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Research Paper

Challenges of Online Language Teaching during the COVID-19 Pandemic: A Process Tracing Approach

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Abstract

Having witnessed the unprecedented prevalence of online education during the COVID-19 pandemic worldwide, the present research was motivated to explore the challenges facing an EFL teacher throughout an online English course of intermediate level. To this aim, a process-tracing approach (Checkel, 2006) was employed to unravel the causal mechanisms involved in the beginning, middle, and end of the course. The results showed that deficient technological resources caused the greatest challenges throughout the course, especially in the initial and mid-sessions. Also, the two other causal categories, human and content resources, were at their peak at the beginning of the course and were no longer noticeable at the end of the course. The most troublesome challenges the teacher faced were platform limitations, internet connection, and human resources' unpreparedness for online education. Furthermore, the teacher's and most students' technological knowledge, as well as their media literacy,

increased by the end of the course, but some students' rather slow adaptation to the sudden online environment challenged the teacher during the course. Finally, suggestions were made to prevent these challenges or handle them effectively upon occurrence, especially in developing countries, where the required infrastructure for online education is lacking, and the majority of teachers, students, and institutions might not be yet adequately prepared for the online mode of teaching and learning languages.

Keywords: Challenges, Online Education, EFL, Teacher, Process Tracing

The global demand for effective distance and online learning inevitably prompts language teaching/learning domain to provide this learning modality in empirically supported modes using appropriate pedagogical approaches (Gleason & Greenhow, 2017). Though online learning has been ubiquitous since 2000 (Tallent-Runnels et al., 2006), within the past few months after the global COVID-19 pandemic, emergency remote foreign language classes have been welcomed worldwide, with many learners and teachers not yet adequately prepared for it though (Tesar, 2020). The new critical conditions are so perplexing that more and more questions might emerge concerning adaptations to these conditions (Peters et al., 2020). Online learning, which played a complementary role in traditional mainstream education in the pre-COVID-19 era, has now dominated global education (Tsar, 2020). This sudden shift of educational systems to online learning during the pandemic might be highly demanding if adequate pedagogical practices are not taken into account (Sithole et al., 2019). Given such concerns, the focus of this case study is on the challenges a language teacher faces in the online language environment of her class during the COVID-19 pandemic.

Knowledge of the challenges in online language education can contribute to the efficiency and effectiveness of the course. These challenges can, for

instance, include student readiness, self-discipline, computer technology requirements, time zone differences, and so on (Sithole et al., 2019). Besides, the present shift to online education requires a more inclusive pedagogical approach to embrace different learning styles. Teachers, thus, need to be equipped with the knowledge of such challenges to prevent or solve them as soon as possible. This knowledge seems to be lacking at present with the sudden shift from traditional, in-person classes to online teaching and learning.

In a dominantly web-based environment, all the materials (assessments, feedback, etc.) are delivered via virtual environments such as Learning Management System (LMS) (Franks, 2002; Hiltz & Turoff, 2005; Parsad et al., 2008). Thus, there is a growing dependence on using various platforms to facilitate student learning (Alstede & Beutell, 2004; Franks, 2002). It is noteworthy that this trend is driven by ever-increasing demands for flexibility in teaching and learning. Concerning the requirements of online education and, more specifically language courses, teachers' expectations and challenges might remain unexplored (Sithole et al., 2019). Awareness of potential challenges facing language teachers in online courses can act preventively to ensure more productive and efficient time management, class management, interaction, and feedback (La Velle et al., 2020).

Literature Review

Many studies have been conducted to examine the quality of online courses from different aspects. They have explored and identified critical issues affecting the quality of online education such as communication, technology, time management, pedagogy, and assessment (Bassoppo-Moyo, 2006; Conaway et al., 2005; Ko & Rossen, 2010; Limperos et al., 2015). Also,

there have been many reports of high dropout and failure rates associated with online courses (Luyt, 2013; Morris et al., 2005; Tyler-Smith, 2006) before the emergence of the COVID-19 pandemic. It should be noted that early works of research on online education issues (2000-2015) have not comprehensively classified the challenges and issues concerning online educators (Mayes et al., 2011). As an instance, Brooks (2003) referred to teachers' attitudes as a main factor influencing the quality of online courses as in another study, Arbaugh (2005) highlighted technology, students' behavioral characteristics and teachers' teaching style as the main challenges of the online course. On the other hand, Jacobs (2013) pinpointed that student assessment is a major problem in online courses, while Yeung (2003) referred to teacher and student support, course development, course structure, and how the institution assesses online learning as the main potential sources of problems. However, the body of research on relevant issues and challenges of teaching online courses have become clearer than before. For example, in a qualitative study, Kebritchi, et al. (2017) reviewed challenges in online courses in advance to the COVID-19 pandemic and categorized them as learner-related, teacher-related, and content-related issues. Teacher-related challenges included changing faculty roles, transitioning from in-person classes to online ones, time management, and teaching styles.

Similarly, in another qualitative study, Trammell and LaForge (2017) explored the common challenges for teachers in large online courses. They found course design and instructional effectiveness as the most significant challenges facing teachers in handling high-enrollment online classes. Instances of the former were organization and planning, while those of the latter were teacher presence, availability, and organization. More recently, Rasheed et al. (2020) explored challenges in the online component of blended

learning from the perspective of students, teachers, and institution organizers. The main focus of their study was to highlight the need for further investigations to address the challenges of students, teachers, and educational institutions in blended learning. Their findings showed that students' challenges were mainly of self-regulation type and teachers' challenges were mainly related to the required technology for teaching while institution organizers mainly dealt with providing the required training for their teachers.

