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Original Article

Digital Tools for the Development of Oral Skills in English

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Abstract

This paper presents the results of a virtual ethnographic study developed in an online classroom in a public university in Brazil. The online activities aimed to help 70 students to develop English oral skills in a 60-hourcoursetaught along 15 weeks using the Moodle Language Management System (LMS). After the initial weeks, and some dropouts, there were 59 participants in this study. The course was planned and managed by the authors of this article and some modifications were made along the experience in face of unexpected changes in the learning environment. Having as theoretical support complexity, connectivism, and learning ecology, we assessed digital tools for oral communication and verified that they had a positive impact on language learningand increased learners' opportunities for language practice. The tools not only contributed to the development of the students' oral skills but also decreased their anxiety when speaking English.

Keywords

Virtual ethnography, Digital tools, Oral skills.

Introduction

Developing oral skills in English has always been a challenge in Brazil because students have few opportunities to interact with English speakers. In addition, some students claim they feel uncomfortable when speaking in front of more proficient classmates, as discussed by Paiva [1]. Thus, we decided to investigate how students would behave in a virtual environment (Moodle Learning Management System) where they would have the chance to improve their oral and learning skills.

The aims of our study were (1) to evaluate the impact of digital tools as perceived by the participants to develop oral skills in English and (2) to investigate an online asynchronous classroom as a new environment for English language learning at the Federal University of Minas Gerais. Although our university favors face-to-face activities, students can also enroll in online courses. It is our contention that in order to understand what takes place in such an environment, it is essential to decrease the distance between researchers and participants, and not only observe learners, but also listen to their opinions and take into account their perceptions of their learning practices in that virtual reality.

The design of the course and research were both supported by principles of complexity, connectivism, and learning ecology, which will be discussed in the next section.

Three theoretical perspectives

In this section, we present three theoretical perspectives – complexity, connectivism, and learning ecology – which will help us understand the use of digital tools for the development of oral skills in an online environment. These perspectives have been chosen because they are closely related to one another, enabling us to have an amplified view of the phenomenon under investigation. They offer us lenses to understand the impact of the digital tool on the group's behavior, the connections among the elements, how they influenced each other, as well as the environment learners were interacting with.

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Complexity

Since Larsen-Freeman's [2] seminal article on Chaos/complexity science and second language acquisition, several researchers, including Lantolf [3] Ellis [4], Larsen-Freeman and Cameron [5], Sade [6], Paiva [7], Mercer [8, 9], Larsen-Freeman [10], Borges [11], Dörnyei, MacIntyre and Henry (eds.) [12], Sampson [13], among others, have used complexity and chaos concepts to understand language learning experiences.

According to Larsen-Freeman and Cameron [5], "complexity theory aims to account for how the interactive parts of a complex system give rise to the system's collective behavior and how such a system interacts with its environment" (p.1).

Larsen-Freeman [2] suggests that there are "similarities among complex nonlinear systems occurring in nature and language and language acquisition" (p. 142) and the use of language development instead of language acquisition.

In 1998, Larsen-Freeman [14] called for a whole-systems approach to second language acquisition and pointed out that an urgent issue was how to realize this methodologically. That issue was also addressed by Larsen-Freeman & Cameron [5], who suggested "how one might start the process of thought modeling a complex dynamic system by:

- identifying the different components of the system, including agents, processes, and subsystems;
- for each component, identifying the timescales and levels of social organization in which it operates;
- describing the relations between and among components;
- describing how the system and context adapt to each other;
- describing the dynamics of the system:
  - how the components change over time, and
  - how the relations among components change over time" (p. 41).

Having this in mind, we call our Moodle Learning Management System a complex dynamic system because it was comprised of many interdependent elements or agents (students, teacher assistants, and two teachers) who were in a process of daily interactions for 15 weeks. As the system was dynamic, it was in constant non-linear change, and the changes were not necessarily proportional to their causes (one of the principles of chaos theory). Sometimes instructions and extra materials were ignored by the students and sometimes an apparently irrelevant action of one of the agents caused significant changes to the system as a whole. For example, a student's doubt and/or contribution can reorient the course design and affect the whole, as we will see in the analysis section.

Although the agents were seemingly enclosed in the boundaries of a virtual learning space – in this case a delimited space in the Moodle Learning Management System (LMS) on the university server – these boundaries do not in fact exist, since complex systems are open to the influence of the outside environment and adapt themselves to their environment (Larsen-Freeman and Cameron [5]. Students can meet their peers at school or interact with them through other communication technology. They can also be instructed to perform tasks outside of the LMS.

Kramsch [15] reminds us that an open system "is constantly self-modifying" (p.12), another term for self-organizing, as used by Larsen-Freeman [2] and Larsen-Freeman and Cameron [5]. Kramsch [15] adds that "what learners learn is not the product of any one factor or agent, but rather it arises from the interaction of a multitude of factors" (p.13). The Five Graces Group [16] explains that "speakers' behavior is based on their past interactions, and current and past interactions together feed forward into future behavior" (p. 2).

