results show that students are aware of the impact of online learning in their learning process. In fact, similar results were found by Popovici and Mironov (2015).

*RQ3: To what extent does online learning impact affective factors in EFL students?*

Results of affective factors in Table 9 indicate mean score 3.10 meaning, students achievement is different in each three students, lower one digit from the pedagogical practice. With the standard deviation .841, this result proves that different competence between individual is slightly little that means students are homogeneous and have the almost the same competence.

*Table 9: Central Tendency of the Results of affective factors*

<b>Descriptive measures - Affective factors</b>	
Mean	3,1046
Median	3,0000
Standard Deviation	,84130
Variance	,708
Range	4,00
Minimum	1,00
Maximum	5,00

The results in this section responded to the questions about attitude, preferences, motivation to learn English online and self-reliance experienced in class, which is similarly emphasized by Shewell (2020) in his theory of online learning needs. The mean in this section accounted for 3,10, which corresponds to a neutral position in the Likert scale. When it comes to affective factors, students were asked about their experience with online learning during the pandemic, which might have led them to thinking about their safety; however almost 37 % disagree with the statement: I prefer to study English with online classes rather than face-to-face classes, while only 18% of them agreed.

*RQ4: What are the perceptions of students about the advantages and disadvantages of online learning during the pandemic COVID-19?*

Results of student perception on online learning in Table 10 indicate mean score 3.12 meaning, students achievement is different in each three students, lower one digit from the pedagogical practice. With the standard deviation .831, this result proves that different competence between individual ranges in .8 or one person. The perceptions are almost the same among individuals.

*Table 10: Central Tendency of the Results of students' perception*

<b>Descriptive measures - Online learning</b>	
Mean	3,1260
Median	3,0000
Standard Deviation	,83112
Variance	,691
Range	4,00
Minimum	1,00
Maximum	5,00

Sections were analyzed using a measure of central tendency, and it was observed that the means of the sections related to affective factors, learning outcomes and students' perceptions are equal, there is no difference between these three sections. On the other hand, the section of pedagogical practices and assessment is significantly higher than the rest (average of 4.3), which is qualitatively interpreted as responses between the scales of "I agree" and "I strongly agree".

Analyzing the last section of this research, which refers to general opinions, the most outstanding results of each question were interpreted. This section had four questions, three of them are categorical or nominal variables and an open question where the student wrote their point of view about the online English classes in times of pandemic.

Interpreting the question related to the changes adopted by students during online learning, the results that were obtained with the greatest frequency were: studying independently and seeing online education as a way of handling the crisis of the health emergency product of the global COVID-19 pandemic.

Regarding the last open question: *What are the advantages of virtual education?* A textual analysis of the frequency of the most repeated words was made, and it is shown in figure 3.



Sukman and Mhunkongdee (2021) carried out a research where students showed a positive attitude towards online learning during the current pandemic, yet they preferred learning English in face-to-face classrooms. As a matter of fact, similar results of diverse studies have proved that suddenly changing to online learning had both positive and negative effects on students around the world, as it could be seen in the research carried out by Aristovnik et al. (2020) with more than 30 thousand students from 62 countries. The aforementioned research also discovered that the learners experienced boredom, anxiety, and frustration, and were concerned about their future professional career. Similarly, this study showed that students find advantages and disadvantages in the process. Although they mentioned to have more time for their classes and felt comfortable taking them at home, students also shared their concerns about the availability of the equipment used for online learning and the internet connection.

Motz et al. (2021) found that students invest more effort, which does not necessarily mean better grades and better learning. This should shed light on the fact that adjustments must be made to online learning processes, as Karalis (2020) proposes, to ensure students' effective performance. Students surveyed agreed and expressed their initial fear to be forced to start education 100% online and the time it takes for them to complete a task. That might explain why EFL students in this study are seeing online education as a way of handling the crisis of the health emergency product of the global COVID-19 pandemic, but not as something they would prefer over face to face education.

### Conclusion

Although some learners have experienced online classes for the first time and have been forced to digitalize their learning, this was also seen as an opportunity to continue learning at home. One of the most significant findings in this research is that online learning has positively influenced pedagogical practices and assessment. In fact, students expressed that resources such as wikis, online platforms, blogs, videos, forums, live worksheets, among others worked well for them when learning English online during the pandemic COVID-19. Regarding learning outcomes, students expressed that they learn online as much as they learn in the EFL classroom. Students' grades did not show a significant difference when learning on campus or learning online either. Affective factors referring to attitude, preferences, motivation to learn English online and confidence experienced in class showed that students do not favor either of the modalities. Some of the benefits of studying English online are related to time management and the comfort found at home. Summing up, online learning has influenced academic achievement in EFL students during COVID-19 and it has been seen as the best alternative to continue educational processes.

### Limitations

Instrument piloting was done by the group of researchers which might not have given the real information about the time and the complexity of questions proposed. The Likert scale used 5 ordinal values: Strongly disagree, disagree, neutral, agree, and strongly agree, which may have been confusing for students, resulting in misconceptions of their true opinions.

Data about teachers' perceptions were not collected at the same time, which did not allow to have a contrastive analysis of results that could provide a deeper sight of the effects of online learning during COVID-19.

### Recommendations

Instrument piloting for a research purpose is a must; however, it is advisable to do it with a group of students similar to the ones in the sample. Values used in the Likert Scale should present more precise and differentiated options for students to choose. For example, using three well differentiated values could have given us clearer students' perceptions.

Although this research focused on students' perceptions, it is strongly advisable to analyze teachers' perceptions about the same topics: online learning, pedagogical practices and assessment, learning outcomes, and affective factors in order to establish differences that could lead to better practices and approaches for the current teaching and learning modality.

### Authorship Contribution Statement

All the authors contributed to concept and design, data acquisition, data analysis / interpretation, drafting manuscript, critical revision of manuscript, statistical analysis. Additionally, the corresponding author oversaw the process of research, article writing and the selection of the journal.

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