Regarding the challenges of language learning and teaching during the COVID-19 era, Atmojo and Nugroho (2020) conducted a qualitative study and asked 16 EFL teachers to make written reflections regarding their practices in carrying out online EFL learning and the challenges they encounter. It was followed up by a semi-structured interview to gain more detailed explanations about their teaching procedures in the online setting. The teaching activities and challenges in Indonesian English as a foreign language (EFL) online classes were categorized under three groups: student-related, teacher-related, and parents-related challenges. Instances of teacher-related challenges were difficulty creating materials for online setting, low technology knowledge or relevant experience, the difficulty of providing personal feedback to students, motivating passive students, absence of hi-tech facilities, no preparation or training for the online course, inability to strengthen emotional bonds with students due to the absence of physical contact and interaction, inadequate teacher-student interaction and absence of parents' care. In a similar vein, Alam (2020) explored challenges faced by teachers and students in online education during the COVID-19 pandemic in Bangladesh. They concluded that the sources of such challenges included both teachers' and learners' lack of prior experience of online education, limited internet coverage in distant areas, technical issues (e.g., using computer or

smartphone), time management, and feedback management. Despite the recent attention to challenges of online learning and teaching during the infectious crisis of the COVID-19 pandemic, to the best of our knowledge, there is still a dearth of research on the challenges language teachers might encounter in online courses during the pandemic within the context of Iran. Thus, we were motivated to explore these challenges, using the innovative method of process-tracing approach, when experienced by an EFL teacher within an entire online language course. More specifically, the case-study design of this study (Bennett & George, 1997) could help us to investigate the complexity of these challenges in depth.

It is worth noting that with the recent establishment of methods for complexity theory in the field of applied linguistics (see Hiver & Al-Hoorie, 2019), the use of idiographic approaches like single-case studies has been welcomed as a new line of research (Lowie & Verspoor, 2019). Being aware of these approaches, we aimed to trace the emergent challenges of teaching the English language as they actually occurred throughout an online course during the pandemic. The inherent novelties of this research not only lie in the recently-investigated topic in the whilst-COVID-19 pandemic but, more importantly, are associated with the exploratory nature of the method. Process tracing is an innovative methodology in qualitative research (see Hiver & Al-Hoorie, 2019), suitable for case studies to trace the steps of a phenomenon (Bennett & George, 1997), unravel the causal mechanisms of the case, its dynamic behaviors, and emergent outcomes (Mahoney, 2012, 2015). Accordingly, the following research questions were addressed:

RQ1: What can the study of processes and sequences of events in an online course of language teaching reveal about the teacher's challenges in this course?

RQ2: What are the causal mechanisms of the challenges the teacher experiences in online language teaching during the COVID-19 pandemic?

RQ3: How does the conjoint occurrence of certain events and factors feed into the dynamic trajectory of the teacher's challenges in the online course during the COVID-19 pandemic?

Method

Participant and Setting

The female participant, 42 years of age, holds a bachelor's degree in Translation Studies. She has 17 years of experience in teaching English in traditional in-person classes for children, teenagers, and adults. She also has four months of experience in teaching blended courses (online and in-person combined) before the COVID-19 pandemic. The course during which she was interviewed to trace the emergent challenges in this research was entirely online, as it was held when the pandemic started. The online course took 13 sessions in length, began on June 25, and ended on July 23, 2020. The lower-intermediate class was held with ten students, each session taking 90 minutes in length. The material was selected based on online sources and was presented as images or slides. The tasks and activities were adopted from the American book series, Teen2Teen, published by Oxford University Press. Only the final exam was planned for the 13th session in a conventional face-to-face mode.

The online course was held in a private language institute using the BigBlueButton open-source web conferencing system as the platform. In this system, as described by Kiss (2012), the teacher can upload any office document or PDF file and keep everyone in sync with their current page, zoom, pan, and the students can also see the teacher's mouse pointer. Users

can share their webcam at the same time without a limit on the number of simultaneously active webcams. The teacher can share her desktop with all students. The system supports voice-over IP (VOIP) conferencing. All students need speakers and microphones to participate. The participant consented to participate actively and honestly in the case study. She was also ensured of the confidentiality of the information she provided and, for ethical considerations, her identity has been pseudonymized throughout the paper.

Instrumentation

The data in this case study were collected using a semi-structured interview which delved into the challenges (in technology, content, communication, etc.) that the teacher experienced in different steps of the online course. The content was developed to meet the requirements of the dynamic systems theory as elaborated by Hiver and Al-Hoorie (2019) to approach the target challenges within a whole complex system of class and the underlying interconnections among components (teacher, students, and materials). The semi-structured interview format and its open-ended questions encouraged the respondent to elaborate more on the relevant points in an exploratory manner (Dörnyei, 2007). The teacher was interviewed three times at the beginning, middle, and end of the course. She was asked to attend the online course as usual and answer the interview questions once after the 4th session, once again after the 8th session, and one more time after the 12th session. The 13th session was planned for a final exam.