Although teachers have some control over this kind of system by means of the course design, deadlines, and grades, it is impossible to plan and control everything students will do throughout the course. Unexpected behaviors will emerge, and teachers and students alike will have to adapt to their new experiences. The system undergoes constant change, and the students and teachers

learn through their experiences in this virtual learning environment.

Connectivism

Our course design took into account ideas from connectivism, as proposed by Siemens [17], who defines connectivism as "the integration of principles explored by chaos, network, complexity, and self-organization theories" (p.30). The design was influenced by the following principles formulated by Siemens [18]:

- Learning and knowledge rests in the diversity of opinions;
- Learning is a process of connecting specialized nodes or information sources;
- Learning may reside in non-human appliances;
- Nurturing and maintaining connections is needed to facilitate continual learning;
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities;
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

The tasks required students to orally share their perceptions and opinions about several topics using digital tools and to interact with each other by posting comments and feedback on each other's tasks. Thus, the course was a network in which teachers and students were interconnected in the learning environment mediated by digital tools. Teachers constantly updated the instructions and the support materials in order to meet the students' needs. In addition, they were allowed to choose the day to post the tasks (within a 5-day period), the tools to develop some of the tasks, as well as the topics.

Veselá [19] reinterprets Siemens's principles in light of foreign language education. She sees diversity in terms of language variation and the nodes as a variety of resources, including books, mass media, Internet, and hyperlinks connecting individual nodes. She defends that "learning a foreign language is a field, in which we can never say that we have learned it. Foreign language learning is a long-life activity" (p.23) and that "without continual practice, our ability to communicate disappears. It is necessary not only to add new nodes and connections but also to maintain and update the old ones" (p.23). We agree and add that the capacity for potential knowledge and the maintenance of connections is crucial for language learning.

In addition to Vesela's principles, the main ideas from Siemens [17], which influenced our work, were as follows: "the desire to know is balanced with our desire to communicate, to share, to connect, and our desire to make sense, to understand to know the meaning" (p.4) and "learning is primarily a network-forming process" (p.15). We created a networked learning environment, in a virtual space, for dialog, co-creation, knowledge sharing, and peer review.

Our design incorporated the four traits proposed by Siemens [17], p.16, for "connective knowledge networks": diversity, by offering different tools, whenever possible, for the same task; autonomy, by allowing students to choose the tools and, in some tasks, to decide on the very content of the texts; interactivity, by fostering interaction in the diverse forums; and openness, by redesigning the course due to both external changes and students' suggestions and needs.

Learning ecology

Learning ecology is an approach influenced mainly by Ecological Psychology, a theory that was primarily developed by Gibson [20]. In his book, the scholar reflects on how animals perceive the environment. In this view, the environment is not merely the physical world. Instead, it is what the animals perceive it to be. The approach focuses on the perception of the environments as well as the perception-action opportunities animals find in ecological systems.

As claimed by Gibson [20], environments can be considered sites that "separate substances from the medium the animals live in" (p. 127). They can also provide objects, tools, and

substances, such as shelters, refuges, and energy sources. These would be the affordances: what the environment "offers the animals, what it provides or furnishes, either for good or ill" (p. 127). The term affordance was coined by Gibson and its meaning refers both to the environment and the animal in a way that no other term does, since it covers the complementarity between the two.

In the field of language learning, van Lier [21] asserted that an ecological approach differs from traditional scientific perspectives, which tend to analyze phenomena in a more precise and causal way. In learning ecology, the agents are immersed in an environment surrounded by objects with potential meanings that are perceived once the agents interact with them. The author argues that, in an ecological approach to language learning, the notion of emergence is a key concept: things are not merely seen as a result of components, since "at every level of development properties emerge that cannot be reduced to those prior levels" (p. 246). In addition, he claims that cognition is not restricted to mental and internal processes and that learners' perceptions and actions are crucial to learning.

Learning ecology, as defended by van Lier [21] also acknowledges that the language classroom is an open system. He states: "the learners spend an hour or so in the classroom, but before that they have been elsewhere, and after that they will go to other places. There is no doubt that their activities elsewhere have an effect on what happens in the classroom, and the same naturally goes for the teacher" (p. 194).

This phenomenon is no different in an asynchronous virtual classroom; learners are in different places, working at different times and places, either at home or at school, and use different machine devices (desktop, tablets, smartphones) which may have an impact on the students' performances by offering different affordances and constraints. Each learning context is different from the other, and we do not have control over what might have an effect on their learning processes.

Following the principles of connectivism and learning ecology, we created an open learning system, full of learning affordances, where interconnected students could make choices, and learn with peers and teachers to develop their oral skills.