The interview was conducted as phone calls in the Persian language, the interviewer's and interviewees' L1. The data were then transcribed, translated into English, and analyzed through process tracing. The teacher participant was ensured of the availability of the researcher in case of any inquiry.

The rationale for Data Collection and Analysis

For collecting and analyzing the data, the procedures inherent to the process-tracing approach were followed. Process-tracing is a within-case methodology (a special form of the case study) for explaining complex causal mechanisms at a micro-level of granularity (Checkel, 2006). It aims to make inferences about causal explanations of a case, its dynamic behavior, and emergent outcomes (Mahoney, 2012, 2015). The case-centric type of process-tracing, which is more to the interest of qualitative researchers (Beach & Pederson, 2013) and which was used in the present research, aims to find the causes of a specific outcome in a single case (Beach & Pederson, 2013). The specific outcome in the present research was the challenges facing an EFL teacher in an emergent online course in the whilst-COVID-19 era. It is subsumed under the more inductive types of process tracing, as categorized by Trampusch and Palier (2016).

Almost all inductive types of process tracing view time as a key factor in the causal explanation of an event, and they mostly rely on alternative explanations to account for the temporally step-by-step unraveled process of an event (Trampusch & Palier, 2016). Accordingly, in the present research, the challenges the teacher experienced were traced through the length of an entire course. The steps taken to trace the experiential process of challenges were three, corresponding to the beginning, middle, and end of the course. In order to adhere to a principled process-tracing approach, the following procedures proposed by Bennett and Checkel (2015) were followed:

1. Determining the outcome in question and potential expected causal mechanisms
2. Choosing a representative case and setting the time when to start evidence collection

3. Taking potential biases into account
4. Considering a range of alternative explanations for causal mechanisms
5. Following evidence to accept or reject alternatives
6. Eliminating some alternatives gradually
7. Extracting more detailed evidence for the rest of the explanations
8. Determining when to stop the process

According to these procedures, we firstly specified challenges as the outcome of interest in the process of EFL teaching by developing a conceptual framework of teaching challenges and aimed to trace the causal mechanisms involved in teaching the language in an online course. In the light of the dynamic systems theory (Hiver & Al-Hoorie, 2019), the black box explored in this research was expected to involve an interconnected network of factors. Based on the literature review, the challenges could be due to technological equipment, the people involved (teacher and students), or the content covered that directly or indirectly made the teaching task challenging.

Then, to avoid confirmation bias, we took into account as many alternative explanations for challenges as we could. To avoid selection bias, we tried to consider the immediate context from which the evidence was derived, as the interviews were not delayed to the time the course ended. Instead, it was scheduled during the course to closely trace the challenges in their immediate context. To avoid cognitive bias in seeing patterns where none existed, as proposed by George and McKeown (1985), we did our best to contrive well-defined alternative causal paths in advance for the purpose of process verification.

Data Collection

A representative case was selected as explained above, who was an experienced EFL teacher in traditional classes and had only a short experience of blended courses before the pandemic. She showed interest in and commitment to this study and provided detailed answers to interview questions. The exact time and duration of data collection was scheduled to correspond to the plan of the target course. The data was gathered through interviews using open-ended questions and the participant's comments such as "Can you tell me more about that?" (Hsieh & Shannon, 2005).

We developed a conceptual framework of teaching challenges by considering the explanations derived from the literature and divided these challenges into three possible categories: human resources, content resources, and technology resources. (See Appendix)

Data Analysis

In this study, a qualitative content analysis was used because the researchers wanted to interpret meaning from the content of text data and, hence, adhere to the naturalistic paradigm. Qualitative content analysis exceeds from counting individual words to checking language intensely with the aim of the classification of large amounts of texts into an efficient number of categories that reflect similar meanings (Weber, 1990).

As mentioned by Weber (1990), researchers choose a particular type of content analysis approach based on their theoretical and substantive interests and the problem being studied. In this study, conventional content analysis was used because coding categories were derived directly from the text data. This type of design is mainly suitable when existing theory or research literature regarding a concept is in its fledgling state. Instead of using

preconceived categories, it is better to let the categories and names for categories emerge from the data (Hsieh & Shannon, 2005). One of the benefits of conventional content analysis is that the researcher can extract direct information from the participants without imposing preconceived categories.

After transcribing the interview, first, the data was repeatedly and carefully read from beginning to end to identify the repeated and emerging patterns and to derive codes. This was done by specifying and highlighting the words which can be considered as key terms and key concepts for challenges that teachers may face in the online setting. Then, the researchers wrote their first impressions of the keywords showing the essence of challenges the teacher experienced, and this process continued until the labels for each code were specified. Through the process-tracing, explanations that were not evidenced were eliminated, and, thus, the range of alternative explanations was further narrowed down. As suggested by Bennett and Checkel (2015), when the process went on gradually in later steps, the researchers tried to gather more detailed evidence for explanations that appeared to be true more than others.

Next, the relations and the links between the codes were determined, and by considering the conceptual framework, the codes were grouped under three main categories and eleven subcategories (see Table 1).

Table 1.

Coding Scheme for the Interviews with the Teacher

Categories	Subcategory
1) Teacher/student-related issues	a) Time management problem
	b) Students' slow adaptation to online class
	c) Communication problems

Categories	Subcategory
2) Content coverage issues	a) Problem of material development/adaptation/coverage b) Unfamiliarity of textbook c) Concerns about evaluation
3) Technology-related issues	a) Low media literacy and technological knowledge b) Outdated devices c) Low internet speed d) Platform limitations e) Class access (Log in)

The three researchers engaged in the process-tracing analysis independently to code the data. An inter-coder agreement of 93.7% was reached which was above the 90% threshold level as suggested by Miles and Huberman (1994). Occasional cases of controversy were discussed together so that a consensus could be reached.

Next, the distribution of the causal mechanisms of these challenges was traced from the beginning to the end of the course, and a trajectory of the prevalence of these causes was drawn. This trajectory can show fluctuations in the strength of each causal mechanism. The distribution of these challenges, some induced by technology, some rooted in human resources, and some dealing with content, varied across the three steps of the online course (i.e., beginning, middle, and end of the course). This is represented in Table 2.

Table 2.

Distribution of Challenges in Teaching the Online Language Course

Step of course Challenge	Beginning	Middle	End
Class access issue	Yes (to the highest degree)	No	No
Low media literacy and technological knowledge	Yes (to the highest degree)	Yes (to a less degree)	Yes (to the least degree)
Outdated devices	Yes (to the highest degree)	Yes (to a less degree)	Yes
Time management problem	Yes (to the highest degree)	Yes	No
Students' slow adaptation to online class	Yes	Yes	Yes (to a lower degree)
Low internet speed	No	Yes	Yes (to a lower degree)
Platform limitations	Yes	Yes	Yes
Problem of material development/adaptation/coverage	Yes (to the highest degree)	Yes	Yes (to the least degree)
Unfamiliarity of Textbook	Yes	Yes (to a lower degree)	No
Concerns about evaluation	No	No	Yes
Communication problems	Yes	Yes	Yes (to the highest degree)

Results and Discussion

In this section, we report the results of the interview data analysis under three main categories and eleven subcategories. First, the challenges are introduced in each section. Then, the challenges are supported with relevant evidence from the interview, and finally, the findings are discussed. Moreover, the causal mechanisms during each step are respectively addressed here.

Challenges and Causes at the Beginning of the Course

Technology-related issues. The beginning of the course hosted the majority of challenges to their highest degree, as Mina described. Based on Mina's comments, teaching the initial sessions of the course was evidently the most challenging to the teacher. These sessions were deemed fraught with challenges explained by deficiencies in technology, human and content resources, all seemingly at their peak. The first challenge she faced in the first couple of sessions was a technology-related one 'class access'. Both she and many of her students found it hard logging into the system, and some students missed their first sessions. Though there had been some training videos on this, Mina had not found them much useful. As she said, "There were some videos showing how to use the system, but we had to watch them again and again, and we still found it hard to log into the system". Although the source of this challenge is primarily within individuals, this deficiency is partly related to the unpreparedness of human resources for this sudden change of environment and mode of education. Here is an extract from Mina's accounts showing that a great many problems associated with the use of new technology were not due to the inherent user-unfriendliness of technology, but entirely indicative of users' low media literacy, subsumed under the human resources causal mechanism: "For those who had changed their class, the institute created new hyperlinks to the new class. Though the hyperlinks were very easy to type, without any space or capital letter, in the simplest words as possible, many students did not pay enough attention to type them correctly".

As mentioned above, the main reason for the "class access" issue was evidently the difficulty of operating the system as already admitted as a recurrent problem in online education by several researchers, including Bower (2015), Leo and Puzio (2016), and Lightner and Lightner-Laws (2016). This

problem is partly explained by technology resources and the extent to which they are user-friendly, as acknowledged by Arbaugh (2005), and partly by human resources' (here teacher and students) 'low media literacy and technological knowledge'. Similarly, Alam (2020) and Atmojo and Nugroho (2020), in their whilst-COVID-19 investigations of the challenges of online classes, found users' low media literacy as the most salient issue.

Another technology-related issue she recurrently faced in class during the initial sessions was the 'outdated devices' that could not serve the purposes of an online class and mostly needed an update. The new mode of education required updated technology, which was conspicuously absent in this study, and needed to be provided immediately. This problem caused many students to miss the initial sessions of the course and some teachers to miss the chance of teaching some lessons. Mina commented:

Some students' mobile phones or computers needed an update. Or, for example, their microphone had not been operated long and needed to be fixed. Some colleagues had the same problem too. I know a colleague of mine had to have her computer repaired and updated for a week before she could use it for the online class.

Teacher/student-related issues. Although the problem of 'outdated devices' was technological in origin, this issue was also associated with the 'time management issue. Mina noted: "it took so long for a friend of mine to get her updated computer back that she already missed a whole lesson". Therefore, the early sessions of the course were associated with issues caused by deficiencies in technological resources and human resources both. The latter is attributed by Kebritchi et al. (2017) to the teacher source (i.e., explained by the human resources causal mechanism).

The early sessions of the course were also associated with ‘communication problems’, especially between students and the institute, as Mina said, “The institute had to call students or they had to call the institute, again and again, to get help on how to work with the system or hyperlinks”.