To understand what happens in such a complex dynamic system, we chose virtual ethnography as our research method, given that, as pointed out by Larsen-Freeman and Cameron [5] ethnography "studies real people in their human contexts and interactions, rather than aggregating and averaging across individuals as happens in experimental and quantitative studies" (p. 242).

Method

In this section, we will define and describe the method we used to develop our study and describe the learning environment investigates.

Virtual ethnography

"Ethnography is the art and science of describing a group or culture" [25] (p. 1), in our case, a virtual culture. We chose virtual ethnography because it allows us to study "real people in their human contexts and interactions, rather than aggregating and averaging across individuals as happens in experimental and quantitative studies" (Larsen-Freeman and Cameron [5], p. 242). According to Hine [22], p. 21, one of the pioneers in virtual ethnography,

Ethnography is a way of seeing through participants' eyes: a grounded approach that aims for a deep understanding of the cultural foundations of the group. The use of different ways of observing and communicating with participants provides a kind of triangulation through which observation can be crosschecked.

For Miller & Slater [23], it is also an approach "that is based on a long-term and multifaceted engagement with a social setting" (p. 21). In our study, our social setting was a virtual classroom that took place over 15weeks.

"Virtual ethnography is the process of conducting and constructing an ethnography using the

virtual, online environment as the site of the research" (Evans [24] p. 11) and, as described by Hine [22] (p. 63), involves, among other characteristics, "the sustained presence of an ethnographer in the field setting, combined with intensive engagement with the everyday life of the inhabitants of the field site." Another characteristic of virtual ethnography is that "new technologies of interaction make it possible both for informants to be absent and to render them present within the ethnography. In the same way, the ethnographer is both absent from and present with informants" (Hine, [22], p. 65).

According to Rutter & Smith [25], "by definition, online ethnography describes places that are not spaces. Disembodied persons people these places" (p.84). They add that "it is very difficult for the online ethnographer to maintain a stable presence in a virtual environment when people cannot see that you are there" (p. 89). This might be true for virtual environments, such as discussion boards, in cases where the ethnographer belongs to a group whose composition changes very often and whose members do not know each other. It is not necessary to be logged on 24 hours a day, since everything that happens within this virtual community is registered, including the silent acts, such as access to specific pages. As Hine [22] reminds us: "the Internet is available from the researcher's desktop and can be accessed whenever there is time" (p.22) and "ethnographer and participants no longer need to share the same time frame" (p.23).

Another aspect of ethnography is the point of view of participants, that is, the emic perspective, which is of paramount importance for researchers, given that "[t]he meanings that people attribute to their actions and behaviors, whether communicated directly or indirectly, are considered central to qualitative inquiry" (Schensul [26], p. 87).

Fetterman [27] points out that the emic perspective is "at the heart of most ethnographic research. The insider's perception of reality is instrumental to understanding and accurately describing situations and behaviors" (p.20). He adds: "an emic perspective compels the recognition and acceptance of multiple realities. Documenting multiple perspectives of reality in a given study is crucial to an understanding of why people think and act in the different ways they do" (p.20). In fact, it is imperative to contrast researchers' and participants' points of view so as to understand certain behaviors from different perspectives, such as not doing an activity, as we shall see in the data analysis.

Kulavuz-Onal [28] invites CALL researchers to consider netnography (another name for virtual ethnography) in future studies. He claims that "although an increasingly popular research method in other fields, netnography does not seem to be as popular yet in the field of education, applied linguistics, or computer-assisted language learning (CALL)" (p.432). He carried out research on the Webhead online community, a group of English language teachers interested in CALL. In fact, besides the work by Kulavuz-Onal [28], we have found only three examples in the field of education. Shih & Yang [29] studied a virtual English classroom using 3D graphics and real-time voice communication and concluded that the experience with virtual reality fostered motivation and provided opportunities for the development of communicative competence. Charnet &Veyrier [30], in a Master's program context, investigated collaborative learning in a technological environment. They advocate that "the ethnographical methodology applied to the study of the technological environment brings concrete visibility of the tracks of implementation and manners, and gives the possibility of having access to the development of the non-stop process" (p. 36). By contrast, Bosch [31] explored the potential of Facebook for teaching and learning in educational micro-communities and saw positive benefits for the development of these micro-communities, although she recognizes some limitations of this social network for educational purposes.

These three studies do not focus on language learning, but they are examples of the potential of virtual ethnography to give voice to the participants and understand learning contexts.

In the next section, we describe some important elements in our virtual ethnographic study: the environment, the agents, the tasks and the tools.