Content coverage issues. One of the content coverage issues that Mina faced during the first sessions of her class was the “Problem of material development/adaptation/coverage”. She missed the chance of teaching what she wanted to during the first sessions, as many new-coming students hindered the class, and the content that needed to be covered was not. It was also hard to draw students’ attention to the page of the book she was teaching. She had to teach the content slide by slide, which did not show as effective as a whole integrated PDF file. Another issue related to content coverage, though not peculiar to online education, but one that could confuse students to a great extent, was unfamiliarity with the new book because some students had a change of class and level, and they had to start a new book. She thought this could be typically an issue in traditional face-to-face classes too, and in the online mode, it got even worse. With this respect, Mina said: “after I had already started teaching the page, they could be heard asking each other what I was talking about or which page I was teaching. They seemed too confused to follow the content”.

Therefore, it seems that expectations on what to cover and how to cover it (as for content) need to change from traditional face-to-face classes to an online course. Moreover, she could not upload as many slides as she wanted. This challenge can be considered, from one aspect, a ‘platform limitation’ issue and, thus, traced partly to the technology resources causal mechanism and partly to the content resources the teacher had. The latter was also acknowledged by several researchers, including Choi and Park (2006), Kyei-

Blankson and Keengwe (2011), Li and Irby (2008), and Neely and Tucker (2010), as a problematic source for many teachers in online education in the design phase of teaching, marked by losing control over the material and finding it hard to adapt it to the new mode of presentation.

As Mina moved on to describe the challenges she faced in the rest of the course, it could be observed that many of these challenges were reduced in degrees, yet some others still prevailed.

Challenges and Causes in the Middle of Course

Technology-related issues. In the few mid-sessions of the course, such challenges as ‘class attendance’ were eliminated. One issue that was evidently caused by the limited technological resources was the ‘platform limitations’. This challenge prevailed to the end of the course and was mostly related to the inability to upload audio files. She partly compensated for this problem with video files, but on certain occasions (e.g., reading passages) it did not work. Another challenge rooted in the technological resources that unexpectedly happened in the mid-sessions was the sudden drop of the ‘internet speed’. Mina commented:

One day in the middle of the course, when I was sharing my webcam with students, suddenly the webcam window froze. First, I thought that was an issue with my webcam, but I saw that my students’ videos froze too. I checked the internet quota and realized that the telecommunication company had just cut the speed down to half.

This problem was solved to a certain degree in the ending sessions of the course but tremendously led to the ‘time management’ issue in the middle of

the course. Mina had to type much of what she already inserted in the slides that did not open then, and typing took much of the class time.

Yet the internet connection issue, especially “the low internet speed,” was truly troublesome. She only came to know when she felt suspicious of other students being silent for long as she said: “even in the middle of a session, I realized I was disconnected due to low internet speed and was out of the class without knowing for a couple of minutes”.

The technical supporter of online sessions was not always present to solve such problems (if she was ever able to); thus, the teacher was left high and dry. The peak of the technology-induced challenges was the 8th session when Mina got disconnected three times, and much of the class time was wasted.

Levin et al. (2013) emphasized the need for online course planners to ensure users’ access to a reliable internet connection if they expect an appropriate space to be created for learning. Similarly, Atmojo and Nugroho (2020) reported unstable internet connections as the main challenge faced in an online EFL class during the COVID-19 pandemic in Indonesia. In this research, though the teacher managed to solve the internet quota problem by running the class in Google Classroom, the overall internet coverage and speed caused serious issues. It is certain that such a technologically-rooted problem, in turn, leads to the ‘time management’ difficulty and makes the teacher’s job further demanding.

Teacher/student-related issues. In the middle sessions of the course, Mina perceived students’ ‘media literacy and technological knowledge’ better improved. As both she and her students were more familiar with the environment, its requirements and its limitations, the overall level of challenges caused by human resources were lower than the initial sessions. Yet, the challenge of “students’ slow adaptation to online class” was observed

at this stage. She complained that a number of students had a slow pace in adapting themselves to the online environment. Sometimes, they fell behind and kept asking each other which page the teacher was teaching and what she meant in the first place. About this, Mina commented, “we still had the same problem with slow students. When we were busy doing an exercise at a normal speed, they fell behind and always wondered which exercise we were busy doing”.

The adaptation issue with slow students was perceived as inexorable, and it remained with some students to the end of the course. Mina emphasized that the cause of this issue laid among the students themselves and not due to the platform, content, or any other component. Alam (2020) also reported this adaptability issue as the main concern among students and teachers of online courses during the COVID-19 pandemic. This human-resource-induced problem, Mina complained about, could be explained by the lack of self-directed learning defined by Knowles (1975), as taking responsibility of one’s own learning and developing personal strategies to learn in the best way. Lin and Hsieh (2001) found that self-directed learners achieve better in online courses. According to Knowles (1975), online courses provide more flexibility and autonomy for students if they only know how to direct them. The slow-adapting students Mina worked with were much dependent on peers or a company at home to survive the session. They did not exercise autonomy and did not take full responsibility for their own learning (i.e., they were not self-directed) and, thus, hindered the class. They could also be described as lacking self-discipline, a problem that has already been observed among students in online education by Sithole et al. (2019). Such students can cause ‘communication problems’ too, as they did in Mina’s class. They did not listen carefully to Mina to follow her instructions and instead interrupted the class

by asking other students in L1 what she was talking about. When this challenge is approached within the complexity of a dynamic teaching/learning system (Van Geert, 2019), such misbehavior can also be related to students' lower internal motivation. According to Saade et al. (2007), motivation for learning in online settings plays a key role in academic achievement. Therefore, it can be hypothesized that student motivation, self-direction/discipline, and media literacy (or technological knowledge) interact to lower challenges in online education. Yet, this hypothesis needs to be tested.