The context

The virtual ethnographic field of our study consists of a classroom in the Moodle LMS at a university in Brazil. This virtual community was created for an elective 60-hour course that aimed to help students to develop some basic oral language functions, such as introducing oneself; talking about family; describing people, routines and places; talking about likes and dislikes; expressing feelings and emotions; asking and giving information; as well as talking about the past and the future All of the participants who voluntarily chose to enroll in this online class were instructed to perform tasks to practice language functions and make comments on their classmates' tasks with the help of digital tools. The tasks included personal introductions by means of avatars, multimodal photo albums, oral glossaries, video recipes, podcast recordings, debates, storytelling, and personal information recordings.

At the beginning of the semester, there were 70 students enrolled in the course, but eleven dropped out after doing the first tasks. The other agents in the learning environment were: two teachers (the co-authors of this text), two teaching assistants (hereinafter, simply 'teachers'), and a Ph.D. student who helped the teachers with the task of listening to the students' audio files, watching the videos, and giving feedback. The teachers were also the designers of the tasks, as well as the moderators of the interactions in the virtual learning environment, which puts us in the positions of both researchers and participants. Along the process, we were concerned with providing all the instructions and advice, as well as with observing students' perceptions and behaviors in the learning environment. We listened to the students' opinions and made changes in the course design, such as in the way feedback would be provided, so as to offer them a learning environment where they would not be afraid of making mistakes

The 59 participants (44 female and 15 male students) were all English majors and, although the syllabus had been designed to suit beginners, it can be said that the proficiency level of the majority of the students was consistent with the upper intermediate level, as defined by the Common European Framework. Two students presented difficulties, but the others could be considered highly proficient. Nevertheless, they enjoyed the activities.

The students had to deal with a great variety of tools in this environment, some of which had already been incorporated into the Moodle platform, especially the built-in tools (Glossary, Forums, Task and Message sending). The participants already had a certain familiarity with these tools. In addition to one forum for each task, there were four other forums: one for announcements, one for doubts, one for collective feedback, and one for research consent. As required by research ethics, no excerpt from students who had not given their consent was included in this study.

The web tools selection followed three criteria: gratuity, user-friendliness, and availability in the clouds. Throughout the semester, we also suggested the use of online dictionaries and text-to-speech tools. It is important to highlight that some of these extra tools were not designed to achieve educational objectives, such as Fotobabble, AudioBoom, and Vocaroo. However, as teachers, we perceived other affordances that enabled us to use them in order to suit our pedagogical purpose: developing oral skills.

Data collection and analysis procedures

Our main method of data collection was online participant observation. For 4 months during the second semester of 2016, we were present in the research field almost daily, including weekends.

We were intensively engaged in mediated interaction. We read, watched, and listened to students' tasks, asked questions, gave feedback, told students to redo some tasks, read each student's learning journals, asked some students to be more active in the virtual environment, observed students' logs and amount of access, and took notes of whatever was relevant for the research, including unexpected behaviors, problems with tools, or connections, suggestions, and complaints. In our online fieldwork, we observed the development of the students by means of

the development of their tasks and their feedback to classmates; we interacted with them through private messages and dedicated forums; we offered help to those facing difficulties; and we examined the metadata collected by Moodle, which enabled us to see if the 'invisible' students were present in the environment during the week, date, and time of their posts, track comments posted, etc. In this way, our role was that of teachers and ethnographers. As such, we can describe ourselves using the words of Hine [22] (p. 47), "the ethnographer is not simply a voyeur or a disengaged observer, but is also to some extent a participant, sharing some of concerns, emotions and commitments of the research subjects."

In our case, we were neither detached nor invisible. We were visible and active within the virtual community, unlike some virtual ethnography carried out in newsgroups (see, for example, The Louise Woodward reported by Hine [22]. In a newsgroup, both participants and researchers can be mere lurkers, but that is not the behavior expected in an educational community, although it might occur when one student decides not to do an activity but connects to Moodle to see the classmates' tasks without making comments. In a virtual environment created for educational purposes such as ours, the teacher/researcher must always be there by means of the teaching presence (selection, organization, and presentation of the course content; assessment); cognitive presence (information exchanges, reflections, and problem-solving situations); and social presence (affective expressions of emotion in feedback, students' encouragement, and appraisal), as suggested by Garrison, Anderson, and Archer [32] in their proposal for a community of inquiry framework.

The learning journals were another source of data. As regards the emic aspect of our research, they were the main channel for the students' own views regarding their performance in the course, although they also expressed their opinions in our forums. The students, however, had to follow some guidelines when writing their entries. They were supposed to:

- describe how they performed each task;
- give their opinion about the material provided for each week;
- evaluate the tool they used to perform the task and say if they had perceived other affordances for that tool;
- say if the collective feedback was useful and if they had identified any mistake;
- talk about their feelings while performing the task;
- evaluate their participation and compare learning online with learning in a face-to-face classroom.

Only the teachers had access to the learning journals. The journals were analyzed according to the following procedures: first, we selected excerpts that could support the discussion, which were grouped according to their similarities and regularities, and then a list of affordances was composed to summarize the most relevant ones for this group of participants. It is worth noting that students were consulted about the use of their data for research purposes and were aware that their identity would not be revealed. They signed a consent term and knew that they could opt out at any time. No reward and/or extra points were promised, and their names were replaced by pseudonyms.

Our findings are discussed in the next section.

Results

The discussion of our findings will focus on expanding nodes, feedback, decision making, affordances, and openness, but other concepts from our three theoretical support materials will be intermingled throughout this section.

Expanding nodes

As previously mentioned, when designing the course, the principles of connectivism were taken into consideration. Our virtual classroom was designed as a learning community, as a node, which

is part of a larger network made up of our university members, together with the World Wide Web. Our main concern was to develop an interconnected learning network in which the participants could interact with each other and, more importantly, share knowledge and learn together. The participants behaved both cooperatively and collaboratively, interacting with their peers and teachers, helping each other when in doubt, and sharing useful information. We also wanted the students to create external nodes by showing them that learning was not something internal to our virtual classroom and that they can search the web for information and contribute to expanding those nodes by publishing the final versions of their tasks on the web. A good example of expanding external nodes was the act of sharing recipe videos on YouTube. Students watched other videos and shared their own versions.

Feedback

As in any complex dynamic system, feedback was essential for the development and dynamicity of the system. There were moments when students read their classmates' tasks and provided feedback to them, thus strengthening the internal nodes. An example of this is the first week's task, when students were asked to create online avatars and record an oral introduction using Voki. As the students posted their avatars, the teachers posted comments greeting the students and giving feedback. Eight students did the same and posted comments on their colleagues' avatars spontaneously. We believe that this kind of manifestation of social presences somehow fostered group bonding and helped to establish the initial network nodes. A representative example is the following thread of posts over a nine-day period.

- by Maria. Wednesday, 10 Aug 2016, 9:13 PM
- Good evening, everyone, here is the link to my Avatar:
- http://www.voki.com/site/create .....
- by Joana. Wednesday, 10 Aug 2016, 11:32 PM
- Thank you for your avatar, Mary. Nice meeting you!
- by Julia. Thursday, 11 Aug 2016, 12:36 PM
- Good job, Mary. Nice to meet you!
- by Maria. Thursday, 18 Aug 2016, 8:48 PM
- Thanks Julia! Nice to meet you!
- by Paula. Thursday, 18 Aug 2016, 10:06 AM
- Very good! Nice to meet you, Mary!
- by Maria. Thursday, 18 Aug 2016, 8:48 PM
- Thanks!! Nice to meet you!

The same happened throughout the semester. The teachers were not the only ones to see, comment on, and evaluate the tasks. The following thread is noteworthy, as it shows students providing support to each other on a Sunday, a day teachers were usually absent from the LMS.

Use of Vocaroo

By Pedro. Sunday, 7 Aug 2016, 12:46 PM

I'm not being able to use Vocaroo. I try to record my voice, but it gets really low. I also changed the configuration of my computer and my microfone (sic), but it did not work. Then I decided to record using my cell phone, transferred into my computer and modify (sic) the audio into mp3. However, it is not possible to post, once (sic) it is being asked to paste the link of my recording. What should I do? Thanks in advance.

Re: Use of Vocaroo

by Rosa. Sunday, 7 Aug 2016, 1:46 PM

Hello, Pedro!

I also tried many option (sic), so here is my advice! Record it on your mobile, upload to vocaroo, and type in your computer the link you found in your phone. You don't need to download

it as mp3, just upload and type the link!

For your voki, I advise you to record something shorter (the limit is 1 minute in voki) using vocaroo, then you download the mp3 file and upload to your voki!). Good luck!

In fact, what the student taught that classmate was also valuable knowledge to the teachers, since we were not aware that it was possible to embed audio files from mobile devices into Moodle LMS by inserting the Vocaroo link. Actually, in our instructions, we explicitly asked students to use Vocaroo. This example of network formation shows that learning took place through connections in a self-organized and balanced network. Students were not the only ones to learn, and teachers were not the only ones to teach. We were all participants of the same network. This spontaneous and small contribution from one student to another ended up impacting the whole system, since we revisited the instructions of all the following tasks, and the students were encouraged to follow her example.

The students' productions were visible to the whole group, and we planned that to stimulate spontaneous interaction and reduce the feeling of invisibility that might exist in virtual spaces.

At the beginning of the semester, students were consulted on how they wanted to receive feedback, most of whom said they did not want to have their mistakes publicly mentioned. Therefore, we decided to post only collective feedback. Thus, part of our role as agents in this environment was to weekly post a list of the most frequent mistakes and issues in syntax, pronunciation, and stress, arranged in alphabetical order. These feedback files were posted in a forum with no identification of who had made them, nor any other trait that might lead to a student's identification.