Overall, it appears that the challenges induced by human resources during the middle of the course were not eliminated, as compared to the beginning of the course, but were at a lower comparative degree.

Content coverage issues. The content-related challenges were reduced in this step compared to the beginning of the course. Yet, they did not reach a minimum level as, again heralding the dynamic nature of the causal system (Hiver & Al-Hoorie, 2019), the technology-induced challenges made content presentation hard, though Mina had already learned a lot from the early sessions about how to prepare content to make up for inextricable platform limitations. This trend can be better observed in Figure 1.

Challenges and Causes at the End of Course

Technology-related issues. During the final sessions, some technology-related issues like "class access" and "Low media literacy and technological knowledge" of both the teacher and students were improved (except for those slow students whom Mina talked about before and found their problem unsolved). The 'low internet speed' always mattered but with no recurrence of disconnection or serious problem in the final sessions. 'Platform

limitations' had not changed and were coped with (e.g., using video files instead of audio files). However, the issue of 'outdated devices' still remained and caused a 'communication problem' as well.

But, the most common technology-induced challenge that was observed during the final sessions was derived from "low internet speed". The challenge was mainly related to voice quality. Based on pieces of evidence, during the final sessions, the teacher and students got more involved in Q &As, and the voice responses she received from students were not intelligible. On several occasions, the quality or settings of voice-recording devices were so defective that they blocked communication.

These findings were evident in Mina's comments. She explained that the ending sessions of the course were far less troublesome, especially from technology point of view. This can be seen in her comment:

Overall, the majority of challenges, especially technology-related ones were much reduced in the ending sessions as we were familiar with the environment. Most of the students were in class even before the class started. There was no need for calling the roll. As far as I remember, the last sessions were much more convenient.

As for the voice quality issue, Mina could not understand what the students pronounced and had to ask them to repeat again and again and even to type rather than speak. She expresses her feeling in this way:" Such mispronunciation and misunderstanding can be truly troublesome. Just imagine a teacher teaching a course other than languages, geography for instance, which deals with many proper names. Low quality of voice would impede learning, then".

These technological issues led to the teacher's own boredom, especially the technological requirements of the online English course, like having to wear headphones all along. From a dynamic systems perspective, the emergence of such an emotional state in Mina by the end of her new experience within the complexity of concomitant challenges was not far from expectation. It can be hypothesized that the technological requirements of online education can lead to teacher boredom. This hypothesis needs to be further explored qualitatively and quantitatively.

Teacher/student-related issues. During the final sessions, some challenges like the 'time management' issue were highly resolved. Students' slow adaptation to online classes was still there but to a lesser degree than before. But, one of the main challenges that remained was teacher-student communication problems.

Content coverage issues. As for the content coverage issue, no 'textbook unfamiliarity' was reported during the final sessions. The teacher was able to use her slide shows effectively, and students showed to be better familiar with what they were expected to do.

However, the "concerns about evaluation" was a challenge peculiar to the ending sessions. It was mainly related to students expressing worries over the exam and the teacher's concern about how best to evaluate her students' performances. Related to this issue, she stated:

Students began to ask what the exam would be like, whether it was to be held face-to-face or else. I was conscious about the material to be included in the final exam, just to include what I had covered in the online domain and not as detailed as former experiences of the same course in a traditional class or if the exam was to be held face-to-face. These all mattered.

Such concerns are induced by human resources. Li and Irby (2008) and Lyons (2004) also addressed students' concerns about grades in online courses and related this issue to students' expectations. To tackle this problem, the aforementioned researchers suggested that the teacher clearly states class procedure as well as evaluation prospects from the outset so as to diminish student misunderstanding and wrong expectations.

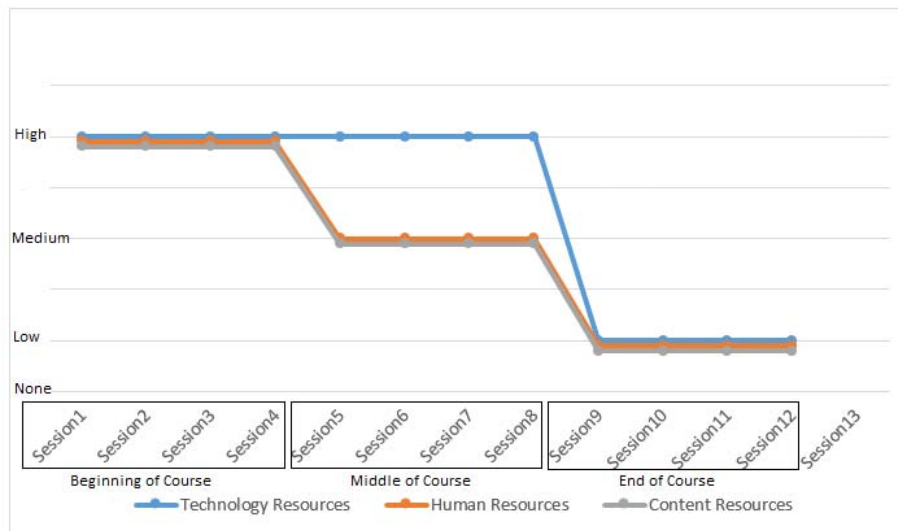
Overall, it can be concluded that the majority of challenges Mina faced were tremendously reduced in the final sessions of the course. Technology-, human- and content-related causal mechanisms of challenges were less at work in this step, thanks to teacher's and students' better familiarity with the online environment, increased media-literacy/technological knowledge, and better adaptation/coping skills. Yet, all these events intensively and in an unprecedented manner left the teacher (and possibly the students) bored. The nature of this boredom in online education needs more in-depth longitudinal research.

The Trace of Challenges and Causes in the Entire Course

Tracing the challenges Mina experienced during the online course using a process-tracing approach showed not only the prevailing challenges in each step of the course, but also unraveled the causal mechanisms involved. The existing literature on issues with online education helped us contrive three sources of challenges in teaching online: technology, human and content resources. It was interesting to see which of these causes were more at work in each step of the course. To this aim, based on a detailed analysis of Mina's accounts, the challenges she experienced in the beginning, middle, and end of the course, along with their causes, were identified and traced. A trajectory of

the relative strength of these causal mechanisms was drawn for the entire course. See Figure 1.

Figure 1.
Changes in the Strength of the Causal Mechanisms of Challenges in Teaching an Online EFL Course



As it can be observed, during the initial sessions of the course, all sources of challenges were highly implicated in challenging Mina. The technological requirements of the new mode of education along with human resources' (students' and teacher's) unpreparedness and the lacking content faced Mina with quite many challenges such as class attendance, time management, and file preparation. As the class moved to the mid-sessions, still challenges caused by inefficient technological resources prevailed. The worst was the

reduction in internet quota, which had not been an issue at the beginning of the course and was, later on, more or less handled at the end of the course.

Similarly, the limitation of the internet quota Mina experienced was imposed by the telecommunication company and was unavoidable. One of the problems facing Mina from the beginning of the course was platform limitations, especially the incapability of uploading audio files or several simultaneous files. Mina adapted herself and found other ways of producing and feeding course materials. Thus, in this step (middle of the course), the content-related challenges were lower than the beginning. Mina and her students got more familiar to the system and at least partly managed to adapt themselves to the environment (with all existing or lacking capabilities). She commented: “as the class continued, I figured out how to choose, develop and upload materials into the class, and I could manage the class time better”.

Therefore, fewer challenges caused by human resources were faced in the mid-sessions too. The only problem remained with a number of students slower than others in adapting themselves to the online mode. As it can be seen in Figure 1, in the ending step of the course, the effect of all sources of challenges is reduced (but not wholly discarded). Mina emphasized the considerable difference between the prevalence of challenges at the beginning and end of the course. She stated: “in the final sessions, the students and I were adapted to the online system, and most challenges, especially the technology-related ones, were highly resolved, I could manage the class time better, and students had a better understanding of the content”.

However, she expressed boredom which she attributed to the user-unfriendly requirements of online education, especially wearing a headset. What is evident from Mina’s accounts is that though she, her colleagues, and students went to a great length adapting themselves to the new mode of

education, some of the challenges they experienced could have been prevented if a better platform had been purchased. For example, as for the online platform, Mina talked about one of the main limitations of the platform they used in class. She explained:

In my opinion, Big Blue Button (the system we used in our class) had some limitations like uploading audio files, which are more apparent in an English class compared to other educational classes. I think for language classes, other platforms like Adobe Connect can be more appropriate because it has a wider range of options for teaching.

Besides, she admitted that many of the challenges were due to her own and the students' unpreparedness for new conditions. This is considered a deficiency in human resources. She predicted that she would not face any of such challenges in the next online experience. Her first attempt of teaching an entirely online course (not blended) was to her as a training course for the forthcoming works of teaching.

The sudden emergence of COVID-19 and the immediate shift of face-to-face education to the online mode confronted many educators worldwide with similar problems. In their whilst-pandemic study, Atmojo and Nugroho (2020) also reported recurrent teacher challenges in creating materials for online settings, low technology knowledge or relevant experience, and difficulty of providing personal feedback to students. Mina admitted that her colleagues faced similar challenges, too, especially those relating to technological resources.

The existence of some technology-related issues like internet connection throughout the semester can be supported by Alam's (2020) findings which concluded that internet connection was the main challenge facing EFL teachers in their online classes in the COVID-19 pandemic. The problem was

present at a national scale. Similarly, the limitation of the internet quota Mina experienced was imposed by the telecommunication company and was unavoidable.

Some of the user-unfriendly requirements of online education, like using a headset during class time, can be supported by North et al. (2000), who concluded that technological requirements in distance learning, e-learning, and online education can adversely affect teaching outcomes and can also cause frustration.

The problem of unfamiliarity with the online system and low media literacy and technological knowledge, especially during the first stages of online classes, can be resolved by gaining experience in the online setting. However, the best possible way is to provide training sessions for both teachers and students to avoid possible problems. This is supported by Baran et al. (2011), who drew attention to the need for a preparation course for teachers to help them with a better transition from the traditional face-to-face mode of teaching to the online mode.