Some examples from students' learning journals synthesize the significance of the collective feedback:

(a) Teachers' feedback always helps us when we make mistakes or even when we do not make any. When we observe other students' mistakes, we realize that we would also do the same if we were to pronounce that word or use that particular expression. So the feedback is of immense value to all who are willing to read it attentively. (our translation) (Christine)

(b) The feedback has been helping me a lot. Sometimes I even learn through my classmates' mistakes. (Debora)

(c) As I was using the Natural Readers website to practice my pronunciation, I did not make many mistakes, but the feedback helped with connectors and how I can build a better speech. (Carla)

We encouraged students to read and study the collective feedback and, when necessary, to look for answers or further explanations on the Internet. In addition, one of the topics of the learning journals prompts instructed students to write if they could recognize their mistakes or learn something new when reading the collective feedback.

Decision making

Decision-making was a salient and essential trait in our environment. First of all, since it was an elective course, students had to choose to be part of our class, which means that they decided to enroll in one of a series of elective courses offered by the faculty. Furthermore, after a few weeks, students were offered the chance to select the web tool they wanted to use to perform the task. One example is the Language Learning History activity, because students could choose between the tools UTellStory, PowToon, and Fotobabble. The great majority of the class chose to do the activity using UTellStory due to its friendlier interface and because it was perceived to be easier to use. Finally, another aspect that contributed to decision-making was asynchronicity. The tasks were all designed to be done at any time during the week, from Monday to Friday. Thus, the students were supposed to be autonomous and disciplined enough to post the assignments in time to receive peer and teacher feedback during the week. Although a few of the students posted their tasks well before the deadlines, a considerable amount of students ignored our advice and posted

their tasks on the evening of the last day and some even in the final minutes of each week. Let's consider the following example, the seventh week, when 51 out of 59 students completed the task. One student posted her task on Monday; one on Tuesday; one on Wednesday; one on Thursday; and 23 (45%) on the last day, Friday. From those who posted on Friday, 12 (23.52%) did it on Friday evening. However, five (7.84%) posted their tasks in advance: three on Saturday and two on Sunday.

According to our university policies, students can skip 25% of the activities. Therefore, it is normal to have some students absent for some weeks. On week 3, 12 of 59 students did not post their family albums. We thought the choice of not doing the task was because it was a more complex task. We never asked why a student was absent, since it is their right to ignore 25% of the classes, but one student told us, in his learning journal, that he had decided not to do the task because he did not feel comfortable sharing family photographs. This isolated manifestation was enough to tell us that we must change this task in the future and give students the option to work with famous families whose photographs are on the Internet. The other 11 students did not make any comment on this task in their learning journals.

Affordances

In their learning journals, students have acknowledged the usefulness of the digital tools they interacted within the learning environment. The text-to-speech software, an optional tool in the course, was also mentioned by all the students as one that has helped them to improve pronunciation. Students were aware that they could learn and improve their oral skills using digital tools, as we can see in the following excerpts:

(a) The text-to-speech technology helped me a lot to improve my pronunciation, so much that there were activities that I recorded 10 times until getting closer to the native pronunciation. (Christine, our translation)

(b) At first, I was a bit skeptical about using technology to improve my speaking skills because I had bad previous experiences with it. However, I felt really good and innovative as I did the activities proposed by the teachers. (Bianca)

(c) I believe that the tools are a way of diversifying teaching and breaking the patterns. I enjoyed familiarizing myself with these tools, and I think they will be useful for other courses. Some of them are very similar, but others are very fun and different. (Anita, our translation)

Our belief is that their experience helped them perceive that, when dealing with online tools to improve oral skills, they can identify their mistakes based on the fact that some of them have recorded the same task several times, as registered in their learning journals. Furthermore, the course design might have contributed to the perception that they can also learn from other students' mistakes as they could listen to or watch all the tasks and read the list of mistakes from the whole group every week.

When doing qualitative research, it is important to triangulate the data to make the research findings more reliable. If we look at the forums where collective feedback files were posted, we see that there are 15 forums with zero comments. Apparently, students had not perceived the affordance of the collective feedback, but if we check the logs, we see that they had repeatedly viewed the files. Moreover, in their learning journals, we found mention of the importance of the collective feedback files, as we could see in the section on feedback. We can conclude that what seemed irrelevant had, in fact, attracted the students' attention and helped them.

During the weekly oral tasks, students were instructed to think about what they were going to say, write a script, consult online dictionaries, and use text-to-speech and pronunciation tools before recording. In the learning journals, students recognized that the possibility of planning and enhancing speech in advance is a possible action with the use of digital tools. The participants also stated that they listened to and recorded their oral production several times before posting them, explicitly acknowledging that this was a very fruitful activity that helped them improve.