Conclusion

The sudden occurrence of COVID-19 in early 2020 challenged the whole world from all aspects, including education. Traditional face-to-face courses switched to online mode with many teachers and students still unaccustomed to and inexperienced in the new environment. The present case study followed a process-tracing approach to explore the challenges and their causal mechanisms facing an EFL teacher in her first online experience. The challenges and their causes, divided in three categories of technology, human and content resources, showed to differ in type and prevalence across the three steps of the course. Most of all, the teacher faced inexorable technological

problems during the course, for which neither she nor her students had been admittedly prepared. Though these challenges were comparably lower in the end of the course, many of them could have been prevented from the outset if a more user-friendly platform had been used. It is suggested for online education that the selected platform meet the requirements of the target course. For instance, uploading and playing audio files is integral to a language course, but it was what the present teacher and her students missed in their online experience.

The challenges induced by deficient content resources prevailed too. The content issue in online education is considered a major pedagogical challenge stemming from the inability of teachers to seamlessly transfer their face-to-face course materials to the online environment (Choi & Park, 2006). This is again related to the teacher's unpreparedness, which is partly attributed to the sudden emergent conditions which pushed many educators into a whole new instructional environment. Still, it seems that an in-service intensive preparation/training course could help tackle many issues while many others would inevitably remain.

Many concerns that might probably occur to the teacher and students in an online class are, as described by Anderson et al. (2011), due to the non-existence of institutional expectations for online courses. Without clear guidelines and expectations for teachers to follow, there is no way to assess the effectiveness of online courses (Anderson et al., 2011). Thus, more transparency is suggested for the procedures and expected outcome of online courses, which can put the teacher's and students' minds at rest and can help the teacher develop more relevant content and relieve students of much concern about the awaiting evaluation.

Throughout the process-tracing, the three causal mechanisms of the teaching challenges were revealed to interact, corresponding to the dynamicity inherent to the multifaceted teaching context. On many occasions, for instance, low internet speed and platform limitations (typical deficiencies in technological resources) and unavailability of textbooks to students (a typical deficiency in content resources) hand in hand left the teacher in a predicament. She could not even present the material she had prepared in advance. Nor could she upload any audio file. Videos would for sure end up freezing! Although she finally used the text-chatting mode, it is too simplistic to think of it as a reliable compensatory strategy to work on all similar occasions. Besides the interactive effect of causal mechanisms involved in teaching challenges, it was interesting to find that some of the teacher's challenges met those of students. This was especially true for challenges caused by human resources. In other words, occasionally, students' challenges (e.g., concerns about final exam) further challenged the teacher. This is unavoidable among the human agents acting, reacting, and interacting within a complex system of class, the dynamicity of which still requires further investigation in the online environment, the dominant mode of education during the pandemic.

Overall, it should be admitted that online education has never been as challenging as today. In the pre-COVID-19 era, for more than two decades, academics had agreed to gradually translate their programs and courses into online offerings for the sake of a more democratic approach to education and cost-effectiveness (Tesar, 2020). Yet, the whilst-COVID-19 era is marked by an inevitable and sudden substitution of conventional education with the online mode. In other words, online education no longer serves a complementary role today but is the only alternative at hand. In developed countries with a long history of distance education and e-learning, designing

and implementing an online curriculum is better conceivable than in developing countries. For effective teaching to take place in an online language course, not only should the technological requirements be availed to human resources, but both the teacher and students need to be trained and adequately prepared for the new sphere. The present study showed how an abrupt online course using an unfitting platform and little preparation for human resources made a language teacher's job unprecedentedly challenging. This study revealed what challenges are more probable to rise in the early sessions, which are more prevalent in mid-sessions and which might continue until or rise anew in the end of the online course. Knowledge of these challenges and their causal mechanisms offers a more realistic image of the whilst-pandemic challenging task of EFL teaching. In doing so, it always acknowledges the dynamic and situated nature of the challenges and the essentiality of locating them within a whole system marked by inherent complexities and nuances that require much more in-depth investigations from a great many aspects.

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Appendix

Conceptual framework of teaching challenges based on the literature

Possible sources of challenge	Examples	Reference
Human Resources	Time limitation	Capra, 2011; Fein & Logan, 2003; Humphries, 2010; Cavanaugh, 2005; Crawley, Fewell & Sugar, 2009; McKenzie, Mims, Bennett, & Waugh, 2000; Li & Irby, 2008
	Lacking interest in online education	Fein & Logan, 2003; Osika, Johnson & Buteau, 2009
	Unreadiness for online education	Baran, Correia, & Thompson, 2011; Hung, Chou, Chen, & Own, 2010; Smith, Murphy, & Mahoney, 2003
Content resources	development of new material	Li & Irby, 2008; Koehler, Mishra, Hershey, & Peruski, 2004; Kyei-Blankson & Keengwe, 2011
	Use of multimedia	Almala, 2005; Hathaway, 2013; Mayer, 2014; Miller, 2014; Niess & Gillow-Wiles, 2013
Technology resources	slow or limited internet coverage	Alam, 2020; Atmojo and Nugroho, 2020
	difficulty operating the platform system	Leo and Puzio, 2016; Bower, 2015; Lightner & Lightner-Laws, 2016