Students felt that digital tools helped them to improve their pronunciation and make their speaking more natural, as expressed by 40 of the 53 students who wrote the first journal entry and declared they preferred to use digital tools to practice their oral skills. One student pointed out that the absence of visual contact and peer pressure, usually experienced in face-to-face environment, helped her feel less anxious and more relaxed. As the traditional classroom generally lacks equal opportunities for practice, students sometimes think that they cannot speak the language. As a result, another participant felt pleasantly surprised when listening to her own recordings, confirming that she could actually be an English speaker. Thus, it is possible to see an interconnection among affordance, action, and identity in this environment. These are examples of e-students who perceived the affordances the environment offered, acted with them, and confirmed or changed their visions about themselves as English speakers.

Openness

Finally, as we have stated before, complex dynamic systems are open to the influence of the outside environment. In our case, the political instability caused by Brazil's coup d'Etat interfered in the development of the learning system, and the agents had to adapt themselves to emergent experiences. First, on September 22nd, teachers across the country decided to stop their activities in protest to what was happening, and we joined this movement. In spite of our absence, the learning environment and students continued to work. However, a few weeks later, the students went on strike and occupied the campus buildings, also in protest against the coup and the changes in educational policies that they feared would happen. In spite of the strike, our students did not stop working, but two who used the university lab to do their tasks could not follow the course. Consequently, we had to change our schedule, as the course could not finish in November, as originally planned, and the end was postponed to the middle of February 2017.

Discussion and conclusion

The main implication of this study is that, as designers, teachers, moderators, and researchers, we had an amplified view of the virtual community we investigated. Our perceptions, added to those from the students, lead us to conclude that free web tools can be successfully used for the development of oral skills, as their use decreases anxiety and offers students the chance to enhance their oral practices in a comfortable environment. In a public university like ours, it is impossible to hire more staff, and there are a limited number of rooms, but by adopting asynchronous online courses, with the help of teacher assistants, it is possible to offer the course to a larger number of students and at the same time give them individual attention. In addition, there are no schedule overlaps, which is a big problem for students when they choose the courses each semester. Nevertheless, we also acknowledge that the study has its limitations.

It may sound contradictory, but the main limitation of our study is to work with oral skills in an asynchronous environment, because this limited the choice of genres and prevented us from using real conversation, which implies no use of rehearsal strategies, which proved to be important for monologic genres. As one student has said “in class we have the opportunity to really interact, have not only real time feedback, but face-to-face communication is also very different from the online one.”

A second limitation is that only certain features of some applications are free and students felt disappointed for not being allowed to use, for example, Powtoon premium objects or many options offered by Voki.

A third limitation of the study was the lack of contact with the students who had dropped out (7 in total). Although we tried to find out what their views were, they remained silent.

Finally, a fourth limitation was the impossibility of observing the students when they were working offline. Although some of them described what they did when recording their tasks, we could not observe this important step of the process. We could not compare their different audio

recordings to check, for instance, what self-corrections had occurred and if the same mistakes were present in all the versions they had recorded before the final one.

Finally, we would like to present some suggestions for further research. Future studies could involve real beginners to see if the results are similar and compare students in face-to-face classrooms with virtual classrooms using solely digital tools. Another suggestion is a case study, inviting volunteers to carry out the tasks in our lab so that we can observe and record their performances in order to collect empirical data and not base the study only on their perceptions.

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References

[1] Paiva, V.L.M.O. (2010). O outro na aprendizagem de línguas. In: Hermont, A.B., Espírito Santo, R.S. & Cavalcante, S.M.S. (Eds.), Linguagem e cognição: diferentes perspectivas, de cada lugar um outro olhar (pp. 203-217). Belo Horizonte: Editora PUCMINAS.

[2] Larsen-Freeman, D. (1997). Chaos / complexity science and second language acquisition. Applied Linguistics, 18 (2), 141-165.

[3] Lantolf, J. P. (2006). Language emergence: Implications for Applied Linguistics—A sociocultural perspective. Applied Linguistics, 27(4), 717–728.

[4] Ellis, N. C. (2008). The Dynamics of second language emergence: Cycles of language use, language change, and language acquisition. The Modern Language Journal, 92 (2), 232–249.

[5] Larsen-Freeman, D. & Cameron, L. (2008). Complex systems and Applied Linguistics. Oxford: Oxford University Press.

[6] Sade, A. L. (2009). Complexity and identity reconstruction in second language acquisition. Revista Brasileira de Linguística Aplicada, 9 (2), 515-537.

[7] Paiva, V.L.M.O. (2011). Identity, motivation, and autonomy from the perspective of complex dynamical systems. In: Murray, G., Gao, X. & Lamb T. (Eds.), Identity, motivation and autonomy in language learning. Bristol: Multilingual Matters.

[8] Mercer, S. (2011). Understanding learner agency as a complex dynamic system. System, 39 (4), 427–436.

[9] Mercer, S. (2013). Towards a complexity-informed pedagogy for language learning. Revista Brasileira de Linguística Aplicada, 13 (2), 375-398.

[10] Larsen-Freeman, D. (2013). Transferoflearningtransformed. Language Learning, 63, Suppl. 1, p. 107–129.

[11] Borges, E. F. V. (2015). Complexity approach to language teaching and learning: Moving from theory to potential practice. In: Gitsaki, C. & Alexiou, T. (Eds.), Current Issues in Second/Foreign Language Teaching and Teacher Development. Research and Practice. Cambridge Scholars Publishing. pp. 140-163. Retrieved from https://www.academia.edu/16552325/Complexity_approach_to_language_teaching_and_learning_moving_from_theory_to_potential_practice

[12] Dörnyei, Z., MacIntyre, P. & Henry, A. (Eds.). (2015). Motivational dynamics in language learning. Bristol: Multilingual Matters.

[13] Sampson, R. J. (2016). Complexity in classroom foreign language learning motivation: A practitioner perspective from Japan. Bristol: Multilingual Matters.

[14] Larsen-Freeman, D. (1998). On the scope of second language acquisition research: 'The learner variety' perspective and beyond. Language Learning, 48 (4), 551−556.

[15] Kramsch, C. (2012). Why is everyone so excited about complexity theory in applied

linguistics? In: Bailly, A. Boulton & D. Maciare (Eds.), Didactique de languesetcomplexité. En hommage à Richard Duda. Mélanges CRAPEL, 33, 9-25. Retrieved from http://web.atilf.fr/IMG/pdf/02.pdf
[16] The Five Graces Group (2009). Language is a complex adaptive system: Position paper. Language Learning, 59, Suppl. 1,1-26.
[17] Siemens, G. (2006). Knowing knowledge. Retrieved from Elearnspace: everything elearning: http://www.elearnspace.org/KnowingKnowledge_LowRes.pdf
[18] Siemens, C. (2004). Connectivism: A learning theory for the digital age. Retrieved from Elearnspace: everything elearning: http://www.elearnspace.org/Articles/connectivism.htm
[19] Veselá, K. (2013). Connectivism in Foreign Language Education. Education and Languages in Europe / Bildung und Sprachen in Europa, 25 (17), 320-325.
[20] Gibson, J. J. (1986). The ecological approach to visual perception. Hillsdale, New Jersey: Lawrence Erlbaum.
[21] van Lier, L. (2002). From input to affordance: Social-interactive learning from an ecological perspective. In: Lantolf, J. (Ed.), Sociocultural theory and second language learning. Oxford: Oxford University Press.
[22] Hine, C. (2000). Virtual ethnography. London: Sage.
[23] Miller, D. & Slater, D. (2000). The Internet: An ethnographic approach. Oxford, UK: Berg.
[24] Evans, L. (2010). Authenticity online: Using webnography to address phenomenological concerns. In Mousoutzanis, A. &Riha, D. (Eds.). New media and the politics of online communities. Oxford : Inter-Disciplinary Press. pp. 11-17. Retrieved from http://www.inter-disciplinary.net/wp-content/uploads/2010/08/cyber5ever119082010.pdf
[25] Rutter, J. & Smith, G. W. H. (2005). Ethnographic presence in a nebulous setting. In C. Hine (Ed.), Virtual Methods: Issues in social research in the Internet (pp. 81–92). Oxford, UK: Berg.
[26] Schensul, J. J. (2012). Methodology, methods, and tools in qualitative research. In S.D. Lapan, M.T., Quartaroli & Riemer, F.J. (Eds.) Qualitative research: An introduction to methods and designs. San Francisco, CA: Jossey-Bass.
[27] Fetterman, D. M. (1998).Ethnography: Step by step. (2nd ed.). Thousand Oaks, CA: Sage.
[28] Kulavuz-Onal, D. (2015). Using netnography to explore the culture of online language teaching communities. CALICO Journal, 32 (3), 426-448.
[29] Shih, Y. C. & Yan, M. T. (2008).A Collaborative Virtual Environment for Situated Language Learning Using VEC3D.Journal of Educational Technology & Society, 11(1), 56-68.
[30] Charnet, C. & Veyrier, C. A. (2008). Virtual ethnography methodology for researching networked learning. Paper presented at the 6th International Conference on Networked Learning. Retrieved from http://www.networkedlearningconference.org.uk/past/nlc2008/abstracts/PDFs/Charnet_32-37.pdf
[31] Bosch, T. E, (2009). Using online social networking for teaching and learning: Facebook use at the University of Cape Town. Communicatio, 35(2), 185–200.
[32] Garrison, D. R., Anderson, T. & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. The Internet and Higher Education, 2 (2–3), 87-105.